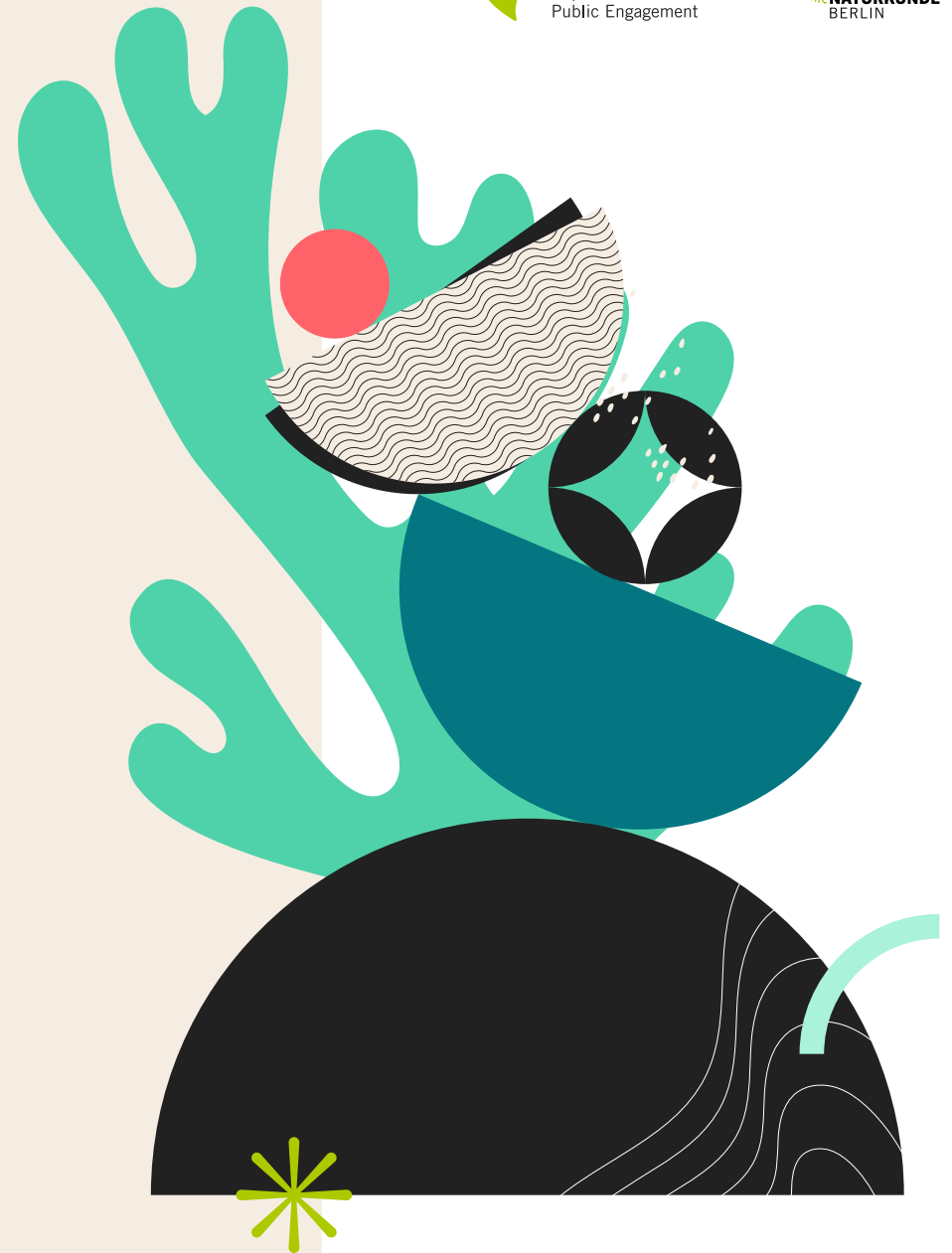


Research — Report

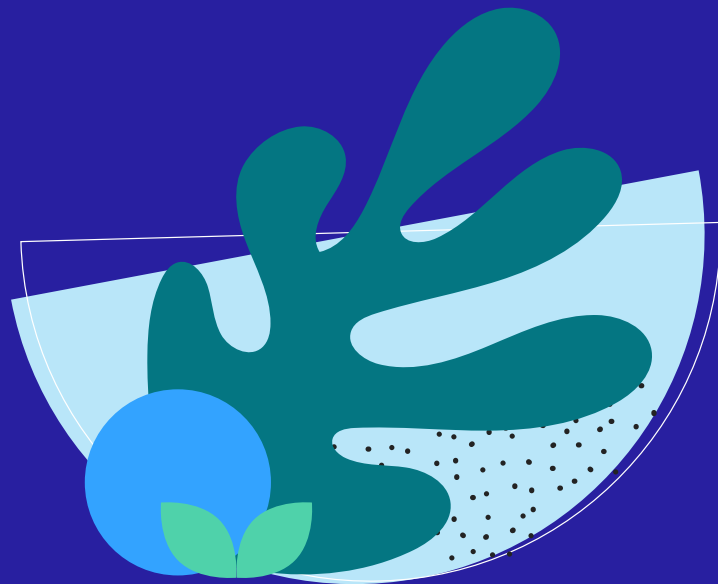
Exploring Impact Practice in Public Engagement at *the Museum für Naturkunde Berlin*



