EPIBOOST

Good Practices

Good practices guide for widening projects' management

Authors

Santiago, Ana - CESAM, University of Aveiro, Portugal[1]; **Rosa, Inês C.** - CESAM, University of Aveiro, Portugal[1]; **Agapiou, Athos** - Cyprus University of Technology, Cyprus[2]; **Borges, João** - CICECO, Universidade de Aveiro, Portugal[3]; **Cavic, Milena** - Department of Experimental Oncology, Institute for Oncology and Radiology of Serbia, Serbia[4]; **Demirel Kars, Meltem** - Department of Biomedical Engineering, Necmettin Erbakan University, Turkiye[5]; **Djuric, Ana** - Department of Experimental Oncology, Institute for Oncology and Radiology of Serbia, Serbia[4]; **Dorjen, Erkan** - National Magnetic Resonance Research Center, Bilkent University, Turkiye[6]; **Horta, Pedro** - SOL4R (Funding FCT UID 06478 2025/2029) & INIESC, University of Évora, Portugal[7,8]; **Kıran, Burcu** - TUBITAK Marmara Research Center, Turkiye[9]; **Livreiro, Dominique** - Serviços de Ciência e Cooperação, Universidade de Évora, Portugal[7,8]; **Lourenço, Ana** - CICECO, University of Aveiro, Portugal[3]; **Lyžbická, Kristýna** - J. Heyrovský Institute of Physical Chemistry, Czech Academy of Sciences, Czechia[10]; **Mavropoulou, Ioanna** - National Observatory of Athens, Greece[11]; **Melão, Alice** - BioISI, Faculty of Sciences, University of Lisbon, Portugal[12]; **Monteiro, Alexandra** - CESAM, University of Aveiro, Portugal[13]; **Murat, Selda** - TUBITAK Marmara Research Center, Turkiye[8]; **Pajus, Merle** - School of Educational Sciences, Tallinn University, Estonia[14]; **Pechancová, Viera** - Tomas Bata University in Zlín, Czechia[15]; **Penderlico, Joana** - SOL4R (Funding FCT UID 06478 2025/2029), University of Évora, Portugal[7]; **Rocha, Jaqueline** - Department of Environment and Planning, University of Aveiro, Portugal[13]; **Sal, Luísa** - University of Aveiro, Portugal[1]; **Pereira, Joana Luísa** - CESAM and Department of Biology, University of Aveiro, Portugal[1];

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Chapter 1
Introduction

Chapter 1

1. Introduction

Twinning projects have a specific configuration and purpose that sets them apart from standard research projects or projects close to the market. Their primary objectives are focused on enhancing the capacity of the Widening Coordinator and the consortium as a whole, shifting the focus from purely research and innovation activities to a broader scope of institutional development; while research collaborations remain integral to the process, they serve as a means to achieve the overarching goal of capacity building rather than being the sole focus of the project. Such a deviated focus, when compared to the most well-known Horizon Europe Actions (Research and Innovation Actions (RIA) or Innovation Actions (IA)), brings challenges to consortia. These challenges often start with the required shift in the usual mindset to define objectives and activities, outputs leading to meaningful outcomes, and impacts within an uncommon framework reflecting the Twinning ecosystem; still, outputs require quality thresholds to enable long-term impact (Zheng & Zwikael, 2025) as in any other project. Consistently, the management and corresponding reporting of Twinning projects is no less challenging.

Moreover, Twinning (as other Widening Actions) reflects the established European policy objective of reducing disparities in research and innovation performance across Member States and fostering stronger integration within the European Research Area. Widening coordinators may therefore operate in environments where experience in managing large-scale European collaborative projects is still in its early stages. This context can introduce additional managerial and administrative challenges, making structured governance, clear internal coordination, and strategic reporting particularly important for the success of the project implementation.

The above context motivated the elaboration of the present guide. The described challenges were identified at the pre-awarding stage of the Horizon Europe Twinning call HORIZON-WIDERA-2021-ACCESS-03 (HORIZON-CSA HORIZON Coordination and Support Actions), during the preparation of the proposal for the project EPIBOOST – Boosting Excellence in Environmental Epigenetics (GA ID 101078991; DOI 10.3030/101078991). Facing those difficulties, the project planned a clustering activity with sister projects (by definition, EU projects that received funding under the same call,

which inherently aim to tackle the same problem and contribute to the call's expected outcomes). A Focus Group was then created to address the challenges of Twinning projects' management towards the collaborative elaboration of the present Good Practices Guide for the efficient management of these projects. In the sections below, an overview of the process implemented up to the delivery of the present guide is provided, disclosing the rationales and methods involved in the collection and interpretation of the information enclosed in the remaining chapters.

It is not our aim to provide exhaustive guidance for Twinning consortia applying or already implementing Twinning projects, which would necessarily be redundant with the comprehensive documentation available by the EU, Horizon Europe, Grant Authorities, Executive Agencies, and other related official sources. It rather reflects on the most relevant practical challenges, as encountered by the established Focus Group, while implementing Twinning projects, grouped in chapters dedicated to terminology (Chapter 2), communication (Chapter 3), dissemination and exploitation (Chapter 4), capacitation activities (Chapter 5), and overall project management, including financial aspects and reporting (Chapter 6).

1.1. Constitution of the Focus Group on Twinning projects management

The first action for the constitution of the Focus Group comprised a first survey (email) to all sister projects (contacts made available by the Research Executive Agency following the coordinators day) for collecting their expressions of interest in integrating the Focus Group collaboratively working towards the elaboration of the Good Practices Guide. This first contact was made by the end of November 2022, at the beginning or shortly before the beginning of most sister projects. The email contextualised the guide as a co-created open deliverable due at the end of the EPIBOOST project and invited sister project coordinators to integrate the Focus Group. The estimated effort associated with participation in the Focus Group was clarified in this first contact: participation in regular online meetings (up to every six months) for discussion and contribution to the collection of information, elaboration, and revision of the guide, also via online platforms.
Out of the 106 projects contacted, 56 answered this request for expression of interest. The countries that were more responsive (with more than one project awarded) were Portugal, Turkey, Tunisia, Lithuania, Estonia and Cyprus **(Figure 1)**, and projects awarded in all evaluation panels were represented in the response, which was supportive of unbiased views that could arise from disciplinary specificities.

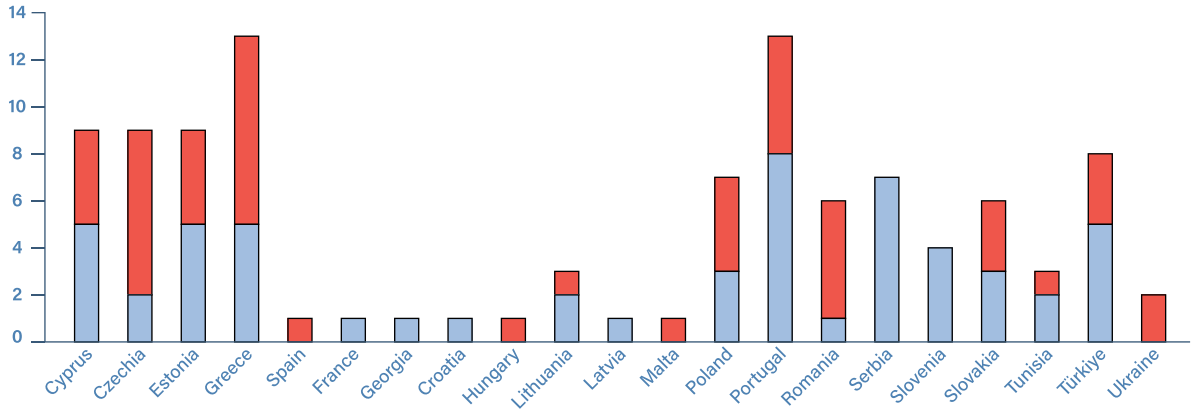


Figure 1. Number of Twinning projects contacted (full breadth of the bars) and replying (blue) to the first contact expressing their potential interest in participating in the Focus Group.

Following the first contact, the responding sister projects were surveyed again in February 2023 (reply due in one month) with three main objectives: strengthening the connection and boost networking among sister Twinning projects; triggering the building of the Focus Group to discuss the implementation phase of Twinning projects; and collect preliminary information to efficiently plan first-stage work for the collaborative elaboration of the Good Practices Guide on the management of Twinning projects. Under these objectives, the survey collected information on (i) priority contacts of the sister projects for the Focus Group work and their dissemination channels; (ii) the level of involvement each sister project intended to have in the Focus Group; and (iii) views on the structure of the Good Practices Guide. Concerning the level of involvement, sister projects were given four options, with the related sequential context upon selection: (ii.1) participate by replying to reasonable inquiries for sharing our experience regarding the management of Twinning projects, understanding that this implies an appropriate acknowledgement of the project in the guide for collaborating as an information source; (ii.2) attend the Focus Group workshops to follow the progress of the elaboration of the guide, understanding that this implies that the project will be mentioned as an attendant of the workshops in the related report(s) that will be made by the EPIBOOST project to the funding agency; (ii.3) co-elaborate and hence co-author the guide that will be made publicly available as a deliverable of the EPIBOOST project, understanding that we are eligible to integrate the authorship of the guide and hence we may have to draft sections or sub-sections of this guide upon previous agreement, using an online collaborative platform (Microsoft® SharePoint), and respond timely to review requests through time; and (ii.4) no interest in participating in the Focus Group, understanding that no further contact would be received in this regard. Projects selecting option ii.1 were proposed dates for the first online Focus Group meeting and asked for preference selection. Those selecting option ii.3 were invited to comment on a proposed structure for the guide, the sections they would prefer to contribute more intensively, and difficulties already felt in the management of the Twinning project.

Thirty-eight projects replied to this survey, 34% (13 projects) agreed to co-elaborate 37% indicating their willingness to attend Focus Group workshops, and 10% expressed interest in participating by replying to reasonable inquiries. Comments were made to the proposed structure for the guide, which were considered in further stages. Beyond the response to the survey, five additional sister projects joined the Focus Group, expressing interest in co-creating the guide. While EPIBOOST assumed primary involvement in the elaboration of all chapters of the guide, these 18 sister projects were distributed according to their surveyed preferences to working groups addressing more specifically a given section of the guide (not necessarily corresponding to the current chapters): (i) communication; (ii) dissemination and exploitation; (iii) capacitation activities; (iv) financial management; and (v) continuous reporting. A series of online meetings joining the sister projects assigned to each working group were held through 2023 to discuss the refined structure of the different sections of the guide, to immediately identify critical aspects needing clarification and discuss the sources of supportive information to be used therein.

1.2. Collection of information to support the elaboration in different guide chapters

To render the guide useful beyond the vast range of guidelines already available from official sources within Horizon Europe (often cited throughout the guide, along with other authoritative literature sources to support statements and recommendations), the Focus Group agreed that the experience in practice should be surveyed. This survey was co-created by the sister projects of the Focus Group and contained three parts covering all sections of the guide: dissemination, communication, and exploitation; capacitation activities; and implementation aspects, including financial management. The explicit aim of the survey was to collect data on current management practices that Twinning projects adopt, and the questions were largely anchored in the reporting requirements as defined in the Funding and Tenders Portal through the continuous reporting module. Following the collaborative development of the survey in

institutionally supported online collaborative platform, the final version was transferred to the institutionally supported platform for surveys at the University of Aveiro (coordinating institution of the EPIBOOST project), under full compliance with EU General Data Protection Regulation (GDPR) provisions as elaborated in the EPIBOOST Data Management Plan.

The survey was launched in January 2024 by informing all sister projects previously identified as participants in such initiatives (see section 1.1) of the link to the survey platform, the objectives of the survey and the deadline for completion, along with notes on data privacy and compliance with EU GDPR. Seventeen sister projects completed the survey, providing an important background for the interpretations, rationales, and recommendations made throughout the chapters of the guide. A complementary survey was launched in 2025 at a later stage (May 2025) following the identification of the need to collect additional information from the sister projects to better ascertain realistic recommendations on scientific publications resulting from Twinning projects. The same group of sister projects as addressed in the previous survey were contacted by email to provide the Focus Group with the number of scientific publications that were considered for the project at the proposal stage versus the number of publications realistically expected to be published within the project lifetime and beyond its completion at the moment of the inquiry (i.e., mid-term to second reporting period).

Anonymised, raw data collected by the survey are openly available through the OpenAIRE-compliant DUnAs - Research Data Repository of Universidade de Aveiro under the DOI https://doi.org/10.48527/MJ5D4N

1.3. Final notes on the elaboration of the guide

The guide was mostly built upon the responses of sister projects to the surveys. The chapters were progressively constructed over the interpretation of survey data and shared difficulties experienced by the Focus Group in the implementation of their Twinning projects. The interpretations made and the consequent suggestions/recommendations were discussed and agreed among authors. A significant effort was made to quote the most relevant official guidance documents available, as well as other resources that could provide readers with additional perspectives or guidance. The scientific literature and reliable web sources of information were also used to support interpretations, statements and recommendations whenever applicable. All these resources are either linked to the text or appropriately listed in the bibliography list at the end of the guide.

All individuals entitled to authorship contributed significantly to the elaboration of the guide by sharing their experience, directly providing input in different chapters, suggesting interpretative lines and revising the contents of several versions of the working documents.

Some of the results found in the survey and their interpretation within the context of the guide elaboration motivated the co-creation by interested sister projects of two policy briefs. One concerns dissemination, exploitation and communication activities, while the other focuses on capacitation activities, both reflecting difficulties found in practice by Twinning coordinators and suggesting potential improvements to the funding agency applicable in the future.

Chapter 2
Important Definitions and Acronyms

Chapter 2

2. Important Definitions and Acronyms

This chapter provides a consolidated reference of key definitions and acronyms relevant to the management and implementation of Horizon Europe projects. Given the specific terminology used in this context, often with precise legal and operational implications, a shared understanding of core concepts is essential for effective coordination, reporting, compliance, and impact delivery. As Twinning projects are included in the Horizon Europe funding framework, there are no major differences in practice in the vocabulary compared to other project typologies. However, there are specificities related to Twinning's capacitation nature that may render some of the standard definitions more difficult to fully understand, with consequences in the efficiency of project implementation, management, and/or reporting. In these cases, an extended explanation is provided herein in favour of a more appropriate framing to the scope of the present guide.