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Table of *Contents*



| | | |
|----|--|----|
| 01 | Introduction | 03 |
| 02 | Our understanding of Public Engagement & Impact | 04 |
| 03 | What is IETI | 06 |
| 04 | Impact of Public Engagement at MfN – Survey: Results | 08 |
| 05 | Impact of Public Engagement at MfN – Survey: Discussion | 17 |
| 06 | IETI Team | 20 |

01

Introduction

The main aim of this report is to present and discuss a subset of research data collected as part of the IETI¹ Work Package 1 (see page 6 for detailed information on the work packages), which focused on mapping impact practice at the Museum für Naturkunde Berlin (MfN) in relation to planning and assessing the impact of *Public Engagement* (PE). A survey was conducted (spring 2023) asking MfN PE staff about the impact of their PE initiatives, if and how they assess impact, while also understanding constraints and support needs regarding impact

management of their PE. We will therefore also discuss what we can learn from this research and propose diverse potential solutions/strategies for improving institutional impact planning and assessment at the MfN.

In order to provide some contextual background to the reader, we will start by discussing our understanding of *Public Engagement* and *Impact* (see pages 4 and 5) as well as introduce the IETI Project (see page 6).



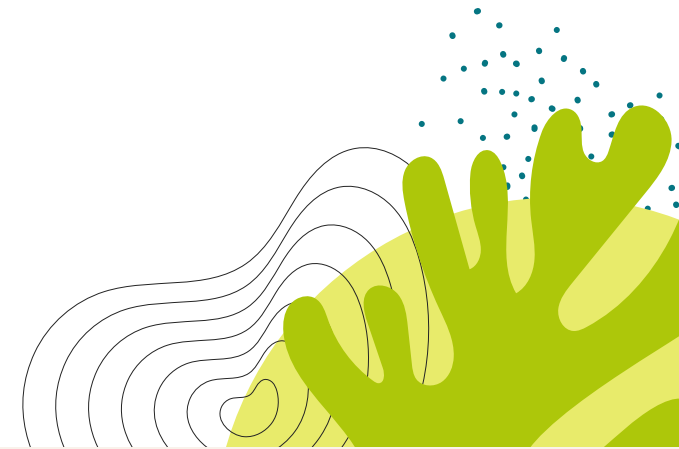
02



Our understanding of *Public Engagement & Impact*

Public Engagement

Public Engagement (PE) activities can actively and continuously involve anyone in our society, regardless of identity or background, particularly those with an interest in or connection to the topic. This aims to enrich the discourse around research topics with lived experience and valuable societal perspectives outside of academia. These contributors can be citizens, experts, NGOs, schools, children, associations, politicians or companies, to name just a few examples. Through PE, researchers, students, professors and representatives of research institutions enter into an equitable exchange with these communities. PE is an English language term that has become established internationally. By focusing on mutual benefit and exchange supporting society-oriented research, PE clearly differs from other forms of science communication. PE describes a field in the German research landscape, the practice of exchange between researchers and the public, and stands for the attitude that research and society benefit from mutual interaction².



2 | From: *Public Engagement Principles*, 2023. Joint publication between: Berlin School of Public Engagement and Open Science – Public Engagement & Impact Unit of the Museum für Naturkunde Berlin, Cyber Valley, and the German community.

Impact

Impact can be defined as the broader or longer-term changes or effects resulting from a project's activities. These effects and changes can have different impact spheres (e.g. societal, social, environmental, political, health, economic, cultural)³.

Managing the impact of a PE project requires consideration of all the processes and methods associated with impact planning and assessment. Impact planning can be generally defined as the strategic process of designing, developing and implementing actions to ensure that research or PE projects achieve their intended effects on society, the environment, or specific impact spheres. It involves setting clear and measurable outcomes and impacts, engaging relevant stakeholders, and continuously assessing and adapting strategies to maximize outcomes and impacts⁴⁻⁷. Impact assessment can be generally defined as the process of evaluating the significance of both positive and negative effects and changes resulting from a PE project. It involves assessing the potential outcomes or impacts on various spheres, including social, environmental, and health aspects, and is used to adapt strategies and guide decision-making⁸⁻¹⁰.

Certain terms such as inputs, outputs, outcomes and impacts are commonly used in impact planning and assessment frameworks and methodologies (e.g. logic model¹¹):

- ◆ Inputs are all the resources one puts into a PE project to enable outputs delivery.
- ◆ Outputs are tangible and intangible products and services delivered as part of PE project activities.
- ◆ Outcomes are the changes, effects or other benefits that occur as a result of one's PE project activities.
- ◆ Impacts are broader or longer-term changes or effects resulting from a PE project's activities. These effects and changes can have different impact spheres (e.g. societal, social, environmental, political, health, economic, cultural).

3 | From: *Impact: Definitions, How to manage it, A case study*, 2024. DOI: <https://doi.org/10.7479/m82c-m683>. Joint publication between: IETI – Impact-oriented Public Engagement & Berlin School of Public Engagement & Open Science.

4 | Northway, R., Oloidi, E., Phillips, P., & Rees, S. (2023). *Planning for research impact.. Nurse researcher*. <https://doi.org/10.7748/nr.2023.e1888>.

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9 | Streatfield, D., & Markless, S. (2009). *What is impact assessment and why is it important*. *Performance Measurement and Metrics*, 10, 134-141. <https://doi.org/10.1108/14678040911005473>.

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11 | From: *Impact: Definitions, How to manage it, A case study*, 2024. DOI: <https://doi.org/10.7479/m82c-m683>. Joint publication between: IETI – Impact-oriented Public Engagement & Berlin School of Public Engagement & Open Science. 05



03

What is *IETI*

The effective and sustainable integration of societal and environmental impact of research into the agendas of research institutions remains limited. IETI aims to fill this gap, using the MfN as a case study. Therefore, we focus on three main objectives:

01 Exploring how MfN understands, practices, and evaluates its impact.

02 Integrating PE into MfN research processes, careers, and institutional strategies.

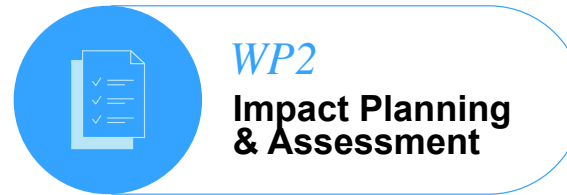
03 Facilitating participatory and co-creative processes between academic and other societal actors.



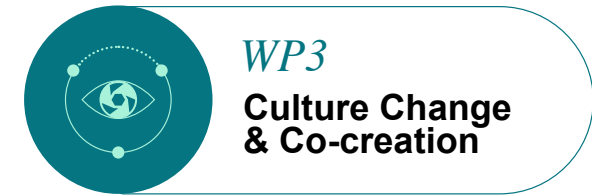
To this end, IETI focuses on three main work packages:



- ◆ Mapping relevant actors and PE initiatives at MfN.
- ◆ Mapping initial understandings of impact practice related to planning and assessing the impact of Public Engagement at MfN.
- ◆ Exploring understandings of PE-related concepts and the interrelationships between them.



- ◆ Explore how MfN understands, practices, and evaluates its institutional and social impact.
- ◆ Develop tools for institutional self-evaluation and to promote reflexivity within institutions.



- ◆ Enhance MfN's research and PE impact by investigating: 1) motivations, barriers, and support needs related to PE; 2) research impact understandings; 3) specificities of the interaction between researchers and other societal actors (support for the interaction to take place, rewards and benefits resulting from the interaction); 4) ideas on how to overcome time barriers; 5) ideas on incentives that reward and recognise researchers involvement in PE.
- ◆ Further establishing the Impact Hub, a learning, mentoring and action-oriented PE programme to help MfN staff develop impact-driven PE projects.

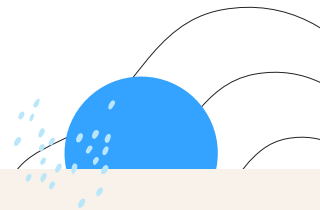
04



Impact of Public Engagement at MfN – Survey: *Results*

In order to map impact practice at the MfN in relation to assessing the impact of PE, a survey was conducted in spring 2023. The main goal was to ask MfN PE staff about the impact of their PE initiatives, if and how they assess impact, while also understanding constraints and support needs regarding impact management of their PE. The questions that were asked are the following:

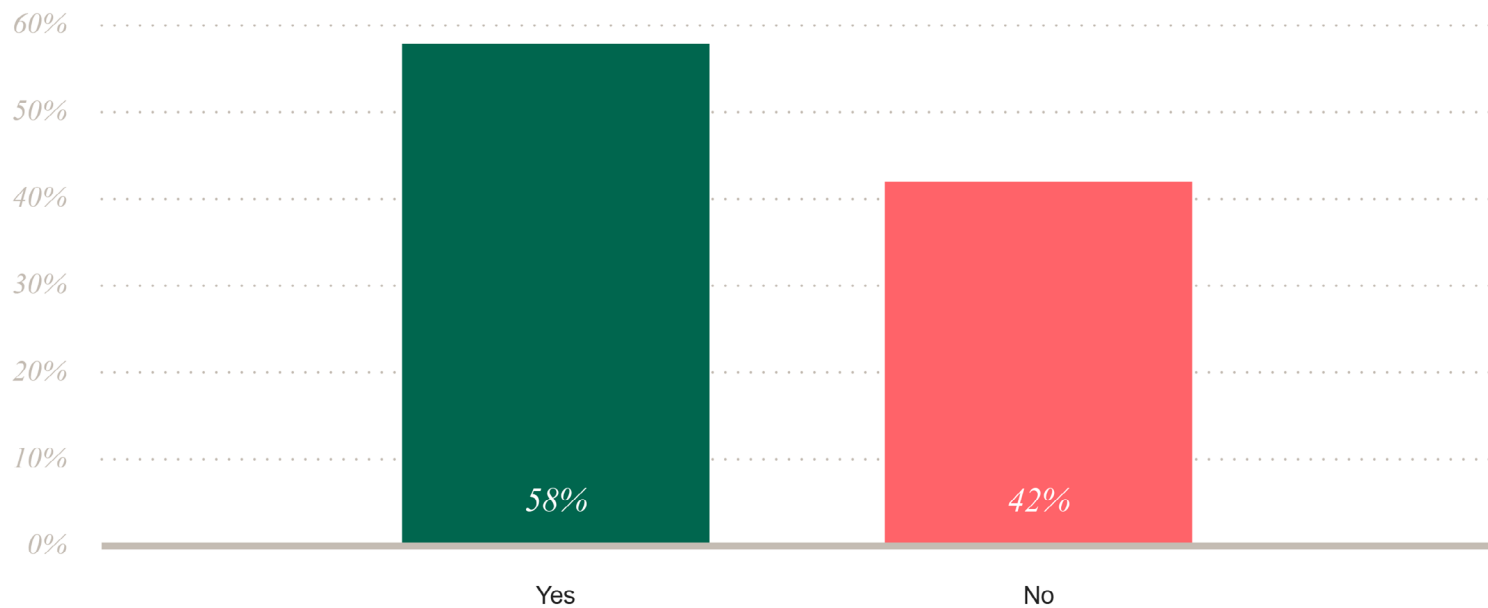
- ◆ Are you measuring/assessing the impact of your Public Engagement initiative(s)?
- ◆ Please briefly describe the impact of your Public Engagement initiative(s).
- ◆ Please indicate the methods/tools you have been using to measure/assess the impact of your Public Engagement initiative(s).
- ◆ Do you have published outputs (e.g. online articles, reports, scientific publications) that show the impact of your Public Engagement initiative(s)? Do you mind sharing some of these outputs with us?
- ◆ What are your biggest challenges/barriers regarding planning and measuring/assessing the impact of your Public Engagement initiative(s)?