The definitions included herein reflect the Horizon Europe programme's regulatory framework and commonly used operational terminology in project management practice. The list is not exhaustive, since the intent is to provide definitions and acronyms most relevant to coordinators and research management professionals, based on the work developed while elaborating the present guide and experiences exchange within the related Focus Group. To enhance usability and conceptual clarity throughout the guide, the terminology is structured around four complementary dimensions that reflect the Horizon Europe programme's operational logic: **Legal and Governance Terms** (section 2.1), regarding contractual and regulatory aspects; **Implementation and Management Terms** (section 2.2), covering aspects related to the coordination of the project and execution of foreseen activities; **Impact and Research and Innovation (R&I)** Logic Terms (section 2.3), regarding the definitions related to the links between objectives, outcomes, and impact; **Financial and Administrative Terms** (section 2.4), addressing funding instruments, cost eligibility, and reporting mechanisms. Within each section, terms are organised alphabetically.

2.1. Legal And Governance Terms

This section includes relevant terms related to the regulatory framework governing Horizon Europe projects. These concepts clarify the legal architecture within which projects operate, including the roles and responsibilities of the actors directly involved. Understanding these terms is important to ensure compliance with the contractual obligations, to implement proper decision-making within the consortium, and to ensure efficient interaction with the Granting Authority.

Advanced Partner. Although this is not an official term, it is commonly used in Twinning projects to define a research-performing organisation from a non-widening Member State or Associated Country participating in a Twinning project to provide scientific expertise, mentorship, knowledge transfer, networking opportunities, and institutional good practices to the Widening Coordinator. Alternative terms sometimes used for the same purpose are 'Non-Widening Partner', 'High-Performing Partner' or 'Internationally Leading Partner'.

Affiliated Entity. Legal entity with a structural or legal link to a Beneficiary (e.g., parent organisation, subsidiary) that is authorised by the Beneficiary to implement tasks and declare eligible costs under the Grant Agreement, provided this relationship is formally described and accepted. (see the definitions of Beneficiary and Third Party)

Annotated Grant Agreement (AGA). Template legal document adopted by the European Commission, establishing the standard terms and conditions applicable to Horizon Europe grants. It contains detailed guidance in addition to the standard structure that the Grant Agreement will follow. This document is often an important guide at the pre-award stage, so that proposals do not entail objectives, statements, activities, or plans that are unrealistic or conflicting, considering the provisions of a future Grant Agreement. (see the definition of Grant Agreement)

Beneficiary. Legal entity recognised by the EU that signs the Grant Agreement and assumes full rights and obligations regarding the Action and related funding. Beneficiaries implement project tasks, claim costs, and are jointly responsible for the proper implementation of the project. (see the definitions of Affiliated Entity and Third Party)

Consortium Agreement (CA). Internal agreement between Beneficiaries regulating the governance of the consortium, including decision-making procedures, financial arrangements, intellectual property rights, liability, access rights, and conflict resolution mechanisms. It is an internal document of the consortium that should be signed by all partners, which complements but does not replace the Grant Agreement. It is possible, but not mandatory, to include the CA as a Deliverable. Commonly, coordinators use the DESCA model to guide the elaboration of the CA.

Coordinator. Beneficiary appointed to represent the consortium towards the Granting Authority. The Coordinator manages communication with the European Commission, submits Deliverables and reports, distributes EU funding to Beneficiaries, and ensures overall project coordination. (see the definition of Widening Coordinator)

Description of the Action (DoA). Document annexed to the Grant Agreement (Annex 1) describing in detail the objectives, work plan, methodology, work packages, tasks, Deliverables, Milestones, resources, and expected results of the project. It reflects the core content of the proposal as evaluated and approved and becomes legally binding upon signature of the Grant Agreement. In fact, the DoA constitutes the technical and operational reference framework for project implementation. It defines the scope of the action and serves as the baseline against which progress, compliance, amendments, and performance are assessed by the Granting Authority throughout the project implementation and during reporting/evaluation phases. Any significant deviation from the DoA may require a formal amendment to the Grant Agreement. A template for this document is provided by the Granting Authority for the preparation of the Grant Agreement. (see the definitions of Amendment and Grant Agreement)

External Experts. Independent specialists contracted by the European Commission or executive agencies to support proposal evaluation, project reviews, and monitoring activities. External experts may assess project reports, participate in periodic or final reviews, and provide recommendations to the Granting Authority. They do not hold decision-making authority but contribute to the project's technical evaluation process at different stages. Although external experts do not make binding decisions, their assessment is naturally given high weight in the evaluation outcome.

Gender Equality Plan (GEP). Institutional strategic document promoting gender equality in research organisations. The existence of a GEP per Beneficiary is frequently an eligibility requirement under Horizon Europe.

Grant Agreement (GA). Legally binding agreement between the Granting Authority and the Beneficiaries defining the rights and obligations of the parties, the scope of work, budget, reporting requirements, and applicable rules for implementation. In practice, it is a legally binding contract, signed by all Beneficiaries and to which all Beneficiaries must adhere. (see the definition of Annotated Grant Agreement)

Project Officer (PO). Representative of the Granting Authority (European Commission or European Research Executive Agency) assigned to monitor and supervise the implementation of a specific project. The PO is the primary contact point for the Coordinator during the implementation of the project and is responsible for: monitoring technical progress throughout the project lifetime, and especially during reporting stages; assessing reports, timely submission of Deliverables, accomplishment of Milestones, and risk materialization/mitigation; participating in project reviews; advising on compliance issues. The PO does not replace the legal provisions of the Grant Agreement, i.e. the PO cannot override what is established in the Grant Agreement.

Research Executive Agency (REA). Executive agency of the European Commission responsible for the implementation and management of selected Horizon Europe actions, including Twinning Actions. This role covers grant preparation, evaluation support, project monitoring, amendment processing, reporting, and payments. The REA acts as the granting or delegated authority on behalf of the European Commission, meaning that REA is the operational management arm of the policy/institutional authority (European Commission). Although legally the European Commission remains the contracting authority, operational interactions (e.g. reporting, amendments, reviews, payments) are typically handled by REA staff.

Responsible Research and Innovation (RRI) framework. Approach designed to ensure that scientific research and technological development are aligned with societal values, needs, and expectations. It emphasises the importance of public engagement, encouraging diverse stakeholders to participate in the research process, and open access to results to foster transparency and accessibility. The framework advocates for gender equality within research teams and aims to address gender dimensions in research content. Ethical considerations are paramount, ensuring high standards are maintained throughout all stages of the process. Additionally, it highlights the role of science education in equipping citizens with the necessary knowledge and skills to engage with science and technology. Finally, RRI calls for governance arrangements to foster responsible research practices that integrate all stakeholders effectively to create a more inclusive, transparent, and ethically sound approach to scientific inquiry, ensuring that advancements in science and technology benefit society as a whole.

Third Party. Legal entity that is not a signatory to the Grant Agreement but may contribute to the action under specific conditions (e.g. subcontractors, providers of in-kind contributions, third parties giving access to resources).

Widening Coordinator. In Twinning projects, the Coordinator is typically a low-performing research organisation established in a Widening country. The Widening Coordinator leads the consortium, manages project implementation, and is the primary Beneficiary responsible for strengthening institutional capacity and research excellence through cooperation with advanced partners. (see the definition of Advanced Partners)

2.2. Implementation and Management Terms

This section lists terms related to the operational execution and internal coordination of Horizon Europe projects, covering concepts relevant for efficient day-to-day project management, monitoring, reporting, risk management, and performance tracking. These terms support the structured implementation of the project and ensure that activities, outputs, and results are delivered and reported in line with the contractual obligations and strategic objectives defined for the project.

Community Research and Development Information Service (CORDIS). Public repository managed by the European Commission, supporting the dissemination and exploitation of project results under Horizon Europe by ensuring visibility, transparency, and accessibility of funded actions and their outcomes. As the Grant Agreement is completed, each project has a webpage in CORDIS holding the project factsheet and its results, including open Deliverables and publications, following approval during reporting and evaluation phases.

Continuous Reporting. Ongoing obligation to update project-related information in the Funding & Tenders Portal throughout the implementation, including Deliverables, Milestones, dissemination activities, communication actions, and exploitable results.

Critical risk. Plausible event or circumstance that, if it materialises, could compromise the ability of the project to achieve its objectives, implementation of activities, compliance with contractual obligations, or delivery of expected results. It is identified primarily at the proposal stage, hence registered in the Description of the Action, but can also be added during project implementation via continuous reporting as relevant. The identification of a Critical Risk requires the definition of its level of likelihood, i.e. estimated probability that the risk will occur (low, medium, or high) considering existing preventive and mitigation measures, and its level of impact, i.e. estimated severity of consequences on project objectives, timeline, quality of results, budget, or consortium stability (low, medium, or high). The identification of Critical Risks should be accompanied by defined (i) preventive measures to reduce likelihood that should be given attention during project implementation; (ii) contingency measures thought by the consortium to reduce the expected impact if the risk materialises; and (iii) responsibility distribution regarding monitoring of the risk and triggering of the necessary response.

Data Management Plan (DMP). Document that specifies how research data will be handled both during and after the project, considering what is appropriate given the kind of data being generated or used. A DMP includes standards for collection, storage, security, sharing, reusability, and long-term preservation, in line with open science principles as much as possible and when appropriate, aligning with FAIR (Findability, Accessibility, Interoperability, and Reusability) principles.

Deliverable. Formal output of the project submitted to the Granting Authority in accordance with the Grant Agreement. Most of the Deliverables are defined at the proposal stage, although their revision (for example merging of two or more Deliverables to decrease administrative burden, changing level of openness) can be requested by the Granting Authority during the Grant Agreement preparation. Periodic and final reports are Deliverables added to the list during project reporting phases only, thus these should not be listed at the proposal stage unless stated otherwise by the call. Deliverables constitute verifiable evidence that specific tasks or work packages have been implemented. Each Deliverable is defined in the Grant Agreement by:

(i) a unique identifier that generally refers to its order within each work package (e.g. D1.1);
(ii) a title;
(iii) a due date (expected month of submission);
(iv) a responsible Beneficiary;
(v) a type (see below the types of Deliverables);
(vi) a dissemination level (Public, Sensitive, or EU-restricted).

Deliverable types are as follows:
(i) Report (R) – narrative or analytical document describing results, methodologies, progress, or findings;
(ii) Demonstrator/Prototype (DEM) – physical, digital, or operational demonstration of a developed solution;
(iii) Dissemination, Communication, or Exploitation Product (DEC) – output intended to support visibility, outreach, or uptake of the project and project results, such as a website (document providing the active URL and uploading a short explanatory document describing the structure, compliance with visibility obligations, and confirming operational status at the time of Deliverable submission), communication toolkit, policy brief, and the mandatory Dissemination and Exploitation, including Communication (DE&C) plan;
(iv) Data Management or Dataset (DATA) – structured datasets or data-related outputs (note always that there is a specific table for datasets recording in continuous reporting, and redundancy should be avoided), as well as the Data Management Plan (DMP) and its updated versions;
(v) Other (OTHER) – documents that clearly do not fit any of the other categories but should constitute Deliverables of the project. Deliverables are distinct from Milestones. While Milestones mark control points, Deliverables provide documented outputs. (see the definition of Milestone)

Early Career Researcher (ECR). Researcher in the early stages of their academic or research career. While the exact definition can vary, it often includes Doctoral candidates (PhD students), post-doctoral researchers, and junior faculty members or researchers who have recently obtained their PhD (usually within the last 5-7 years).

Key Performance Indicators (KPIs). A performance measurement (generally, but not exclusively quantitative) that monitors and supports internal performance management of how effectively the project objectives are being reached. Generally, KPIs are established for scientific/technical objectives of the project, as well as for the Dissemination, Exploitation, and Communication strategy. In this latter context, and within the scope of the present guide, a distinction was made between implementation KPIs (i.e. number of events, activities, outputs, etc., that will be implemented) and efficiency KPIs (i.e. measurement allowing assessing the reach/impact of the event, activity, output, etc).

Milestone. Predefined (generally at the proposal stage) control points in the project that help to chart progress through the implementation of the project. Milestones may correspond to the achievement of a key result, allowing the next phase of the work to begin. They may also be needed at intermediate stages so that, if problems have arisen, corrective measures can be taken. A Milestone may also be a critical decision point in the project where, for example, the consortium must decide which of several strategies to adopt for further development. The achievement of a Milestone should be objectively verifiable.

Periodic Report. Technical (and financial in some cases; depending on the provisions of the Grant Agreement, in several Twinning projects intermediate reports do not include the financial part) report submitted at the end of each reporting period describing progress toward objectives, implementation of work packages, resource use, and achieved results. The report constitutes an additional Deliverable open for submission at the end of each reporting period, complementing the information directly uploaded in the Funding & Tenders portal through continuous reporting. (see the definition of System for Grant Management)

Final Report. Comprehensive technical and financial report submitted at project completion summarising implementation, achievements, results, impact, dissemination, exploitation activities, and financial execution. The report constitutes an additional Deliverable open for submission at the end of each reporting period, complementing the information directly uploaded in the Funding & Tenders portal through continuous reporting. (see the definition of Funding & Tenders Portal)

Research Management and Administration (RMA) staff. Professionals who enable, facilitate and support the full research lifecycle in academic and research institutions. RMA professionals are crucial in helping researchers and institutions navigate the complex landscape of research funding, compliance, strategic coordination, overall project management, and impact realisation. They act as key connectors bridging researchers, institutions, funders, and society.

System for Grant Management (SyGMa). Electronic grant management system used by the delegated funding executive agency for grant preparation, amendments, reporting, and financial monitoring. By default, it is also the platform where continuous reporting should be made by the consortium accessed via the Funding & Tenders Portal. (see the definition of Funding & Tenders Portal)

Work package (WP). Structural element of the project implementation that coherently groups related activities (often presented as tasks within each WP). Each WP defines objective(s); tasks; partner roles and responsibility, activities to be implemented, and outputs to be produced.

2.3. Impact and R&I Logic Terms

This section gathers terms that define the policy rationale, intervention logic, and structural objectives, including impact pathways, of Horizon Europe. Unlike legal or financial terminology (section 2.4), which clarifies contractual and administrative aspects, the concepts included here explain the reasoning behind specific funding instruments and the options that projects must generate and maximize change in their fields, justifying the public investment. These terms reflect the strategic orientation of projects, covering research excellence, capacity-building, widening participation, knowledge creation and circulation.