The survey was completed by 46.15%⁷ of the MfN PE staff. Of these respondents, 58% indicated that they measure/assess the impact of their Public Engagement initiatives (Figure 1). When asked to describe the impact of their initiatives, they identified various types of impact goals, including academic, capacity building, community, economic/technological/innovation, engagement, knowledge, policy, general or other, and those related to target groups and collaborators (Table 1).

Figure 1. Are you measuring/assessing the impact of your Public Engagement initiative(s)?

Are you measuring/assessing *the impact* of your Public Engagement initiative(s)?



12 | The survey was completed by 42 MfN PE staff members (including researchers, coordinators, officers, managers, and directors), which represents approximately 46.15% of the MfN PE staff. Since the majority of MfN employees conducting PE research and/or practice work are based in Research Area 3 (RA3) – Society and Nature, we calculated this percentage based on the total number of MfN employees in RA3 in spring 2023.

Table 1. Describe the impact of your Public Engagement initiative(s).

Describe the impact of your *Public Engagement initiative(s)*

| Impact Category | Example |
|---|--|
| Academic | Scientific impact through PE-related activities. |
| | Publishing results and advancing understanding of issues. |
| Capacity building | Knowledge exchange and transdisciplinary learning processes. |
| | Impact training – building capacity and confidence and creating new pedagogical formats and tools. Scientific & institutional embedding of PE (including impact training, self-assessment tools and other capacity building activities). |
| Community | Build confidence and create a supportive community of practice to approach shared challenges from new perspectives. |
| Economic, technological, innovation | Economic & technological embedding (assessing the outcomes of programmes or projects with regard to their potential economic impact or contributions to technological advancements, developing metrics to collect evidence for this type of impact). |
| | Projects that are concerned with innovation and collaboration between business and urban society may measure their impact through the central evaluation. |



| | |
|---------------------------------|---|
| Engagement | Increase motivation to engage in nature and conservation. |
| | Empower citizens. |
| General or other | Effect(s)/change(s) generated by public engagement initiatives on target audiences or other stakeholders involved, institutions, wider society, environment, etc. |
| | Increased number of visitors in recent years. |
| Knowledge | Improve understanding of science, technology and nature. |
| | Improve scientific literacy. |
| Policy | Policy impact leading to funding. |
| | Science-policy-society exchange. |
| | International science policy impact as in political and scientific debates. |
| | Societal & political embedding (comparing effects of co-designed activities with more traditional ways of science communication, developing a set of metrics to create evidence for changes on this level). |
| | Visibility of palaeontological research projects and related science communication efforts, as well as political support (policy makers recognising the value of these projects and securing land to protect the project site). |
| Target groups and collaborators | Network with stakeholder groups. |
| | Increasing exchange between societal groups and measuring individual outcomes (attitudes, values, beliefs, behaviours). |



Participants were also asked to specify the methods and tools they use to measure/assess the impact of their PE initiatives, as summarised in Figure 2. Additionally, when questioned about publishing outputs that demonstrate the impact of their PE initiatives, 50% of respondents confirmed that they had done so (Figure 3). However, when asked to provide examples of these outputs, only three participants shared links, which included two scientific publications, one blog page, and one Instagram channel. Notably, only the scientific publications provided evidence of the impact of the respective PE initiatives.

Figure 2. Methods and tools used to measure/assess the impact of MfN PE initiatives.