Communication. Strategic activities aimed at promoting the project and its results to multiple audiences, including the general public, policymakers, media, and stakeholders. Communication focuses on raising awareness and demonstrating the relevance and added value of EU funding. The definition and scope of Communication, allowing a clearer distinction from Dissemination, is particularly addressed in chapter 3 of the present guide. (see the definition of Dissemination)

Dissemination. Public disclosure of project results by appropriate means, excluding activities related to protection or direct exploitation. Dissemination typically targets scientific and professional audiences through publications, conferences, workshops, or repositories. The definition and scope of Dissemination, allowing a clearer distinction from Communication and Exploitation, is particularly addressed in chapter 4 of the present guide. (see the definitions of Communication and Exploitation)

Exploitation. The use of results in further R&I activities other than those covered by the project, including, among other possibilities, commercial exploitation such as developing, creating, manufacturing, and marketing a product or process, creating and providing a service, or standardisation activities. Exploitation is the activity that is entitled to transform results into concrete societal, economic, or scientific value. The definition and scope of Exploitation, allowing a clearer distinction from Communication and Exploitation, is particularly addressed in chapter 4 of the present guide. (see the definitions of Communication and Dissemination)

"Do no significant harm principle" (DNSH). Principle binding several calls, and recommended generally, that means the project will not carry out activities that make significant harm to any of the six environmental objectives of the EU Taxonomy, a science-based classification system defining environmentally sustainable economic activities, established to prevent greenwashing and direct capital toward the European Green Deal's 2050 climate neutrality goal: Climate change mitigation; Climate change adaptation; Sustainable use and protection of water and marine resources; Pollution prevention & control; Transition to a circular economy; and Protection and restoration of biodiversity and ecosystems.

Impact. Wider long-term effects of the project and its results on society (including the environment), economy, and science, as enabled by the project outcomes. It refers to the specific contribution of the project to the expected impacts defined in the Horizon Europe work programme. In widening instruments such as Twinning Actions, impacts often relate to sustained research excellence, durable institutional modernisation, and strengthened European Research Area integration. Impacts generally materialize progressively beyond project termination. The definition of Impact (what improves in the long term) is inherently different from those of Outcome (what changes because results are used), Result (what the project generates in terms of knowledge or added value), and Output (what the project produces operationally). (see the definitions of Outcome, Output, and Result)

Key Exploitable Result (KER). Identified main result which is prioritised due to its high potential to be "exploited" – meaning to make use and derive benefits from it – due to its expected contribution to the impact of the project. The criteria that make a result Key Exploitable are (a) the degree of innovation, (b) its exploitability, and (c) its impact. Although KERs are often exclusively thought as products or solutions, they can also take the form of services, relevant inputs to policy and assets enabling further research or education[1], a particularly relevant scope for Twinning projects. Monitoring KERs throughout the project is critical to maximise value creation. (see the definition of Exploitation)

Objectives. Specific and measurable (ideally also achievable and verifiable) goals that the project intends to achieve through its planned activities within the project duration. Objectives reflect on the work performed within the project, in terms of its research, innovation, or capacitation content. As such, objectives guide the design of Work Packages, activities and Deliverables, generating outputs (what the project produces operationally) and results (what the project generates in terms of knowledge or added value), which then contribute to outcomes (what changes because results are used) and long-term impacts (what improves in the long term). (see the definitions of Impact, Outcome, Output, and Result)

Open Access. Practice of making research outputs freely available inside and outside the research community to maximise the impact of the research, with minimal reuse restrictions.

Open Science. An approach based on open collaborative work and systematic sharing of knowledge and tools as early and widely as possible in the process, including active engagement of society throughout the research process.

Outcomes. Medium term effects (generally during or shortly after the end of the project), of projects supported under a given topic, representing a practical application of the results of a project. The project's results should contribute to Outcomes, fostered by Dissemination and Exploitation measures. This may include the uptake, diffusion, deployment, and/or use of results by target groups during or shortly after the project implementation. In Twinning actions specifically, outcomes may include improved research competence, enhanced institutional procedures, strengthened research management practices, increased participation in competitive calls, among others. Outcomes represent in practice behavioural, organisational, or performance changes

[1] https://www.clustercollaboration.eu/content/horizon-results-platform-making-results-matter

that occur because results are used, contributing directly to work programme expectations. The definition of Outcome (what changes because results are used) is inherently different from that of Impact (what improves in the long term), Result (what the project generates in terms of knowledge or added value), and Output (what the project produces operationally). (see the definitions of Impact, Outputs, and Results)

Outputs. Immediate and tangible "products" generated directly by project activities. In practice, Outputs are something concrete that reflects the work performed within the scope of the project and may include reports, training sessions delivered, organised workshops/events, prototypes developed, compiled datasets under a given objective, optimised protocols, among others. Outputs are often documented through Deliverables. The definition of Output (what the project produces operationally that is new or improved) is inherently different from that of Impact (what improves in the long term), Result (what the project generates in terms of knowledge or added value), and Outcome (what changes because results are used). The distinction between Output and Result is often misleading. While outputs contribute to generating results, they do not necessarily represent substantive new knowledge or value (i.e. a change, a transformation) as results do. (see the definitions of Impact, Outcomes, and Results)

Pathway to impact. Structured and logical sequence towards achieving the expected Impacts of the project over time, typically beyond the project's duration. A pathway begins by linking of Results/Outputs to Dissemination, Exploitation, and Communication activities, then progressing to clarify how the Results/Outputs contribute to Outcomes and ultimately to long-term impacts. Unlike R&I-oriented actions, where Impacts are often linked to market/policy uptake or technological deployment, the pathway to impact in Twinning projects primarily describes how capacity-building measures generate structural change. The impact logic in Twinning projects reflects particularly on long-term structural change concerning institutional performance, research excellence, and European Research Area integration. (see the definitions of Impact, Outcomes, Outputs, and Results)

Results. Results arise from project activities and constitute the substantive content produced by the project, reflecting the added value created. Project Results represent intellectual or structural content that can be tangible or intangible, reusable, and exploitable (e.g. inventions, prototypes, services) as such, or elements (knowledge, technology, processes, networks) that have the potential to contribute to further research or innovation. In this context, Results can be KERs. (see above the definition of Exploitation). Not all Results are formal Deliverables, but many Deliverables document or present project Results. (see the definition of Deliverables). The definition of Results is inherently different from that of Outputs (what the project produces operationally) and Outcomes (what changes because results are used). (see the definitions of Outputs and Outcomes)

Stakeholders. Individuals, groups, or organisations with interest in, potential influence on, or potential benefit from project activities, Results, Outputs, Outcomes, and Impacts. Stakeholders may affect project success, be directly affected by Results, shape the context (regulatory, policy, etc.) where the results are relevant, provide support or legitimacy, or represent constraints to the Impact of the project. Importantly, Stakeholders are defined by their interest or influence, and they do not necessarily directly participate or are expected to uptake Results. In Twinning projects, Stakeholders often extend beyond the classical end-users, market actors, and innovation adopters identified in other project typologies. Because Twinning is a capacity-building and excellence-enhancing instrument, the Stakeholder landscape is often more systemic, and sometimes internal to the institution itself; these are indeed Stakeholders who can better influence institutional transformation, sustainability of networking effects, knowledge transfer practices, and efficient integration into European research networks. Examples include researchers (senior and early-career) within the Beneficiary institution; research management and administration staff; institution leadership and governance bodies; national research funding authorities; research infrastructures and laboratories; academic networks and professional associations; future researchers; regional innovation ecosystems; and national and regional policy actors.

Although often confused and misused, the definitions of Stakeholder (broad groups of interested or influential actors to the project) and target group (actors the project intends to transform), both recognised actors in the Horizon Europe landscape, are distinct (see the definition of Target Groups)

Target Groups. Specific actors intentionally addressed by the project during implementation, who are expected to directly use, apply, adopt, benefit from, or further develop project results. In Twinning projects, Target Groups can easily be identified for example as actors whose capacities are intentionally strengthened, who participate directly in training, mentoring, or exchanges, whose performance tracking is expected to improve measurably of the achievements of the project. In practice, these are the recipients of capacity-building activities and are direct beneficiaries of knowledge transfer, skill development, networking, and institutional enhancement measures as developed by the project (e.g. researchers of the consortium, research management and administration staff, specific departments or infrastructure, strategic institutional services or units). Although often confused and misused, the definitions of Stakeholder (broad groups of interested or influential actors to the project) and Target Group (actors the project intends to transform), both recognised actors in the Horizon Europe landscape, are distinct. It is clear though that every Target Group is commonly a Stakeholder, but also that not every Stakeholder is a Target Group (see the definition of Stakeholder).

Technology Readiness Level (TRL). TRLs provide a scale to assess the maturity of technologies as developed and delivered by a given project, ranging from early-stage research to system demonstration and deployment in operational environments. TRL spans from 1 to 9, with TRL 1 representing the initial conceptual stage, where theories and concepts are being developed, and TRL 9 applicable when the technology is fully developed and available on the market. The different level of maturity of the technology, and the consequent relative innovation risk, is normally linked to the funding instrument in Horizon Europe. Very low TRLs are addressed normally by European Innovation Council (EIC) Pathfinders, European Research Council (ERC) and Marie Skłodowska-Curie Actions (MSCA) grants; low TRLs (typically 4-6) are addressed by R&I Actions; higher TRLs can be found in Innovation Actions (typically 6-8) and in the EIC Accelerator (typically 8-9); and finally, the equity component of the EIC Accelerator is designed to support activities at the end of the TRL scale.

Widening Country. EU Member State or Associated Country identified under Horizon Europe as eligible for specific widening instruments, based on R&I performance indicators.

2.4. Financial and Administrative Terms

This section presents the key concepts that relate to the financial structure and administrative management of Horizon Europe grants. It includes terms concerning funding instruments, cost eligibility, reimbursement models, and grant administration tools. These definitions help to clarify how funding can be allocated, managed and controlled, supporting financial compliance and responsible management throughout project implementation. It is also worth clarifying that the definitions listed below for direct costs, indirect costs, eligible costs, and financial statement apply to the actual cost-based funding model. In lump sum grants (the case of new Twinning Action calls), the internal cost structure applies for budgeting and internal management of resources but does not determine grant payments. The relevance of the terms listed should thus be assessed by the reader on a case-by-case basis.

Actual Cost-Based Grant. Funding model where the EU contribution consists of the reimbursement of eligible costs actually incurred by Beneficiaries during project implementation, in accordance with the eligibility criteria defined in the Grant Agreement. (see the definitions of Eligible, Direct, and Indirect costs)

Amendment. Formal modification affecting the contractual baseline established in the Grant Agreement requested by the consortium and approved by the Granting Authority, implemented through the Funding & Tenders Portal. An Amendment is required, for example, when there are changes in the Description of the Action (Annex 1), in the project timeline and duration or in the budget distribution among beneficiaries, if contractually relevant; changes regarding the addition or termination of a Beneficiary, the coordinator Beneficiary; and changes affecting eligibility conditions. Retroactive amendments should be avoided as much as possible, and requests should be submitted timely and accompanied by a comprehensive justification for the change, linked to project implementation needs rather than convenience, and agreed within the consortium. Amendments become legally effective only after formal approval by the Granting Authority. It is important to highlight that Amendments cannot retroactively legitimise ineligible costs or deviations that fundamentally alter the original basis of the action.

Certificate on the Financial Statements (CFS). Independent audit certificate verifying the accuracy and eligibility of declared costs when financial thresholds defined in the Grant Agreement are reached.

Coordination and Support Action (CSA). Funding instrument supporting coordination, networking, policy dialogue, standardisation, Dissemination, strategic studies, mutual learning, and capacity-building activities. CSAs do not primarily fund research and development activities but facilitate collaboration and strategic impact across the R&I ecosystem.

Direct Costs. Costs that are directly attributed to the action and can be identified as specific project expenses. Direct costs typically include personnel costs, travel, equipment, consumables, subcontracting, and other goods and services required to implement the project tasks.

Eligible Costs. Costs that comply with the criteria established in the Grant Agreement and are reimbursable under the action, provided they are actual (unless otherwise specified), necessary, reasonable, and incurred during the project duration.

Funding & Tenders Portal. Official online platform of the European Commission used for proposal submission, grant preparation, reporting, Amendments, and Communication under Horizon Europe directly or through subsidiary platforms.

Indirect Costs. Costs that are not directly related to specific project tasks but that are necessary for the general functioning of the organisation implementing the project (e.g. administrative support, infrastructure, utilities, basic services). Under Horizon Europe, Indirect Costs are generally reimbursed as a flat-rate of 25% of total Eligible Direct Costs (excluding Direct Costs of subcontracting and financial support to Third Parties).

Innovation Action (IA). Funding instrument supporting activities close to market deployment (typically TRL 6-8), generally including prototyping, demonstration, testing, and piloting in operational environments. IAs are generally compared to R&I Actions, these typically developing at lower TRLs. (see the definitions of TRL and Research and Innovation Action)

Lump Sum. Funding model where there is a fixed amount allocated to cover the entire project or where the EU contribution is defined based on the completion and approval of predefined Work Packages. Payment is not based on actual costs incurred, and Beneficiaries are not officially required to report individual cost categories for reimbursement purposes, yet they should use this structure for budgeting and internal management purposes. This funding model contrasts with the Actual Cost-Based funding model and has been applied in recent Twinning calls. (see the definition of Actual Cost-Based grant)

Research and Innovation Action (RIA). Funding instrument primarily supporting research activities aimed at generating new knowledge or exploring the feasibility of new or improved technologies, processes, products, or services (typically TRL 4-6). RIAs are generally compared to Innovation Actions, these typically developing at higher TRLs (see the definitions of TRL and Innovation Action)

Subcontracting. Procurement of specific tasks or services from external providers without transferring overall responsibility for implementation from the Beneficiary. This is generally a cost category within Actual Cost-Based grants. (see the definition of Actual Cost-Based grant)

Unit Costs. Predefined fixed amounts used to calculate reimbursement for specific types of costs (e.g. personnel or other categories), as defined in the Grant Agreement. Unit costs simplify cost calculation within Actual Cost-Based grants. (see the definition of Actual Cost-Based grant).

Good Practices
Good practices guide for widening projects' management

Chapter 3
Communication

Chapter 3

3. Communication

Communication in Horizon Europe projects can be classified into two main types: external and internal. This chapter aims to delve into these two arenas and their ongoing challenges, along with a final section on recommendations that the focus group recognised as valuable following the analysis and discussion of the survey results.

3.1. External Communication

External communication focuses on sharing information with people or organisations beyond the consortium. This is a fundamental component of every Horizon Europe project, closely intertwined with the dissemination and exploitation of results, forming an essential part of one of the mandatory living Deliverables: the 'Communication, Dissemination and Exploitation plan.' A critical aspect of defining the communication framework for any project is distinguishing between Communication and Dissemination. Recognising this challenge, the EC created some supporting materials (e.g. European Commission: European Research Executive Agency, 2023) to assist project coordinators; however, several questions remain.

According to Horizon Europe guidelines, **Communication aims to inform, promote and communicate research actions and their results to multiple audiences beyond Consortium members, increasing the project's visibility and general awareness of the project topic.** Ultimately, Communication will showcase the impact and benefits of EU-funded R&I activities and results since the beginning of the Action and throughout its lifetime.

By definition, Communication follows a **one-way approach in which messages from the project should flow efficiently to different target audiences,** including, but not limited to, the media and the general public. Indeed, audiences are groups that receive information passively, with inherent goals of informing, educating, or raising awareness. While touted as a one-way process, Communication must be efficient, or it becomes an unsustainable, costly activity that walks

alongside R&I. Such efficiency goals require that Communication is seen as a process that informs, engages, and promotes reactions within audiences in a way that can lead to behavioural changes (Borowiec, 2023). A possible way of thinking on how to distinguish between Communication and Dissemination is to question whether it is a one-way (Communication) or a two-way (Dissemination) process. However, determining which audience feedback should configure a two-way process is important for distinguishing Communication from Dissemination. An elucidating example is social media engagement. Apart from a few specific exceptions on dedicated social media, a reaction, repost, or even a comment from the audience to a social media post on a project result does not actively benefit project development or enrich the project topic; therefore, such feedback should not be considered for the materialisation of a two-way flow, and hence should be undoubtedly considered Communication.

It is worth noting that establishing and implementing an efficient Communication strategy is a legal obligation under the Horizon Europe funding framework, as set out in Article 17 of the Model Grant Agreement. However, this status is, apparently, not critically valued by coordinators of Twinning projects, as suggested by the relatively low percent weight (12.4%) that surveyed respondents attributed to it when rating the reasons moving them to communicate the results and activities of their projects **(Figure 2)**; one Twinning Coordinator did not score this aspect. The best-weighted reasons to invest in Communication according to Twinning Coordinators were "Engage with stakeholders" (16.1%), "Attract the best trainees/students to your research team" (15.9%), "Attract researchers to your team/network" (14.8%), as well as "Raise literacy on the project's scientific background" (15.9%). Nonetheless, these best-weighted motivations are generally in line with the EC's reasoning for investing in Communication within funded projects. The focus on attracting trainees/students and researchers to the coordinator research team is consistently linked to the specific scope of Twinning projects, namely, advanced training and leveraging scientific excellence in widening countries. At the same time, it may also reveal concerns about the established talent-attractiveness and retention problems experienced by scientific institutions in widening countries. Furthermore, Twinning Coordinators value the role of Communication strategies in raising awareness and literacy about the project's scientific background, as expected. Collectively, these findings align with the overall ambition of science communication to foster public trust in science (Intemann, 2023).

Ethical aspects are crucial, particularly regarding data and image protection. Visual elements, such as photographs and videos, must be handled carefully to comply with ethical standards and legal regulations. These materials should avoid revealing identifiable information by anonymising subjects and obtaining explicit consent through forms beforehand. Support from institutional offices, such as the Data Protection Office, can provide guidance and ensure compliance with GDPR and related national regulations. From sister projects feedback, it should be noted that several institutions are still not fully engaged with data protection requirements and/or provide short guidance/support in this regard to project coordination teams. This represents an extra effort burden to these teams, especially when such a scenario was not identified, hence not properly accounted for, in the pre-award stage.

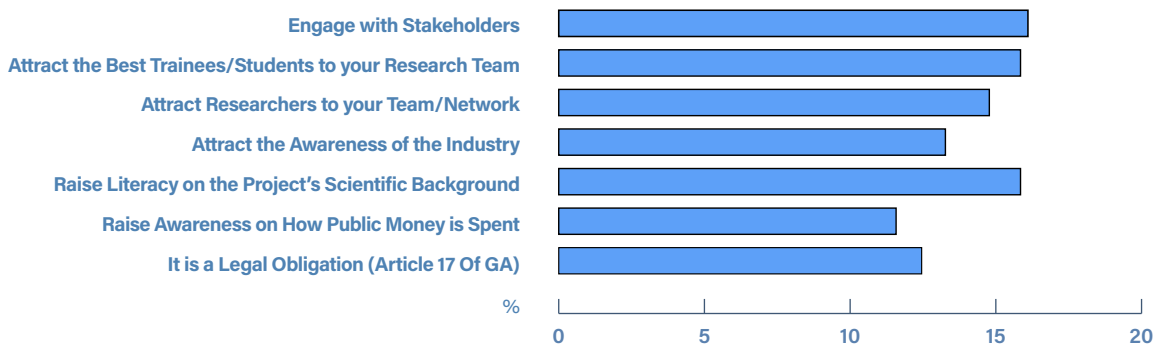


Figure 2. Importance given by surveyed Twinning Coordinators to different reasons behind their investment in communicating their results and activities of their Twinning projects. The question asked was as follows: "Please order by importance (1 – not important, 5 – very important) the following reasons that move you to communicate the results and activities of your Twinning project".

There are widely recognised challenges in science communication, including: the use of jargon and technical language; the risk of oversimplifying messages, leading to misinterpretation of complex science concepts; the need to understand public biases to better tailor communication strategies; differential literacy levels across audiences; and time and resource constraints. Given the unique nature of the Twinning calls, which primarily aim to capacitate the Consortium and the Widening Coordinator institution, Twinning actions face specific challenges in aligning the general EU communication framework and guidelines with their unique capacitation and research programs. We believe, thus, that the specificities of Twinning projects should be better considered and explained in the definition of communication strategies within the EC framework, hence tackling specific challenges.

3.1.1. Communication Audiences in Twinning Projects

Given the capacitation scope to leverage scientific excellence and the strong emphasis on training activities, the Communication in **Twinning projects should more specifically define the audiences within research communities.** Particular attention is due to early-career researchers (ECRs) of the Consortium and the European Research Area (ERA), as confirmed by the surveyed Coordinators of sister projects **(Figure 3).** Consistently, research communities, in general, stand out as the most focused audience for Communication (88%), followed by the specified related groups of ECRs of the Consortium (82%) and specifically of the Coordinator (76%), while much lower emphasis is, apparently, placed on ECRs more broadly across the ERA (41%). The institutional character of these projects is hardly aligned with the interests and pace of innovators, industry, business partners, or specific user communities, which explains why less than 20% of the sister projects selected them as target audiences. Other poorly focused audiences from sister projects are policy actors (e.g. international organisations, EU institutions, and local/regional/national authorities). Given limited resources and time, and the nature of these actions, prioritising Communication with research communities is both reasonable and efficient. Remarkably, only half of the surveyed projects highlighted their focus on citizens, and the same was true for civil society. While the long-term goal of Twinning actions is to improve research capabilities, their immediate effects on the public are often indirect and hard to discern. This trend of limited investment or attention for public communication among the surveyed projects may represent a false negative, stemming, for example, from a lack of awareness among many Coordinators about the essential role that a website (a channel established in most of the surveyed projects) plays in public engagement.

The analysis of targeted audiences in Twinning projects reveals the need for diverse communication strategies and/or approaches. The maximum number of audiences targeted by a single project was 12, while four projects targeted nine different audience groups, establishing the distribution mode. On average, projects targeted seven audiences, with a minimum of three, observed in two projects focused solely on researchers and industry. Twinning projects typically target research communities and their specific subgroups, namely ECRs from the Coordinator, the Consortium, and

the ERA, for a total of four primary audience categories. When citizens are included as a general audience, along with at least one entity that fits policy actors and another that fits the industry, the number of targeted audiences reaches seven, which appears to be a reasonable approach. It is worth noting that industry audiences might not be straightforward targets for Twinning projects, since industry groups are generally more involved in projects with high scientific maturity.

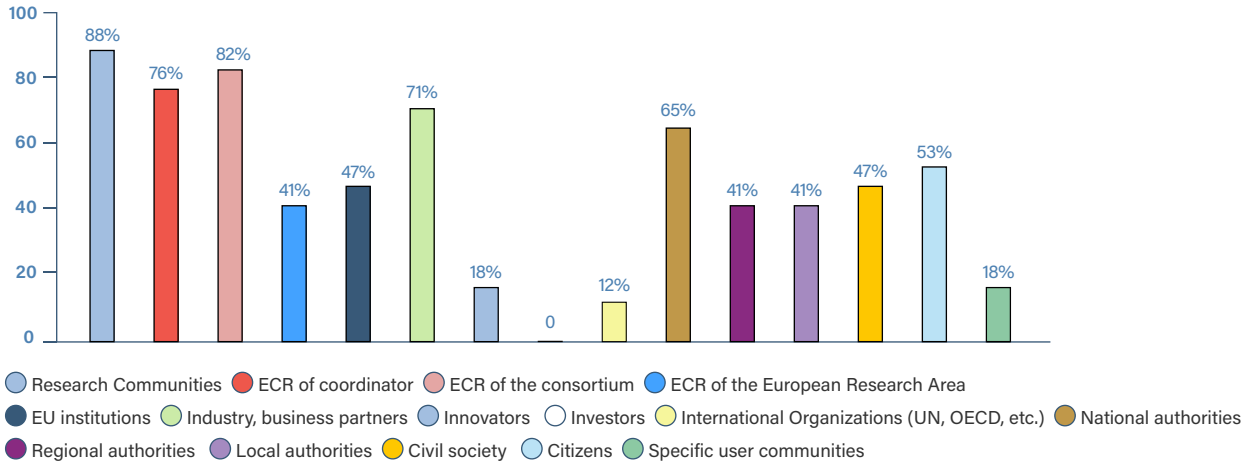


Figure 3. Profile of audiences targeted by sister Twinning projects in their Communication strategies. The question asked was as follows: "Which stakeholders/audiences did you define for the Communication strategy in your Twinning project?". Options for selections were those provided in the continuous reporting platform regarding communication, added a specification concerning Research Communities (Early Career Researchers [ECR] of the Coordinator, of the Consortium and of the European Research Area), and the possibility of indicating other audiences that could not be specified in the list. The distinction between civil society and citizens was provided in the form to avoid biased replies.

3.1.1.1 Educational communities: a forgotten communication audience?

The standard communication audiences defined for EU project reporting in SyGMa reveal an interesting oversight. While educational communities are identified as stakeholders for Dissemination activities, they are not explicitly listed as a distinct audience category for Communication purposes. This omission is particularly noteworthy given that educational communities are relevant targets even for projects that follow the Horizon Europe Responsible Research and Innovation (RRI) framework, even outside the education sector. Currently, activities targeting educational communities can be reported under the broad category of "Specific user communities." However, this classification fails to capture the nuanced importance of educational audiences, especially considering the transversal importance of education as one of the RRI pillars. This apparent inconsistency in the absence of educational communities from the standard audiences for Communication reporting purposes is challenging for the Coordinators of sister projects, as interpreted from their replies to the survey question "If your Twinning project is not focused on the education field, do you consider that activities with school communities (within a formal or informal context) should be considered part of the Dissemination strategy OR part of the Communication strategy? Please justify your answer". Based on the feedback from the eight respondent projects for which education is not the focus, school communities were perceived as an audience to target in their Dissemination and Communication strategy, but it is not clear whether activities for and/or with them should be catalogued as Communication and/or Dissemination. A more refined categorisation system that explicitly recognises educational communities, as a formal audience, could provide clearer insights into project Communication strategies and their effectiveness across different sectors. This would allow for more accurate reporting and better assessment of how projects engage with this crucial audience segment.

3.1.1.2 Audience Engagement

Twinning projects, like other EU initiatives, engage multiple audiences with diverse interests and roles, including the research community itself, with subgroups such as ERCs and Research Management and Administration (RMA) professionals. **To communicate effectively with these varied audiences, it is crucial to understand their dynamics and tailor engagement strategies to meet their specific needs and contexts.** Neglecting this step represents a risk of investing in Communication activities with little to no return in terms of reach, potentially rendering associated costs and efforts inefficient. While each project may have unique Communication approaches, some general guidelines apply across the board for engaging research communities (including subgroups), policy actors, industry stakeholders, and the public, including citizens and civil society organisations.

Key steps in developing an effective Communication strategy include (i) identifying audience interests and needs, (ii) determining the most important information to share with each group, and (iii) understanding their level of scientific expertise. This process allows necessary adjustments to Communication content and style, ensuring the final message is appropriately tailored for expert and non-expert audiences alike, thereby maximising the impact and efficiency of outreach efforts in Twinning projects.

- **Research communities require a Communication strategy aligned with the project objectives.** Targeted messaging should highlight the benefits and added value of involvement for advancing the research agenda in the project research topic and fostering international collaborations. Collaborative initiatives are particularly effective in facilitating engagement, providing a dynamic environment that enhances knowledge exchange, expands research perspectives, and strengthens institutional ties. The strategy should emphasise the unique opportunities Twinning projects offer for cross-border cooperation, access to shared resources and infrastructures, and potential for joint publications and future consortia for funding. **ECRs represent a specific audience within research communities and require a Communication strategy tailored to their earlier scientific maturity and aligned with the project's training objectives.** The approach should ensure accessibility and relevance to their needs, while actively encouraging ECR participation in project activities. Targeted messaging should highlight the benefits of participation for career and skillset development. To effectively engage ECRs, communication channels should range from popular platforms among younger researchers to institutional ones. Mentorship programmes are particularly effective in facilitating ECR engagement by providing a supportive environment that fosters self-confidence and a willingness to expand networks, research perspectives, and skills. Also, within research communities, RMA professionals constitute an important audience for Twinning projects, as they play a key role in internal capacity building, skill development, and knowledge transfer. **Engaging with the RMA community ensures that the benefits of Twinning projects are sustained beyond their duration,** ultimately strengthening R&I performance in widening countries.

- **Policy actors,** including policymakers, regulatory agencies, and governmental entities at various levels, **require tailored Communication strategies to effectively understand and utilise research outcomes.** This involves establishing direct channels of communication with representatives closely linked to the project's policy focus and delivering customised briefings and meetings.

To strengthen engagement, it is essential to demonstrate how the project aligns with current regulatory interests and priorities, as well as its potential societal impact. Policy actors are primarily interested in concrete outcomes rather than detailed scientific explanations. The concept of "contemporary context" (i.e. the timing of interactions with policy actors) is critical in this Communication process. In fact, for maximum impact, policy briefs and communications must be released within the appropriate timeframe that aligns with current policy cycles or decision-making windows (for examples see[2]). A policy brief released outside the relevant contextual timeframe is likely to have poor reach and minimal impact on the decision-making process. Thus, effective communication with policy actors should focus on providing actionable insights and tangible results that can directly inform and support policy decisions or implementation.