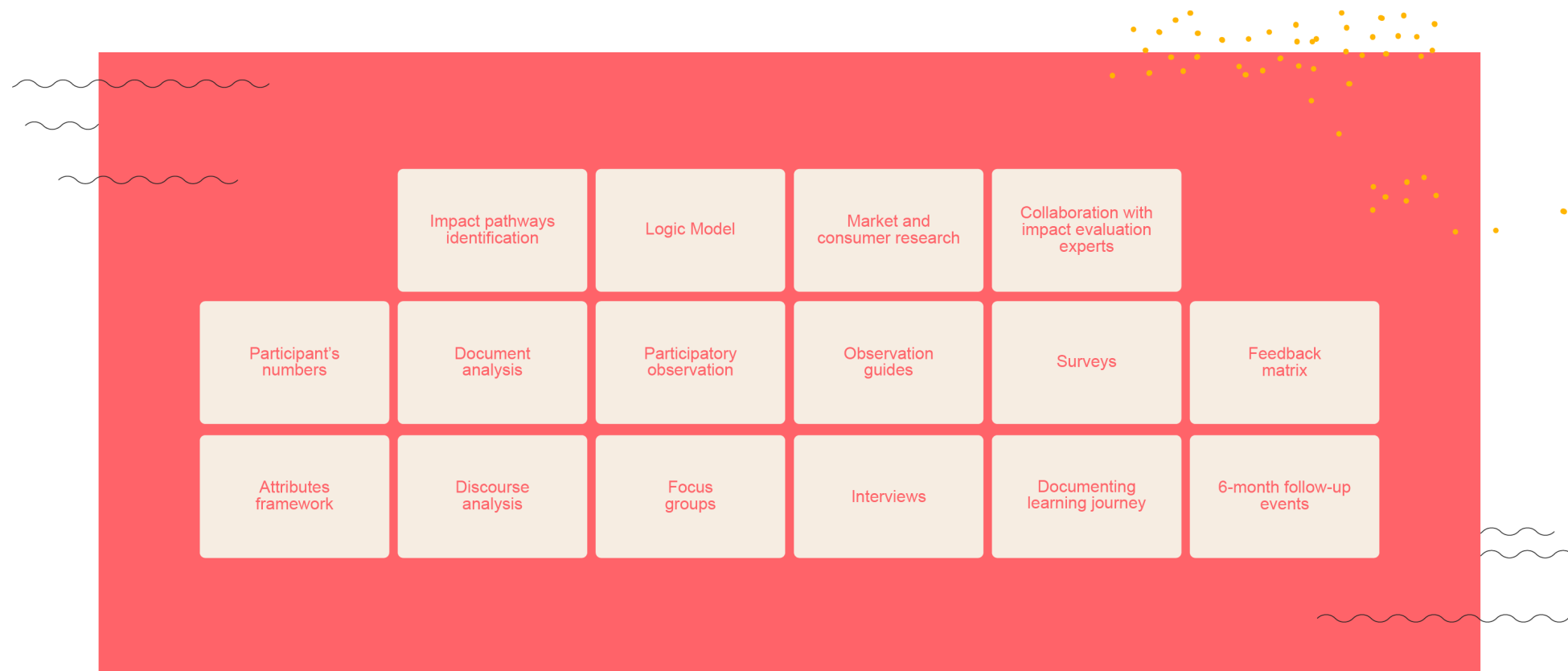
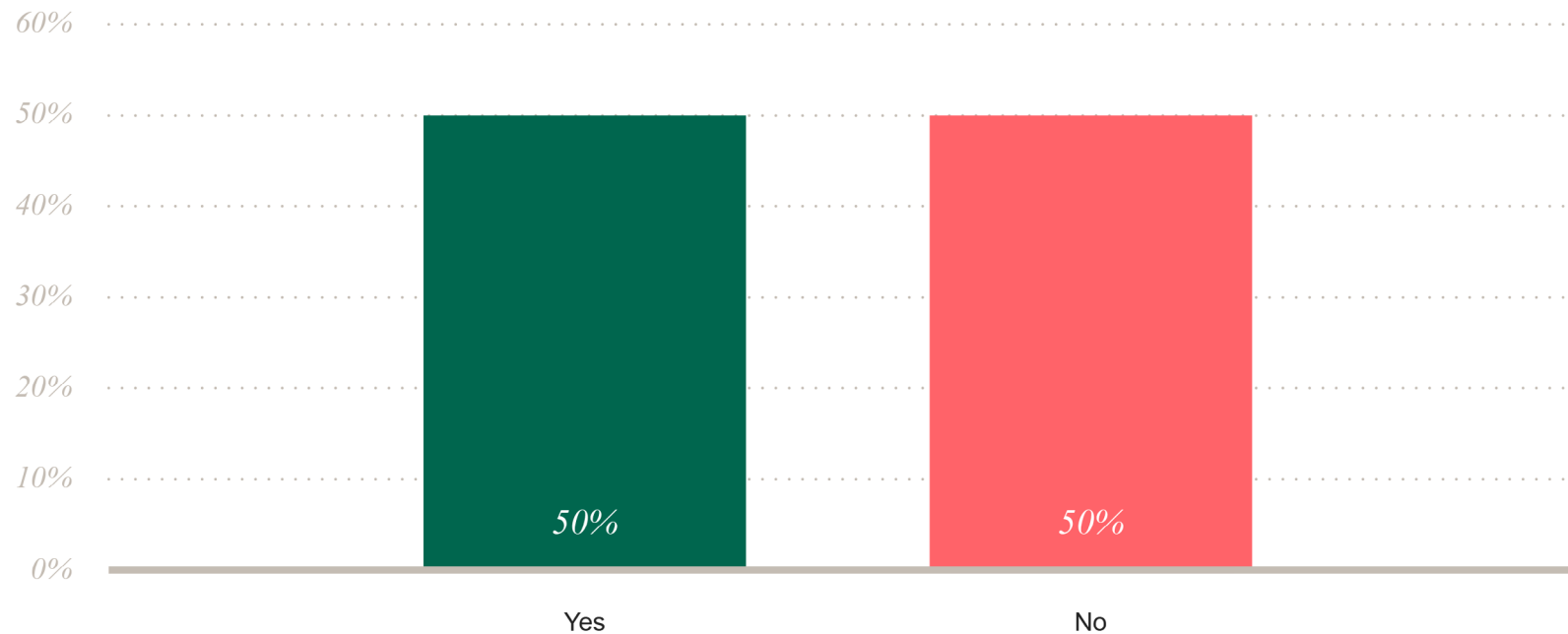


Figure 3. Do you have published outputs (e.g. online articles, reports, scientific publications) that show the impact of your Public Engagement initiative(s)?