- **Industry actors** are more easily engaged if they recognise the project's potential for innovation and economic impact, taking into account that this audience is **interested in moving knowledge into action approaches.** For this audience, it is essential to present data and case studies that showcase how academic research has led to tangible benefits in the industry, as this evidence-based approach can significantly enhance credibility and interest among industry partners. For more fundamental projects and/or projects that are not producing results that may clearly benefit industry, presentation of capacity can be a valuable alternative, hence fostering awareness on the advanced position of the Coordinator as a services provider. Thus, messages should be tailored for this group and presented in appropriate communication channels and events (e.g. fairs). In some countries, specific platforms act as communication facilitators for this audience (e.g. the National Innovation Agency (ANI) in Portugal).

- **Public engagement** with science has a significant impact on the development of modern society since it improves citizens' democratic literacy and stimulates social awareness (Deng, 2024). This process i**nvolves developing accessible outreach activities to effectively Communicate the project and its results when applicable.** However, science communication activities should be targeted towards an audience as discrete and specific as possible, avoiding the nebulous concept of "general public". The advent of digital media, particularly social media, has transformed science communication from a model of absence to one of active public participation. These platforms offer interactive, budget-friendly ways to engage directly, enabling researchers to connect with their audiences through comments, likes, shares, and real-time discussions. This dynamic environment fosters a stronger connection between scientists and the public, cultivating increased interest in ongoing research initiatives. When engaging citizens, social media proves invaluable for communication bite-sized scientific facts, engaging visuals, and short videos that simplify complex concepts. Communication strategies should prioritise personal relevance and accessibility, employing clear, jargon-free language. Interactive elements, such as hands-on demonstrations at science fairs, can significantly enhance public engagement and understanding. For civil society organisations, social media constitutes a platform for more in-depth discussions on scientific topics relevant to their missions. Communication with these groups should emphasise how scientific findings align with or impact their focus areas. Providing detailed, policy-relevant information and highlighting collaborative opportunities can strengthen engagement with civil society organisations.

[2] Two months before a global conference with high political and societal impact (e.g., COP); discussion/consultation stages of EU funding working programmes; public consultation moments on topical aspects; extreme events/catastrophes that link to the topic of the project. https://www.clustercollaboration.eu/content/horizon-results-platform-making-results-matter

3.1.2. Tools For Efficient Communication

Several tools can support the Communication strategy of funded projects. In Twinning projects, some are more often used than others, as per the capacitation nature of these actions, as detailed below. Regardless of the tools used, efficacy monitoring is critical to i) ensure that Communication objectives are met and that the Communication strategy appropriately supports the Dissemination strategy, the related feedback, and expected impact; and ii) allow adjustments when efficacy assessment results are poorer than expected. To that end, the definition of **well-fit and reasonable key performance indicators (KPIs) covering both implementation and efficiency** should be established. Importantly, defining quantitative and meaningful/informative means of verification is critical so that an interpretable outcome of the monitoring is gained, allowing for assessing the success of Communication and the consequent need for adjustments. This is often a challenge, as discussed below.

3.1.2.1 Visual Communication

Visual Communication is a crucial aspect of effective Communication in Twinning projects, particularly in shaping brand identity and playing a pivotal role in project Communication strategies by enhancing clarity and engagement. This is recognised by coordinators of Twinning projects who replied to our survey, with 94% of the projects covered confirming that a visual identity strategy (branding) had been developed. Twinning projects involve audiences (and stakeholders) from different backgrounds, cultures, and languages. A consistent visual identity (including logo, colour palette, typography, layout, and specific design templates) serves as a universal language that helps audiences instantly recognise the project, fostering a sense of belonging and unity among all involved parties. All Communication materials, from reports and presentations to websites and promotional materials, should follow the same visual aspect, being this consistency helping in delivering a cohesive message and maintaining a strong project narrative. An effective visual identity also sets the project apart, making it more memorable and appealing to potential partners, stakeholders, and participants. Additionally, it helps Consortium members to be recognised as key players or experts in the project's scientific field, which can be particularly valuable in a competitive research environment.

3.1.2.2 Communication Channels

Communication channels are primary tools projects can use, with selection largely dependent on the project's goals, target audiences, and available resources. An effective Communication strategy often employs a mix of channels to reach and engage different audiences.

The communication channels presented in **Table 1** correspond to those provided in the continuous reporting tab for Communication in the SyGMa platform. Importantly, some communication channels are also understood as dissemination channels in the context of project reporting. In the SyGMa platform, conferences, meetings, and education and training events are available to characterise each Dissemination event, which largely overlaps with the different types of events used to identify communication channels. This overlap can lead to confusion about how to properly categorise and report Communication vs. Dissemination activities, potentiating double reporting, which is inefficient and potentially incorrect. A possible strategy to improve the current framework is to rationally classify these overlapping channels as one-way or two-way communication channels, then treat one-way channels as Communication tools and two-way channels as Dissemination tools. Even though Communication may eventually be considered a one-way process, its monitoring is crucial, as discussed above, through the definition of tangible KPIs, which are also required for reporting purposes, to measure the success of the implemented Communication strategy.

The surveyed Twinning projects use all communication channels pre-defined by REA for reporting purposes, yet some are clearly privileged over others **(Table 1)**. This immediately suggests that if there are channels unanimously recognised as valuable in Twinning projects, others may be valued according to the specificity of the project or the defined audiences. The implementation KPIs associated with the used channels vary across projects, while the use of efficiency KPIs is rare **(Table 1)**.

Table 1. Communication channels used by the surveyed Twinning projects and corresponding quantitative implementation and efficiency information (implementation and efficiency KPIs, respectively). The discriminated channels are those presented in the survey, corresponding to those provided in SyGMa continuous reporting tab for Communication. The metrics refer to the response given by the surveyed projects: average, mode, minimum (Min) and maximum (Max) number of times using each channel; percent of respondent projects using each of the channels. Efficiency KPIs presented were those indicated by the few sister projects providing information in this field of the form that did not correspond immediately to the quantification of the use of the channel (implementation KPIs).

Channel	Implementation KPIs				% Projects using channel	Efficiency KPI's
	Avg.	Mode	Min	Max		
Event Conference Participation	8.9	6	3	26*	88.24	6 conference papers
Event Conference Organization	1.7	1	1	4*	64.71	Material of the conference; external participation, at least by Advisory Board members
Event Meeting	7.9	10	3	20	70.59	Minutes
Event Workshop	7.2	5	2	20	58.82	Workshop material; registration lists; number of attendants
Event Internet Debate	11	--	2	20	11.76	--
Event Round Table	2.5	2	1	4	35.29	--
Event Group Discussion	6.75	2	2	20	23.53	--
Event Brokerage	5.5	N/A	5	6	11.76	--
Event	4	N/A	3	5	17.65	--
Other						
Exhibitions	3.8	2	2	12	35.29	No. interactions with researchers
Interviews	8.4	3	2	30	41.18	Position paper on bottlenecks of young researchers in the career
Media Articles	5.4	3	2	12	64.71	--
Newsletter	4.4	6	1	9	47.06	--
Print Materials (brochures, ...)	5.5	4	1	15	47.06	No. copies
Social Media	3	2	2	5	64.71	120k; 2 post/month; 400 engagements; 36 announcements; +100 visits/month
TV / Radio Campaign	2.6	1	1	6	29.41	One local news at the widening country
Videos	5.125	1	1	12	47.06	
Website	1.125	1	1	3	94.12	10000 visits from 3000 unique IPs; 200 downloads; +100 visits/month

*One project coordinator indicated 100, but this number was not considered.

The sister projects highlighted "hackathon" as an event that was not standardly categorised. A hackathon is an event where people collaborate to solve problems or identify new opportunities within a short timeframe. While it can serve as both a communication and dissemination channel, it aligns more closely with our definition of a two-way dissemination tool. Participants in the hackathon will clearly benefit from the project's and the event's results, making it better suited as a Dissemination activity than as a Communication one. The highlight of hackathons as a Communication strategy by sister projects further reinforces the perception that Communication and Dissemination activities are often difficult to separate. Other communication channels that are used by sister projects but do not find a clear classification for reporting were: press releases (4.9 on average, with a mode of 2, a minimum of 2, and a maximum of 10, by 52.9% of the surveyed projects); quiz on the project and its topic (1 project); and awareness meetings at the Coordinator university for end-users and students (1 project).

The survey results are detailed in the sub-sections below, corresponding to the officially defined Communication channels for reporting purposes.

3.1.2.2.1. Website

Survey responses have consistently highlighted the project website as the cornerstone of effective Communication strategies in Twinning projects (94% use this communication channel; **Table 1**).

Web analytics tools enable detailed tracking of audience engagement and reach, providing valuable quantitative insights into the effectiveness of Communication efforts and areas for improvement. Therefore, these are critical resources (easily available via open access) that support monitoring the efficiency of the website as a communication channel. From the surveyed projects, more than 50% use Google Analytics for these purposes, none use proprietary software, and only two (12%) reported that such tools have not been used **(Table 2)**. This record corresponds directly to projects that did not define KPIs for the website **(Table 3)**, hindering the possibility of optimising their website's Communication performance over time. Concerning the monitored KPI, the number of visits was by far the preferred record, with 82% of respondents identifying it. The number of unique visits is far less commonly used as a KPI (18% of the projects), which is biased, as the number of visits can only provide a feasible measure of reachability when normalised to the number of unique visits. The number of posts and downloads as KPIs are scarcely used in Twinning projects (17.65% and 11.76%, respectively). This can be attributed to the nature of these actions, which primarily focus on institutional partnerships and may not inherently require frequent content creation or the production of downloadable materials. Furthermore, the number of visitor countries emerges as the least utilised KPI, with only 5.88% of projects employing this metric. This low usage suggests that many Twinning projects do not prioritise geographic diversity in their audience engagement strategies. Instead, they might tend to concentrate on the depth of engagement within specific target countries, particularly those of the leading partners. This approach may lead to missed opportunities, as by not tracking visitor countries, projects overlook chances to showcase their influence beyond immediate partnerships.

Table 2. Usage of different web analytics tools for website performance assessment by the surveyed Twinning projects.

	% Projects
Google Analytics	52.94
Another open software tool	11.76
Proprietary software	0.00
Internal website tool	23.53
I do not have such a monitoring tool	11.76

Table 3. Key performance indicators (KPIs) selected by the surveyed projects to monitor the website's efficiency as a Communication tool. Note: respondents could choose multiple answers from the list and add comments, if relevant.

	% Projects
Nº visits	82.35
Nº unique visits	17.65
Nº downloads	11.76
Nº visitor countries	5.88
Nº posts	17.65
I did not define KPIs for the website	11.76

The main advantages of websites as a communication channel are summarised below, and efficiency KPIs are suggested, including, but not exclusively, as used by the surveyed Twinning projects.

Advantages

- Single, easily accessible platform for all project-related information.
- Accommodates a wide range of content formats, from detailed technical reports to multimedia presentations and videos, catering to diverse audience needs and preferences.
- Dynamic resource that reflects the continuous updates on the development of scientific research and training, educational initiatives, industry collaborations, and social activities.
- Offers an efficient means of adhering to EU directives on the visibility and Communication of research funded by public resources.
- Provides a relatively low-cost platform for ongoing Communication throughout the project lifecycle.

Efficiency KPIs

- **No. of unique visits:** provides a more accurate measure of reach and helps the understanding of the actual number of individual users accessing the site.
- **No. of visitor countries:** enhances audience engagement strategies by prioritising geographic diversity; signals opportunities to engage with a broader audience across multiple nations; fosters collaboration beyond the partner countries; helps understand the website's global reach and impact; and can inform content localisation and internationalisation.

3.1.2.2.2. Events

The prominence of conference participation as the second most used channel for communicating (88% of the projects; **Table 1**) after the website, aligns well with the core objectives of Twinning projects, fundamentally rooted in a specific scientific domain, aiming to enhance the technical capabilities and skills of research communities, with a particular focus on ECRs. A realistic and manageable implementation KPI is provided by the mode of conference participation, with a record of six per Twinning action, roughly corresponding to two conference participations per year. This KPI seems reasonable and appropriate for a capacity-building project, striking a balance between providing opportunities for researchers to engage with the wider scientific community and maintaining focus on other

project activities. This mode also suggests that Coordinators interpret the reporting request as the number of conferences where the project participates, rather than the raw number of participations, which typically accounts for the number of communications (poster or platform) made in conferences or the number of team researchers participating in conferences. Whether the SyGMa platform is requesting one or another record is unclear to us.

Regarding the organisation of conferences, approximately 65% of project Coordinators incorporate conference organisation into the Twinning action **(Table 1)**. Despite the large figure, this communication channel is clearly not standardly adopted, perhaps due to the substantial resources and expertise required to organise such events. For the projects that include this communication channel, the associated KPI mode is set to one, which is entirely feasible.

The survey data reveals that 71% of projects indicate meetings as a communication channel. However, the broad definition of "meetings" poses analytical challenges when approaching the survey results and a reporting challenge, given that the specific nature, structure, and composition of these events are not clear. Events like meetings, workshops, internet debates, roundtables, group discussions, and brokerages are designed for a narrower target audience (e.g. EPIBOOST workshops are designed for ECRs) and typically bear a narrower scope. These events often have a strong participatory character and might catalyse new ideas and approaches in R&I; if so, it becomes clear that a Dissemination rather than a one-way Communication activity is in place. Once again, meetings, as well as education and training events that regularly take the form of workshops, are also Dissemination activities for reporting purposes through the SyGMa platform. This duplication is undesirable, as it is confusing and inefficient, especially in Twinning projects, where some of these events are also considered project results when a training dimension is in place.

Regarding quantitative metrics, the KPIs related to the number of meetings show convergence between the mode and average values **(Table 1)**. The data suggests that projects typically aim for eight to ten meetings over their duration, which translates to approximately three meetings per year. This frequency appears both reasonable and realistic, striking a balance between maintaining regular communication with audiences and avoiding excessive administrative burdens. After meetings, workshops are differentiated by nearly 60% of the projects as communication channels **(Table 1)**, and in this case, the average associated KPI is seven, and there is a maximum KPI mentioned of 20 workshops. The wide variety of structures, scopes and sizes that can fit in the definition of a workshop, as well as the triplicate role of workshops in Twinning projects (as a communication channel, a dissemination channel, and a result/output) may have biased the understanding of respondents and/or may bias the reporting options.

Despite the implementation KPIs discussed, a relevant additional reflection regarding any type of event on the definition of efficiency KPIs remains, which broadens the understanding of the success of the communication through these channels. This is not a common practice among sister projects, as denoted by the very limited indication of such KPIs in **Table 1**. However, there are effective efficiency KPIs that can be established as follows.