Do you have published outputs (e.g. online articles, reports, scientific publications) that show the impact of your *Public Engagement initiative(s)*?



Finally, we asked survey participants about the biggest challenges/barriers they face in planning and assessing the impact of their public engagement initiatives. The responses revealed several challenges and barriers (Table 2), which we categorised for clearer visualisation: lack of time (16 mentions); lack of knowledge, skills, methodologies, and standards (15 mentions); lack of resources (7 mentions); lack of institutional embedding and support (7 mentions); communication challenges (4 mentions); professional roles and career development (3 mentions); funding (3 mentions); defined, measurable, and monitored impacts or metrics (3 mentions); impact assessment not being engaging or enjoyable (2 mentions); project specificity (1 mention); impact capital (1 mention); and other challenges. Each category includes the number of mentions, highlighting its representation within the overall set of challenges.

Table 2. Challenges/barriers regarding planning and measuring/assessing the impact of Public engagement initiative(s).

Challenges/barriers regarding planning and measuring/ assessing the impact of *Public engagement initiative(s)*

| Challenges/barriers category | Examples of challenges/barriers mentioned |
|------------------------------|--|
| Lack of time (16 mentions) | Lack of time. |
| | Time investment in preparation. |
| | Impact assessment should be conducted over a long period of time in order for it to be meaningful. This is not possible within the scope of a limited project. |
| | The impact will be visible after the project is finished – how can we measure it? |
| | Time lag between an activity and its impact (e.g. impact assessment would need to continue after the project has ended). |
| | Set up a group that will be regularly observed/interviewed over time. |
| | Sustainable project lengths. |
| | More time for producing meaningful publications instead of a huge amount of publications. |

The table presents an overview of the challenges/barriers related to planning and measuring the impact of public engagement initiatives, as identified by survey participants. These challenges are categorised for clearer visualisation. Each category includes the number of mentions, illustrating the representation of each challenges/barriers category within the overall set of challenges.

Lack of knowledge, skills, methodologies and standards (15 mentions)

Not knowing what to evaluate and what to do with that afterwards.

Lack of knowledge about methodologies and what to measure. Number of participants and the duration of their engagement is not equivalent to impact.

Lack of overview of potential tools.

Lack of expertise.

Toolkit on how to measure impact.

No evaluation tools at hand to measure the impact.

Advice/guidelines on what to measure, how and why.

Training courses.

Self-assessment tools that suggest SMART evaluation criteria and offer advice on how to collect relevant data.

An overview of the tools/techniques/methods that are at the forefront of impact measurement and cut across disciplinary silos.

Some guidance on how to embed impact in project design, so that partners can be involved in the process of programme design rather than being forced into it or having to add it at the end.

Inspirational case studies to show ways to report types of impact to different stakeholders and for different purposes within the lifecycle of a project (e.g. for the funder, the advisory board, potential partner institutes, local communities, etc.).

Lack of resources (7 mentions)

Low amount of human resources available (too many tasks, 2 people working on huge goals).

Lack of material resources.

Lack of funding.

Lack of human resources.

Lack of institutional embedding and support (7 mentions)

Knowledge and methods often aren't embedded in institutions beyond the life cycle of a project.

Results of projects like IETI that offer tailored support to our activities.

Support in reflecting and publishing impact.

More personnel dedicated to PE.

Some sort of office or officer who can help with: designing impact evaluations from the beginning of a project; feedback; finding additional funding opportunities that might cover impact research.

An institutional standard to show the value of projects and their impact in a cohesive narrative.

Enough motivation and resources from the MfN (engagement of the scientists and other MfN staff to get connected with external non-scientific stakeholder groups).

Funding or positions at the MfN for PE-related work.

| | |
|--|--|
| Communication challenges (4 mentions) | Differences in expectations and "languages" of different stakeholder groups. |
| | Lack of institutional support for communication and networking. |
| | A common definition with other stakeholders or partners would help to speak the same language. |
| | A consensus on the different impact categories and how these might manifest. |
| Professional roles and career development (3 mentions) | Having effective ways to communicate to different stakeholder groups, especially when bringing them together. Using a language where everyone feels included. |
| | As a project coordinator one doesn't deal much with impact assessment on the content side, so other colleagues would need to assess the impact. |
| | If it's a choice between producing traditional academic publications or PE, for the sake of career development one might choose to spend time on a peer-reviewed, impact-factored journal publication over impact assessment, because the latter won't help with finding a job when the contract ends. |
| Defined, measurable and monitored impacts or metrics (3 mentions) | Clear role distribution. |
| | Lack of clearly defined and measurable criteria/metrics. |
| | Lack of data. |
| Funding (3 mentions) | There is no defined measurable goal. |
| | Poorly planned project objectives in the application. |
| | Unclear funder requirements. |
| | Getting finance for impact assessment. |
| Impact assessment is not fun/engaging (2 mentions) | Financing of long-term studies. |
| | More financial support especially for quality management. |
| Project specificity (1 mention) | Evaluations are not easy to integrate into engaging activities. |
| | Need for tips on how to make evaluation fun and build it into the event, rather than sending something out afterwards. |
| Impact capital (1 mention) | Partnership projects have varying levels of time, resource, expertise and perspective, and there is a lack of institutional or sector "gold standard", making impact measurement very project specific, subjective and fragmented across the field. |
| | Impact is a very strong word for the limited access one sometimes has to an audience. It is very difficult to say that it was our activity that made a difference. |
| Other | Status, gender roles, power structures. |
| | Less pressure or expectation on what PE can do. |
| | Good facilitation and moderation. |
| | Surveys to be conducted with children and adolescents are associated with high bureaucratic hurdles. |