- **Conference participation:** participation rate, which indicates event relevance; attendee satisfaction assessed through post-event surveys, which reflects reaching efficiency.

- **All other events:** agenda completion rate, indicating on effectiveness of time management; number of questions asked, or discussions initiated, which measures engagement levels and informs about areas or strategies for enhancing attendee experiences in subsequent events; number of follow-up tasks accomplished after the event (e.g. new collaborations), which highlights effectiveness in driving progress; number of participants or ratio between virtual and in-person attendees in hybrid events, which supports the optimization of future events of the same type; cost per participant, measuring on efficient resources use.

3.1.2.2.3. Media

Media plays an important role in translating complex scientific concepts into more accessible and plain language, thereby facilitating knowledge transfer to non-expert audiences. In this subsection, we are aggregating the Interviews, Media articles, Press releases, and TV/radio campaigns. Advantages of using each media outlet as a communication channel are summarised in **(Table 4)**, along with suggestions for efficiency KPIs, that were not signalled by sister projects responding to the survey. They focused solely on implementation KPIs, which can hardly indicate reach and channel efficiency. In this context, the KPI related to the number of press releases in Twinning projects (52.94% of surveyed projects use this communication channel) indicates a minimum of two and a maximum of ten, the mode being two **(Table 1)**. Whereas press releases are mainly dependent on the project, other channels depend heavily on the media's interest in a particular topic. This is the case with media articles, interviews with project researchers, and TV/radio campaigns. Media articles were indicated as the most used communication channel (64.7% of sister projects; **(Table 1)**. Interviews with project researchers were used by 41.2% of the surveyed projects, whereas 29.4% indicated that they used TV/radio campaigns (local level) to disseminate the project.

Table 4. Advantages of using different media outlets as communication channels in projects, along with suggestions for efficiency key performance indicators (KPI).

Advantages	Efficiency KPIs
Press Releases ▫ Contribution to setting the agenda for the press, public, and policymakers, bringing evidence-based information that is needed to frame, support or implement new or reformulated policies.	▫ Engages audiences who may not actively seek out scientific information and its effectiveness.
Interviews ▫ Opportunity for in-depth insights into the project and results; ▫ Humanises research by showcasing scientists behind the work; ▫ Allows nuanced explanations of complex topics; ▫ Can lead to increased media coverage and spark public interest in the project while addressing potential misconceptions.	▫ Number of media outlets that pick up and publish stories based on the press releases; ▫ Increase in project website traffic or social media followers in a short period after the release. ▫ Readership metrics; ▫ Social media shares; ▫ Citations in other media outlets; ▫ Increase in project website traffic or social media followers in a short period after the release.
Media Articles ▫ Reach a broad audience; ▫ Often present findings in a narrative format that is more engaging for non-specialist audiences; ▫ Enhances the perceived relevance of the work.	▫ Audience ratings; ▫ Increase in project website traffic or social media followers in a short period after the release.
TV/ Radio campaigns ▫ Amplifies a project's visibility by providing platforms for visual and audio explanations of research concepts;	

3.1.2.2.4. Social Media

In today's digital age, social media (social networks) has become a powerful tool for Communication, including in the context of scientific projects. These tools offer scientists great opportunities to communicate research findings, connect with peers, and engage all audiences defined in the Communication strategy. Indeed, social media can help to bridge the gap between scientists and different audiences, especially, but not exclusively, the so-called general public or society with its different subtypes. Social networks are also an excellent avenue to stay informed about community activities and share Twinning project perspectives.

The relevance of social networks is also recognised by the surveyed Twinning projects, with about 65% of the surveyed sister projects confirming their use of these communication channels and being active on two or three social platforms **(Table 1; Figure 4).** The most used ones are X (former Twitter) and LinkedIn **(Figure 5)**.

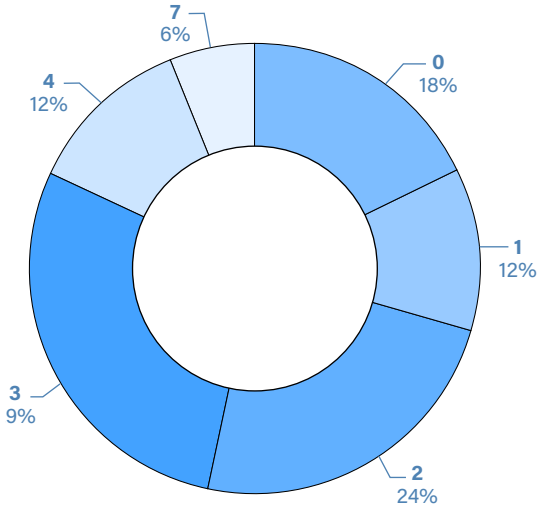


Figure 4. Number and relative frequency (%) of social networks used as a communication channel by surveyed sister projects.

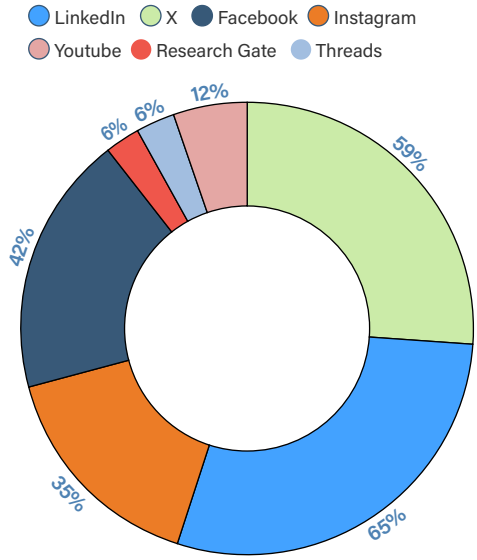


Figure 5. Frequency of different social networks usage by the surveyed sister projects.

Key characteristics, target audiences, and best practices for conducting efficient Communication through social media platforms are summarised in **Table 5**. All Twinning projects may join and connect with EC and other EU projects on these platforms. The importance of hashtags in this context is significant, as general hashtags can help categorise content related to Twinning projects, making it easier for interested audiences to find relevant information. Moreover, post-specific hashtags can enhance the visibility of updates and potentially increase engagement and reach by making the content more discoverable through external searches. Tags for institutions, individuals, and related projects are equally vital, as they capitalise on the existing reach of these entities and help meet KPIs by increasing visibility and engagement. This way, Twinning projects can also leverage established networks and audiences, amplifying the impact of their communications and fostering connections within the broader EU R&I landscape. This strategic use of hashtags and tags not only enhances Communication effectiveness but also ensures that important messages reach the appropriate stakeholders. Popular hashtags in the EU landscape include #EUFunded and #HorizonEU. On 2 October 2025, the EC launched a leaflet titled "Communicating about your research project on social media", offering tips to help projects increase the reach of their results.

Table 5. Main characteristics of the social networks used by sister Twinning projects.

Platform	Key characteristics	Best practices	Target audience
LinkedIn	▫ Professional network; ▫ Sharing of research findings, outputs, positions, training opportunities, and events.	▫ Informative and relevant scientific content; Actively engaging with professional networks; Maintain a consistent and credible presence; Share detailed project updates and results.	▫ Academia; ▫ Policy and industry actors.
X (former Twitter)	▫ Short-form text (280 char.); ▫ Real-time, concise and rapid communication.	▫ Clear and concise language, including visuals (images, infographics and videos); Active engagement with audiences through replies, retweets and likes.	▫ Journalists; ▫ Policy actors; ▫ Global audience; ▫ Academia.
Facebook	▫ Versatility; ▫ Allows groups and events; ▫ Intergenerational connections; ▫ Live streaming capability.	▫ Use storytelling to explain scientific concepts; Create visually appealing infographics; Engage with audiences through comments.	▫ Global audience; ▫ Local communities.
Instagram	▫ Visual-focused (images, videos and infographics); ▫ Stories and Reels features; ▫ Live streaming capability.	▫ Translate complex scientific concepts in a visually appealing and accessible way; Utilise Stories for behind-the-scenes content; Regular share of visual project updates.	▫ ECRs; ▫ Global audience (20-40 years-old).
Youtube	▫ Video-based platform; ▫ Live streaming capability.	▫ Videos that explain scientific concepts and showcase findings, interviews, and demonstrations; ▫ High-quality and visually appealing videos, optimising video titles and descriptions.	▫ Global audience; ▫ Visual learners.
Research Gate	▫ Academic networking site; ▫ Paper sharing; ▫ Q&A feature; ▫ Job board; ▫ Metrics (e.g. reads, citations).	▫ Regularly update profile with publications; ▫ Engage in Q&A discussions; ▫ Share full-text articles when possible; ▫ Connect with researchers in similar fields; ▫ Use the platform for collaboration opportunities.	▫ Academia; ▫ Research-focused professionals; ▫ Potential collaborators.
Threads	▫ Text-based conversations; ▫ Integration with Instagram; ▫ Focus on public discussions.	▫ Share concise updates and insights; ▫ Engage in topic-specific threads; ▫ Cross-promote content from Instagram.	▫ General public interested in text-based discussions.

A limited number of surveyed sister projects indicated efficiency KPIs concerning their social networks (23.5%; **Table 1)**. Suggested efficiency KPIs building from what was indicated by sister projects, are as follows:

- **Engagement and impact metrics,** such as those measuring the number of likes, comments, shares, and clicks as a percentage of followers or reach, indicate how well content resonates with the audience. Note that engagement quality increases depending on the type of interaction: click > share > comment > like (Trunfio & Rossi, 2021).
- **Audience growth rate,** which tracks the increase in followers over time (e.g. quarterly or yearly) to gauge expanding reach and interest.

3.1.2.2.5. Other channels

Exhibitions were moderately adopted by Twinning projects **(Table 1)**, indicating that while exhibitions are recognised as beneficial, they are not standardly embraced, likely due to the resource-intensive nature of organizing such events. The general preference for a limited number of exhibitions suggests that projects prioritise quality over quantity, focusing on impactful experiences rather than frequent occurrences. Notably, one project recorded 12 exhibitions, possibly reflecting a specific public-facing focus or effectiveness in their field. Among surveyed sister projects that send regular **newsletters to stakeholders,** nearly half produce six newsletters, aligning with a semi-annual schedule **(Table 1)**. **Print materials,** such as pamphlets, brochures, factsheets, and posters, are recognised by 47% of the surveyed sister projects as a good communication channel, similar to videos, which were utilised by 47% of the sister projects **(Table 1)**. These relatively high adoption rates reflect the effectiveness of visual content in conveying complex information and engaging diverse audiences.

Besides the number of items produced (implementation KPIs), efficiency monitoring seems rare among the survey respondents, as such information was provided only for exhibitions (interactions with researchers) and regarding the number of copies printed for print materials **(Table 1)**. In **Table 6** below, we provide suggestions for these types of KPIs, aligned with the recognised advantages of the channels covered in the present sub-section.

Table 6. Advantages of using exhibitions, newsletters, print materials and videos as communication channels in Twinning projects, along with suggestions for efficiency key performance indicators (KPI).

Advantages	Efficiency KPIs
Exhibitions (e.g. citizen science fairs) ▫ Venue for Twinning partners to interact with educational communities and citizens, contributing to the literacy raise on the project topic.	▫ Attendance numbers, providing a measure of the event reach; ▫ Attendees satisfaction assessed through surveys; ▫ Educational impact, measured by number of schools involved, indicating the exhibition's contribution to education; ▫ Media coverage, by monitoring mentions or articles generated from the exhibition, which indicate a broader public reach; ▫ Tracking follow-up actions, such as new newsletter sign-ups or website visits, showing interest after the event.
Newsletters to stakeholders ▫ Comprises consolidated information on project milestones, research findings, and past and upcoming activities in a digestible format; ▫ Amplifies the impact of communication efforts.	▫ Open rate measures (e.g. % of recipients opening the newsletter), a high rate indicating compelling subject lines and valuable content; ▫ Survey responses, which can be gathered periodically to understand stakeholder satisfaction and content relevance; ▫ Tracking subscriber growth over time, which indicates expanding project awareness and interest.

Print materials ▫ Condenses information in an easily digestible format; ▫ Provides a quick overview of the project's objectives, activities and anticipated outcomes; ▫ Offers a snapshot of the project's significance and impact on different audiences; ▫ When used in exhibitions and events, it is a physical support facilitating networking; ▫ Succinct nature allows its use as resources communicated through other channels as well.	▫ Distribution rate measures tracking the number of materials distributed, a high rate indicating effective reach; ▫ Engagement rate tracking how many people interact with materials (e.g. picking up a brochure or scanning a QR code), which indicates the materials' ability to capture attention; ▫ Brief surveys or follow-up questions to track the information retention (i.e. how well recipients remember key project details after exposure to the materials); ▫ Audience growth rate to track the increase in followers over time, especially if the materials include QR codes or website links.
Videos ▫ Valuable for translating scientific information for laypersons, making complex concepts more accessible and understandable broadly.	▫ View count, indicating the number of times a video was watched. It is important to note that different platforms define a "view" differently (e.g. YouTube counts a view when a user watches for at least 30 seconds; Facebook and Instagram consider a view after 3 seconds).

3.1.3 European Commission Communication Notes

As a contractual obligation, general implementing partners whose project benefits, in whole or in part, from EC funding must ensure the visibility of EU financing. Whatever the size, scope, or objectives of the action, the EU emblem must be prominently displayed on all materials produced by the project, and the EU financial support should be explicitly acknowledged. To assist in meeting this obligation, the EC issued "Communicating and raising EU visibility: Guidance for external actions" in 2022.

Any information used in Communication or Dissemination activities must be factually accurate and it must indicate the following disclaimer (translated into local languages where appropriate):
"Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them."

The EC organised an informative Communication Webinar, available on YouTube (https://www.youtube.com/hashtag/commsworkout), offering valuable insights and guidance on effective Exploitation, Dissemination, and Communication strategies. This engaging webinar delves into fundamental Communication questions, exploring the importance of Communication, the role of multipliers, and methods to assess the actual impact of project Communication efforts.

The EC offers a robust suite of free-of-charge communication channels to support Twinning projects and showcase their impact (e.g. Cordis and Horizon Magazine). Together, these tools form a comprehensive arsenal, empowering Twinning projects to communicate effectively and maximise their impact within the Horizon Europe framework.