05



Impact of Public Engagement at MfN – Survey: *Discussion*

The survey results indicate that the majority (58%; Figure 1) of MfN PE staff assess the impact of their PE initiatives. Public Engagement initiatives have diverse impacts (Table 1) across scientific, economic, societal, and policy dimensions. They advance scientific understanding, knowledge exchange, and transdisciplinary learning while fostering capacity building through training. Institutional and economic embedding of PE is assessed via evaluation frameworks and metrics, with projects examining innovation, collaboration, and economic contributions. These initiatives empower societal actors, enhance scientific literacy, and increase target group motivation for nature conservation. Societal and political impacts include fostering stakeholder networks, influencing policy and funding, and increasing visibility for research. Finally, measuring individual and community-level changes helps assess long-term engagement effects.

Interestingly, when asked to describe the impact of their initiatives (Table 1), participants did not focus on measurable changes or effects but instead referred to their initiatives impact goals. This suggests two possible reasons: either a lack of impact assessment data to substantiate the changes resulting from their projects or a general difficulty in reflecting on and communicating these changes. This challenge may stem from, for example, a lack of impact-oriented processes, structures, and methodologies within the institution, as well as a lack of training and tools for impact assessment and reporting. This aligns with responses to a follow-up question on the methods and tools used for impact assessment. While participants listed several tools for measuring impact (Figure 2), only three methodologies/processes (logic model, impact pathways identification, market and consumer research) were mentioned for impact planning – suggesting that PE initiatives at the museum are not planned with impact in mind and, as a result, might struggle to create sustainable, long-term change.



When asked about publishing outputs that demonstrate the impact of their PE initiatives, 50% of respondents confirmed they had done so (Figure 3). However, when asked to provide specific project outputs as evidence, only two participants shared two scientific publications. While other outputs may exist, the limited number shared suggests that documenting impact is not a widespread practice, and that project managers/researchers/coordinators might not actively be producing outputs that reflect on initiatives' impact.

Key challenges in planning and assessing PE initiatives impact include time constraints, limited knowledge and tools, resource shortages, institutional barriers and measurement difficulties, among others. Impact assessment requires long-term observation, yet project timelines are often too short to measure effects beyond the project's duration. Many lack expertise in evaluation methods, struggle to define relevant impact goals and metrics, and lack access to appropriate tools – highlighting the need for training, toolkits, and self-assessment frameworks. Researchers face competing priorities and tend to focus on traditional academic outputs over impact assessment. Additionally, limited human and financial resources make sustained evaluation difficult. Institutional support, dedicated PE personnel, and funding for impact measurement are crucial. The lack of embedded PE knowledge, standardised methodologies, and clear role distribution within the institution further complicates assessment. Differing stakeholder expectations and communication barriers add to these challenges. Lastly, measurement is often poorly integrated into project design, with unclear, non-measurable goals and funding requirements, leading to fragmented approaches.

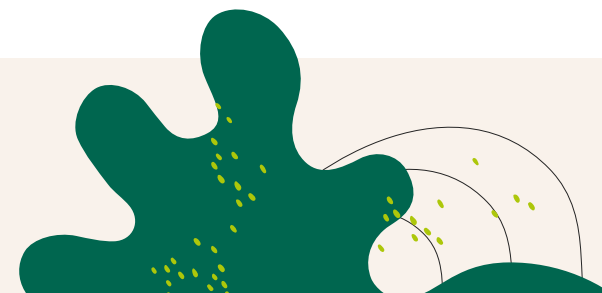
In order to address the challenges/barriers mentioned above, below we propose diverse potential solutions/strategies for improving institutional impact planning and assessment. We highlight the need for structured policies and processes, sustainable funding, and participatory approaches to planning and assessing impact. We also emphasize training, knowledge exchange, and culture change to integrate PE into institutional practices.

Funding and Sustainability

- ◆ Advocate for sustainable project funding that includes impact planning and assessment as part of project proposals and post-project impact assessment.
- ◆ Advocate for clearer funder guidelines on impact expectations.
- ◆ Explore funding opportunities to support long-term impact studies.

Public Engagement and Culture Change

- ◆ Encourage culture change within research institutions to value and integrate PE.
- ◆ Create PE programs to help researchers reflect on the impact of their research and use PE to amplify it.



Institutional Structures and Policies

- ◆ Develop institutional policies that standardise impact planning and assessment processes.
- ◆ Create institutional policies and guidelines that embed impact practice as an integral part of research and PE projects.
- ◆ Establish institutional structures, processes, and methodologies to improve impact practices.
- ◆ Advocate for institutional support through dedicated MfN impact units and staff.
- ◆ Recognise impact planning and assessment as a valued academic output.
- ◆ Include PE and its impact in institutional performance reviews.
- ◆ Rethink museum standards and practices for reporting on research, PE, and institutional impact in collaboration with relevant museum units.

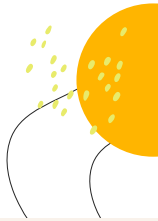
Training, Knowledge Exchange, and Best Practices

- ◆ Develop and deliver impact planning and assessment training for museum staff.
- ◆ Showcase best practices in impact planning and assessment.
- ◆ Provide best-practice case studies to highlight successful impact reporting.
- ◆ Develop internal and external peer-support networks for knowledge exchange on impact planning and assessment.
- ◆ Facilitate regular discussions on power structures and inclusivity in impact planning and assessment.