3.2. Internal Communication

3.2.1. Communication Among Consortium Partners

Efficient internal communication within the Consortium is crucial for the success of Twinning projects, particularly in engaging leading partners effectively from the beginning of the action. These partners play a pivotal role in achieving the core objective of capacity-building projects by facilitating knowledge transfer and ensuring that their expertise and resources are fully leveraged to enhance the capabilities of the widening institutions at the research and administrative levels. **By prioritising effective internal communication, Twinning projects can overcome potential barriers to knowledge exchange, align project goals across all partners and maximise impact at an institutional level.**

Establishment of efficient communication routes among partners – including administration pivots - is key. In Twinning projects, the success of collaborative efforts hinges on well-defined partner roles, clear responsibilities, and effective communication routes among project partners. **Regular meetings,** both online and in person when feasible, should be scheduled to discuss project progress, address challenges, and share updates. For projects involving a very large team of researchers, they can be structured into smaller teams and assigned a lead within each group, who can contact each partner more directly for specific research activities. Also, for each partner, we should highlight the need for effective, regular communication between researchers and RMAs. Building a collaborative environment between researchers (focused on scientific work) and RMAs (dealing with broader organisational priorities and processes) requires effort from both sides to bridge perspectives and establish communication channels and flows.

Survey results on internal communication revealed that most coordinators **contact partners** monthly or weekly **(Figure 6)**. The weekly contact frequency appears more reasonable for effective project management. However, we believe the reported higher periodicity may be due to the survey timing, which was conducted at the end of the first year, when projects are typically not yet operating at full capacity. During this initial phase, projects are often still establishing routines and workflows, which may lead to less frequent communication. As projects progress and reach their "cruise velocity", we anticipate that communication frequency will likely increase to support more intensive collaboration among partners.

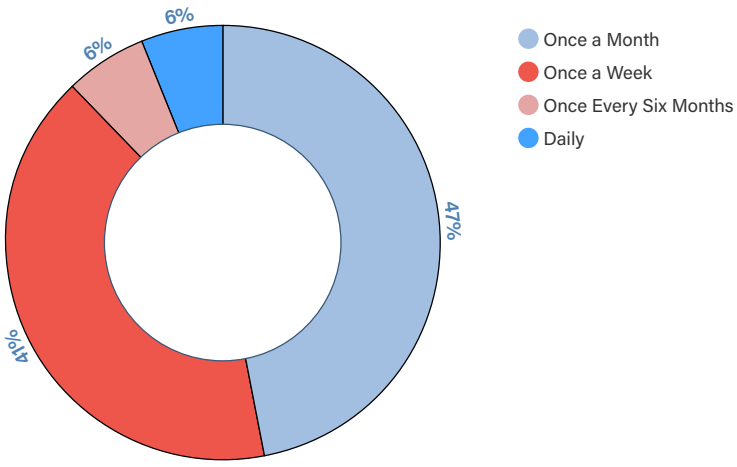


Figure 6. Average periodicity of interaction with partners concerning project implementation in surveyed sister projects.

The channels used for internal communication by Twinning projects revealed an interesting mix of traditional and modern approaches **(Figure 7)**. While email exchange and online meetings are the most frequently used, the prevalence of in-person meetings over collaborative platforms is somewhat surprising and warrants further discussion. In-person meetings, although valuable for building relationships and fostering collaboration, come with significant environmental costs, especially given the high frequency of meetings in Twinning projects. The underutilization of **web-based collaborative platforms (Figure 7)** represents a missed opportunity. Examples of such platforms are Google® Drive, Slack® and Microsoft® Teams, OneDrive or SharePoint, with selection being ruled by a preference for tools that are institutionally supported and that grant the straightforward identification of collaborators (e.g. Google® Drive requests the use of other tools for ensuring the identification of a contributor in a shared document). Importantly, the selected

platform should be fully dedicated to the project rather than "own" by a team member that then will have to manage the overall space available in their account to ensure enough allocation to the project and to other works; it should also allow the identification of the contributors, with the associated efficiency (e.g. recognising who has contributed with a given comment in a given document) and security benefits.

These collaborative platforms have evolved significantly and offer excellent alternatives to heavy email communication. They can streamline processes by reducing email overload, allowing team members to focus on collaboration rather than sorting through countless messages. These platforms also facilitate real-time collaboration, enabling multiple team members to work on documents simultaneously, enhancing productivity and helping avoid version-control issues that often arise in email exchanges. Furthermore, collaborative tools provide better organisation of project information, making it easier for team members to access shared files, discussions, and timelines. Importantly, these platforms respect individual availability and support a better work-life balance. Team members can contribute at times that suit their schedules, which is especially beneficial when partners are located in different time zones. It is important to highlight that fully dedicated collaborative platforms should be established rather than using existing platforms assigned to individual team members.

Setting a clear Consortium meeting plan is essential for ensuring efficient working environments. This can be achieved by creating dedicated time slots for discussion and decision-making, and by leveraging online tools to collaboratively draft plans during meetings. Consortium meetings should strike a balance between regularity and efficiency, which can in part be achieved by scheduling ahead all activities and assigning responsibilities as soon as possible. An organised meeting agenda serves as a roadmap for discussions and decisions, and it should be circulated in advance to give participants time to prepare. At the conclusion of each meeting, establishing a list of action items with clearly defined responsibilities clarifies who is accountable for each task discussed, set deadlines, and include these items in the meeting minutes for future reference.

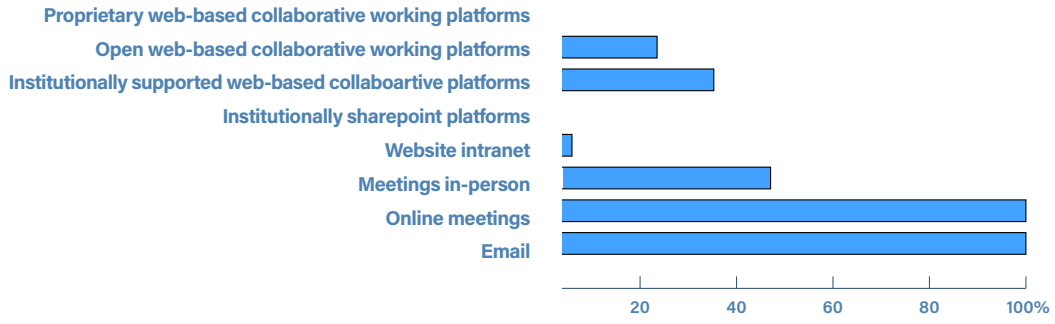
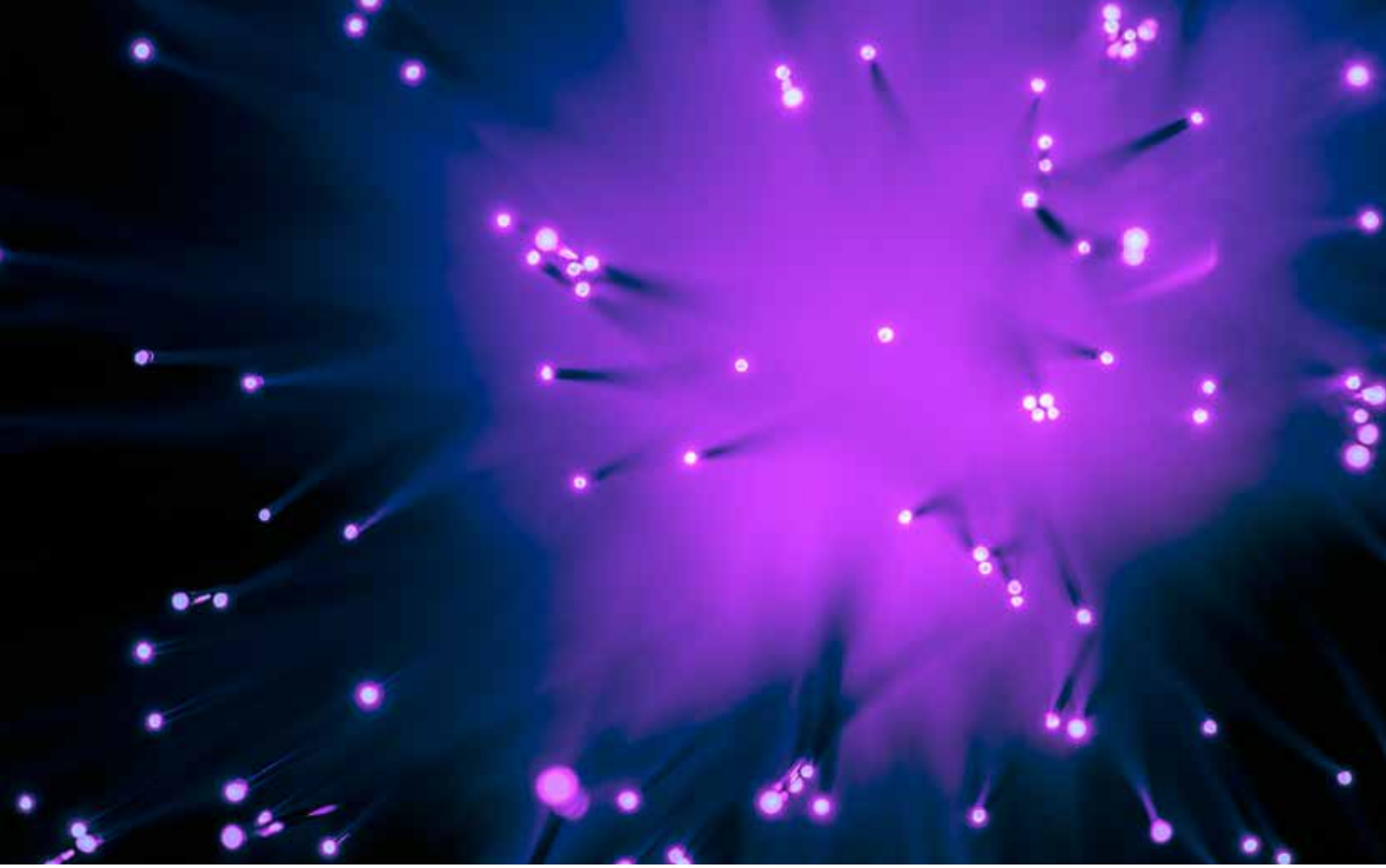


Figure 7. Frequency of use of different channels for communication between the coordinator and partners in surveyed sister projects.

Most survey respondents rated internal communication as very good (44%) or good (25%). Average success in internal communication was reported by 25% of the sister projects, while none reported poor or very poor success. About 6% of the projects are yet unsure as per the early stage of implementation at the time the survey was distributed. Despite the positive picture that shows up when the survey requested feedback on "the most important difficulty felt during the project concerning internal communication", more than 50% of the respondents identified problems such as lack or restricted time of leading partners to meet online, finding a common time to meet, and slowness in reacting to the email. This suggests that partners are often overloaded and tend not to prioritise the Twinning projects.

Good Practices
Good practices guide for widening projects' management

Chapter 4
Dissemination and Exploitation



Chapter 4

4. Dissemination and Exploitation

Dissemination and exploitation are two distinct but complementary activities in the context of R&I projects, understood within the Horizon Europe framework as critical to boost the project's impact (see obligations referred to in the EU Regulation 2021/695, Article 39). The European Research Executive Agency clearly defines both terms in many online resources. What they have in common is that **both dissemination and exploitation are focused on project results;** these being broadly defined as outputs generated by the project during its implementation, including know-how, innovative solutions, algorithms, proof of feasibility, new business models, policy recommendations, guidelines, prototypes, demonstrators, databases and datasets, trained researchers, new infrastructures, networks, etc.

Dissemination refers to the public disclosure of project results through various means to those stakeholders who can make the most of them and benefit the project as a return. In Twinning projects, results are certainly research outputs, but they can also be activities (of capacitation) that deliver trained researchers and staff. Increasingly, dissemination embraces open science practices, making research outputs accessible to maximise their reach and impact. **Exploitation focuses on the actual use and/or application of research results**, i.e., in developing, creating, and marketing products, processes or services derived from research findings, or project activities (especially in the case of capacitation projects). Exploitation involves translating research concepts into concrete solutions that positively impact society (e.g., environment, culture, health) and/or the economy. This can include commercialising innovations, influencing policy decisions, or implementing new practices in various sectors. Exploitation often extends beyond the project timeline and may involve protecting intellectual property as a precursor to commercial activities.

Effective dissemination and exploitation strategies are underpinned by rigorous stakeholder analysis. Two prominent methodologies in this context are **stakeholder mapping and impact planning tools** such as the UCD Impact Planning Canvas. The stakeholder map is an essential visual tool that systematically identifies and categorises stakeholders based on key dimensions such as influence, interest, and relevance to project outcomes. This process enables project teams

to prioritise stakeholders and tailor dissemination activities to optimise reach and engagement. In contrast, impact planning frameworks provide a more holistic and structured approach, mapping stakeholders and analysing their specific roles, expectations, preferred communication channels, and the anticipated impact of project activities on each group.

To further support these efforts, **the European Union has developed an extensive array of tools and services designed to enhance the dissemination and exploitation of research results from EU-funded initiatives,** thereby maximising their societal and economic value. Key instruments include the Horizon Results Platform, which disseminates project outcomes to a broad spectrum of stakeholders; Open Research Europe, an open-access platform for publishing scientific outputs; and the recently launched Booster (2024–2028), which offers bespoke support for D&E strategies, business planning, and market readiness. Additional resources, such as the Innovation Radar, facilitate connections between innovators, investors, and policymakers, while the Horizon Standardisation Booster assists projects in leveraging results through standardisation processes. Significantly, in 2025, the EU introduced the widerAdvance Facility, targeting widening countries and outermost regions. This initiative addresses structural challenges to D&E by providing expert guidance, capacity building, and support for technology transfer and intellectual asset management, fostering greater visibility and impact for research across the European Research Area.

Dissemination and exploitation strategies in HE projects typically follow innovation models, which consider the involvement of multiple stakeholders. The most classical innovation model is the Triple Helix, which focuses on knowledge, innovation and consensus spaces represented by research, industry and governmental stakeholders (Cavallini et al., 2016). This model has gradually evolved into a **Quadruple Helix innovation model,** embedding the Triple Helix with a fourth helix, including civil society and the media- and culture-based public. This new approach entails a shift from technical innovation to social innovation (Cavallini et al., 2016), encouraging the perspective of society assuming a broader democracy for knowledge production and innovation (Gertrudix et al., 2021; Prayudi et al., 2020). The Quadruple Helix innovation model (**Figure 8**) seems appropriate to approach dissemination in EU projects, naturally consistent with the HE framework for Responsible Research and Innovation (RRI), where public engagement with projects and results is a fundamental pillar. In addition, the four helices of a quadruple-helix dissemination model are linked to the audiences listed by the EU to report (lateral boxes of **Figure 8**), supporting its use as guidance. As mentioned throughout the present guide, RMAs are essential stakeholders of Twinning projects. This specific audience is part of the research communities, which includes researchers and these professionals.