Impact Planning and Assessment

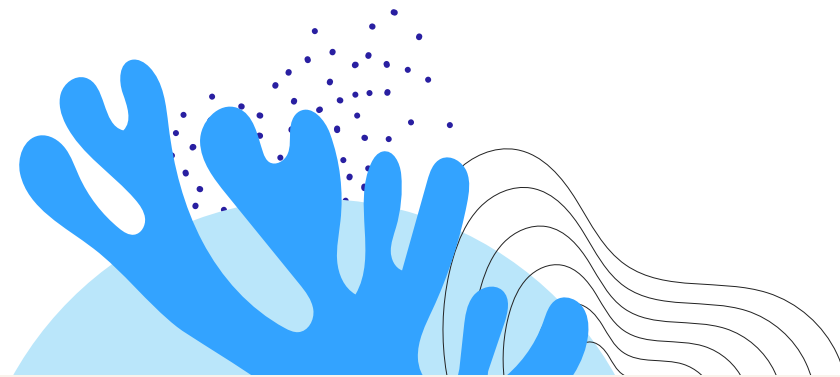
- ◆ Build impact planning and assessment into project objectives from the application stage.
- ◆ Establish common impact categories and definitions.
- ◆ Use participatory approaches to co-design impact planning and measurement with project partners and stakeholders.
- ◆ Embed evaluation within activities through interactive methods rather than post-event surveys.
- ◆ Develop engaging, low-bureaucracy methods for evaluating young audiences.
- ◆ Develop rapid assessment methods that provide interim insights before long-term impact emerges.
- ◆ Collect and develop an impact methodologies toolkit, including step-by-step guidelines on impact planning and assessment.

In summary, while 58% of MfN PE staff claim to assess the impact of their PE initiatives, all survey respondents describe the impact of their projects in terms of impact objectives rather than measurable effects and changes, indicating a lack of impact assessment data or difficulties in reflection and communication. Key challenges include time constraints, limited expertise and tools, institutional barriers and lack of resources. Many projects are not designed with impact in mind, resulting in fragmented evaluation efforts. To address these issues, structured policies, sustainable funding, participatory approaches, training and culture change are needed to embed impact planning and assessment in the institutional practices of research organisations and to enhance the outcomes of research and Public Engagement.



06

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Consent and ethics

Data was collected and processed in accordance with the Museum für Naturkunde Berlin's data protection guidelines and privacy policy. Survey participants gave consent for their data to be processed and published in IETI project outputs.

German laws related to research ethics cover the fields of animal protection, medical research, biology and labour protection (TierSchG, AMG, MPG, StZG, IfSG, ArbSchG, BioStoffV) and thus do not apply to this research (see here). Based on standards in psychology for research ethics, (see here), an ethics board approval is not needed in case (i) anonymity is secured, (ii) there is no deception, (iii) the rights of participants are preserved (e.g., voluntary participation), and (iv) the participation in the study does not have any negative effects on the individual) (see also here). The research presented in this report met all these criteria, and therefore, no ethics commission was involved.

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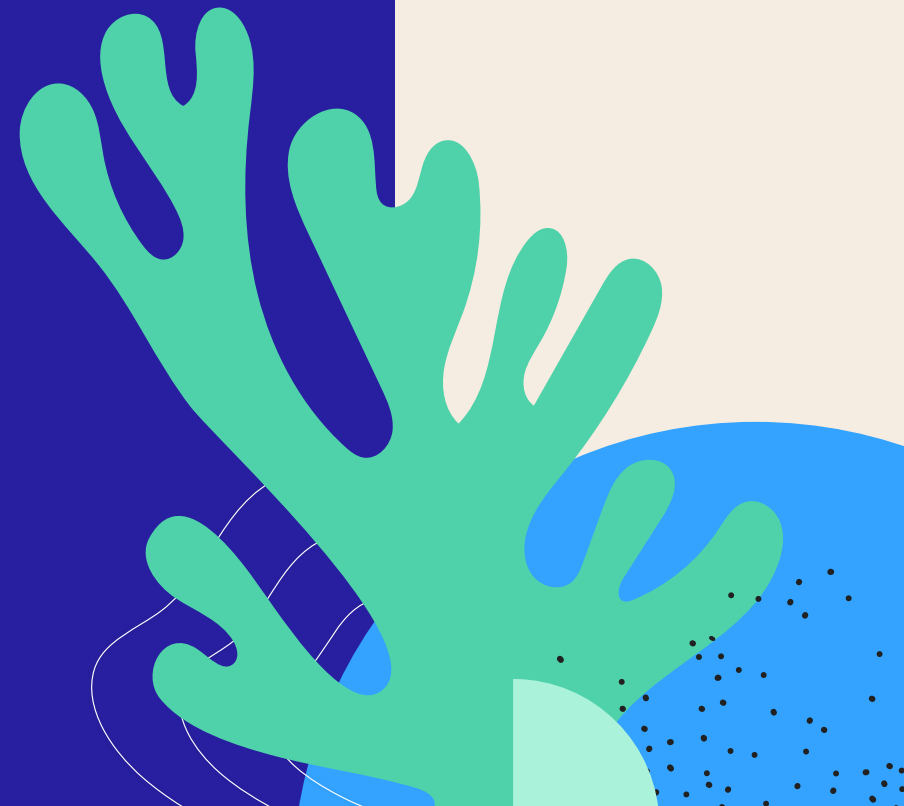


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