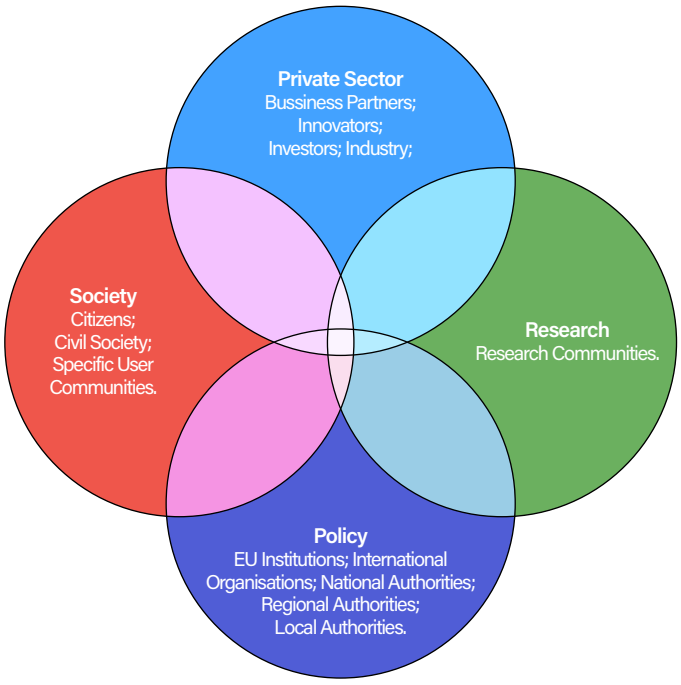


Figure 8. Quadruple Helix dissemination model, evidencing the cross-link with the audiences listed by the EU for project reporting purposes through the SyGMa platform (lateral boxes). For clarity, the naming of the four helices is proposed based on several sources, including EU documentation as quoted in the text, so that the overall helix designation could represent an umbrella covering the audiences without coinciding with any in particular.

4.1. Dissemination Activities

Dissemination activities should entail a two-way flow of the project with one or more helices, enhancing the effectiveness of knowledge transfer and stakeholder active engagement. It is important to ensure that the overall strategy is disseminated across the four helices to maximise the societal impact of the project and its results. Table 7 summarises the benefits of an efficient dissemination covering the four helices of the quadruple helix model (see previous section).

Table 7. Summary of advantages of an efficient dissemination strategy to the stakeholders and back to the project. The rationale was based on a two-way flow implemented across the stakeholders in the quadruple helix model.

Advantages to Stakeholder	Advantages to the Project
Research ▫ Fosters advances in the scientific field by allowing researchers to build upon each other's results; ▫ Enables research to feed into work across disciplinary boundaries, promoting interdisciplinary collaboration.	▫ Provides feedback on the project's directions and results; ▫ Enhances project team visibility, credibility and potential for collaboration, nurturing their careers.
Policy ▫ Supports the development of evidence-based strategies addressing societal challenges; ▫ More efficient allocation of resources to design targeted interventions; ▫ Supports the creation of scientifically grounded policies.	▫ Grounds the alignment of the project with societal challenges; ▫ Fine-tuning of theoretical approaches or academic insights to the scope of regulatory, governmental and/or governance contexts.
Private Sector ▫ Provides access to advanced knowledge, expertise and the latest technological insights, enhancing product, process or service innovation.	▫ Possible extra funding; ▫ Uncovers new research opportunities with an intersectoral dimension; ▫ Accelerates the translation of academic results into real-world applications; ▫ Creates opportunities for intersectoral upskilling and/or career prospects for researchers and students.
Society ▫ Empowers by enhancing scientific literacy that builds trust in science and potentially catalyses positive behaviour change; ▫ Promotes democratisation of access to knowledge that stimulates public curiosity and critical thinking, essential for building a capacitated society to tackle challenges.	▫ Catalyses the incorporation of societal perspectives in the project, driving its impact towards real societal needs; ▫ Lobbying that can broadly expose the project and its results, catalysing its societal incorporation; ▫ Through citizen science approaches, critical co-creation of scientific and innovation outputs may become available.

The results of the survey to the coordinators of Twinning projects met some aspects reasoned above, but the most valuable reasons to move dissemination of results and activities are the ones aligned with Twinning project objectives: "Enlarge the international network for future collaboration" (12.7%); "Raise the scientific profile of the consortium researchers" (12.4%); and "Contribute to the advancement of the State of Art in the scientific field of the project" (12.4%) (**Figure 9**).

Figure 9. Rating of the importance given by coordinators of Twinning projects to different reasons behind their investment in disseminating the results and activities of their Twinning projects. The question asked was as follows: "Please order by importance (1 – not important, 5 – very important) the following reasons that move you to disseminate the results and activities of your Twinning project".

Co-creation and co-design activities are among the most evident two-way strategies in dissemination frameworks for R&I projects; furthermore, citizen and end-user engagement in co-creation and co-design activities is an explicit reporting item in SyGMa, regarding the project's impact. However, these are not necessarily evident approaches in CSA actions, and indeed, surveyed Twinning projects showed a low prevalence of co-design and/or co-creation processes - ca. 60% of the respondents to the survey were not planning to implement these activities. The projects that planned co-design and/or co-creation processes provided either little or general details on how citizens and end-users are foreseen to effectively contribute in practice, as well as on coherently linking the co-creation/co-design activity to the standard categories considered in SyGMa (**Table 8**). This suggests a possible superficial understanding or an unstructured implementation of the framework resources. Interestingly, some respondents cited the collaborative development of the present guide as an example of a co-creation process. However, the assignment of this activity to the category "Co-creating R&I visions, agendas, policies or frameworks" was not made. At the same time, we believe that the impact of the guide can extend to it.

Table 8. Responses of the sister projects' coordinators to the question "How have citizens and/or end-user entities contributed to the co-creation of R&I content so far?". The selection options available strictly met the SyGMa project reporting form. The percentage of respondents (among those foreseeing the implementation of co-creation and/or co-design activities) selecting each option is shown, and the right-hand column shows the comments added by the respondents explaining the selection.

Co-creation/co-design activities (SyGMa)	%	Advantages to the Project
Co-creating R&I visions, agendas, policies or frameworks	60	The long-term vision suggestions of the end-users will be considered for the innovation of the project prototype.
Co-creating R&I action plans or technology roadmaps	20	
Collecting data for the project	40	Sister projects contribute with data regarding the management of their projects for the elaboration of a guide.
Analyzing data for the project	20	Sister projects co-analyze data for elaborating a guide on Twinning projects management.
Providing resources, e.g., computational, space/locations, and practical support	40	
Monitoring and/or evaluating R&I results	0	
Testing & experimenting with innovative R&I solutions	20	
Contributing to scientific publications or patent applications	20	
Debating R&I findings and implications for them	60	The suggestions of the endusers on the research results will be considered for the innovation of the project prototype.

4.1.1. What And How To Disseminate In Twinning Projects?

Twinning projects are designed to enhance scientific excellence and innovation capacity, generating diverse outputs that define diverse dissemination activities. The outputs in Twinning projects encompass the traditional scientific ones (also common in other projects), such as scientific publications. Nevertheless, the nature of these projects necessarily leads to specific attention to other outputs related to capacitation activities and the leveraged levels reached by the team (technically and scientifically) and the coordinator's research management and administration (RMA) support offices. Despite this nuanced ground for dissemination, the reporting demands by the EU in Twinning projects are not specifically adjusted, and the dissemination activities available for selection when reporting are the same as in other project typologies: Conferences; Education and Training events; Meetings; Clustering activities; Collaboration with EU-funded projects; Other Scientific collaboration; Other Scientific cooperation; Other. The number of events within each of these categories (implementation KPIs) by each project was surveyed, and the response of the coordinators of sister projects is depicted in **Table 9**.

Table 9. Survey results regarding the number of events per type of dissemination activity organised by the Twinning sister projects. The dissemination activities provided for data collection in the survey are the same as required for Dissemination reporting in SyGMA (except for "Participation in conferences" and "Organisation of conferences", which were purposely separated in the survey, while reporting requests information for the typology "Conferences").

Type Dissemination Activity	Implementation KPI				% of projects implementing the activity
	Average	Mode	Min	Max	
Participation in conferences	9.31	6.00	3.00	30.00	100.00
Organization of conferences	1.92	1.00	1.00	5.00	70.59
Education and Training events	8.43	10.00	3.00	20.00	82.35
Meetings	6.82	6.00	3.00	12.00	64.71
Clustering activities	3.57	5.00	1.00	6.00	41.18
Collaboration with EU-funded projects	2.56	2.00	1.00	5.00	52.94
Other scientific collaboration	2.60	2.00	1.00	5.00	29.41

Publications , including scientific publications, is reported in other dedicated sections in SyGMa. Although not specifically considered in the overall table describing dissemination activities, these are such activities by nature, rooting the maximisation of the impact of projects developing research and innovation. Therefore, in the context of the present document, they will be addressed as the other SyGMa dissemination activities.

4.1.1.1. Scientific Articles

Scientific articles published in international peer-reviewed journals constitute the cornerstone of dissemination efforts for the scientific component of Twinning projects. These publications not only benefit the careers of individual scientists but also enhance the reputation and visibility of the partner institutions while amplifying the scientific impact of the project. Moreover, publications also boost partnerships within the consortium. To achieve the objectives of Twinning projects in enhancing scientific excellence and leveraging the research profile of participating institutions, it is crucial to focus on high-quality scientific outputs. This entails publishing research findings in prestigious journals. It is also important to guarantee that scientific articles are published in open access (as stated in Article 17 of the Grant Agreement). Such a strategy maximises the visibility and impact (particularly targeting research communities) of the research conducted within the Twinning framework and fosters

the development of research excellence in widening countries.

Although dissemination through scientific publications is important, Twinning projects are developed with relatively small consortia, and only a minor part is dedicated to a research project that can produce scientific data feeding scientific publications. As such, the implementation KPIs, specifically the number of published papers, can be challenging to establish, as most consortia are used to large numbers and often their standards are not easily calibrated to the capacity-building focus projects that necessarily downplay the representativity of scientific publications. An analysis of proposals from surveyed sister projects revealed the mode of six publications per project. Notably, two projects defined a KPI range, with four publications indicating good performance and twelve representing an excellent outcome. In most cases, the number of publications during the project time course and/or in its afterlife exceeds the expected targets by approximately 67%. This suggests that, despite initial reservations regarding publication output, Twinning projects may foster greater scientific progress than initially anticipated.

4.1.1.2. Conferences

The reporting platform's category for conference dissemination activities does not differentiate between conference participation and organisation. While both activities play significant roles in disseminating the outcomes of a Twinning project, they represent distinct forms of engagement. Recognising this distinction informed our inquiry to sister projects regarding their use of conferences as dissemination activities; accordingly, both options, participation and organisation, were included in our request for feedback. Regarding conference participation, surveyed sister projects identified it as a standard dissemination activity used by all surveyed projects, with a mode of 6 participations per project (Table 3). It remains unclear if these KPIs refer to the number of communications (poster or oral presentation) foreseen or the number of conferences where the project participates. Twinning coordinators should prioritise international conferences that align closely with the project's research field, offer substantial networking opportunities, and boost academic reputation. These conferences serve as vital platforms for disseminating research findings, cultivating collaborations (particularly between widening and non-widening countries), and enhancing the visibility of institutions. One of the sister projects highlighted that a useful KPI for monitoring the dissemination efficiency regarding conference participation would be the reputation and the number of conference attendees. Another highlighted that monitoring the increase in the research performance of the team following participation in conferences would be a relevant KPI to monitor the relevance of such dissemination activity in promoting the project's impact. We suggest that this increase in research performance can be measured in the short term by the increase in citations, and in the long term by the increase in follow-up collaborations with new partners.

In the context of the specific goal of Twinning projects to enhance Research Management and Administrators (RMA) capacity, the participation of the project's team RMAs in conferences targeting these professionals also deserves some consideration. In this case, the RMA can contribute to the dissemination of non-scientific outcomes of the project, such as best practices in project coordination, administrative innovations, and capacity-building achievements. Also, these events provide valuable opportunities for RMAs to engage in professional networking, exchange experiences with peers from other institutions, and acquire new skills and knowledge related to research administration. Exposure to international standards and emerging trends in research management can significantly enhance the effectiveness and efficiency of administrative processes within the participating institutions.

It is also clear that **conference organisation** is given significant attention, as 70% of the surveyed projects plan to implement it; the mode for the KPI was one conference organised per project, which seems reasonable given the effort required for such an activity and the small size of the consortia in Twinning projects (**Table 9**). Organising conferences as a disseminating activity offers additional strategic advantages for Twinning projects. By hosting such events, project teams can shape the agenda, select keynote speakers, and determine the thematic focus, ensuring that the conference aligns closely with the project's objectives and research priorities. This level of control facilitates the targeted dissemination of project results and enables widening institutions to foster collaborations with leading experts and stakeholders, thereby establishing themselves as influential actors within their respective fields. Furthermore, organising conferences can yield long-term benefits, such as invitations to participate in recurring events or forming sustained partnerships that may extend beyond the Twinning project's life. Successfully managing large-scale events also serves as a tangible demonstration of an institution's administrative and organisational capacity, further enhancing its reputation and attractiveness as a partner in future collaborative initiatives. The number of conference attendees was suggested as an efficiency KPI, reflecting the reach and appeal of the event. Another efficiency KPI that can be suggested in addition is the ratio of participants' affiliation from non-widening by non-widening countries, with a balanced ratio being the ideal outcome, meeting primary goals of the Twinning programme and the leveraging strategy by the EU towards promoting excellence in widening countries.

The audiences targeted by sister projects for Dissemination through participation or organisation of conferences are similar (**Figure 10**), with Research communities being the audience marked by more sister projects (77% and 53% for participation and organisation, respectively). Research communities are followed by industry as audiences (**Figure 10**), which somewhat reflects the growing interest of industry in these events and the efforts towards promoting interactions between academia and the private sector to foster innovation. Interestingly, an unexpected weight is given to society within this helix (**Figure 10**). While scientific conferences traditionally attract mainly research communities, the identification of society as a target audience in dissemination strategies for Twinning actions underscores an evolving understanding of the value of societal engagement. This result highlights a strategic shift, where sister project coordinators increasingly recognise that engaging citizens and broader societal groups can amplify research outcomes' uptake, relevance, and impact. This view closely aligns with Horizon Europe's overarching objectives of promoting responsible research and innovation, reinforcing the interface between science and society, and ensuring that research activities are attuned to societal needs, values, and expectations.

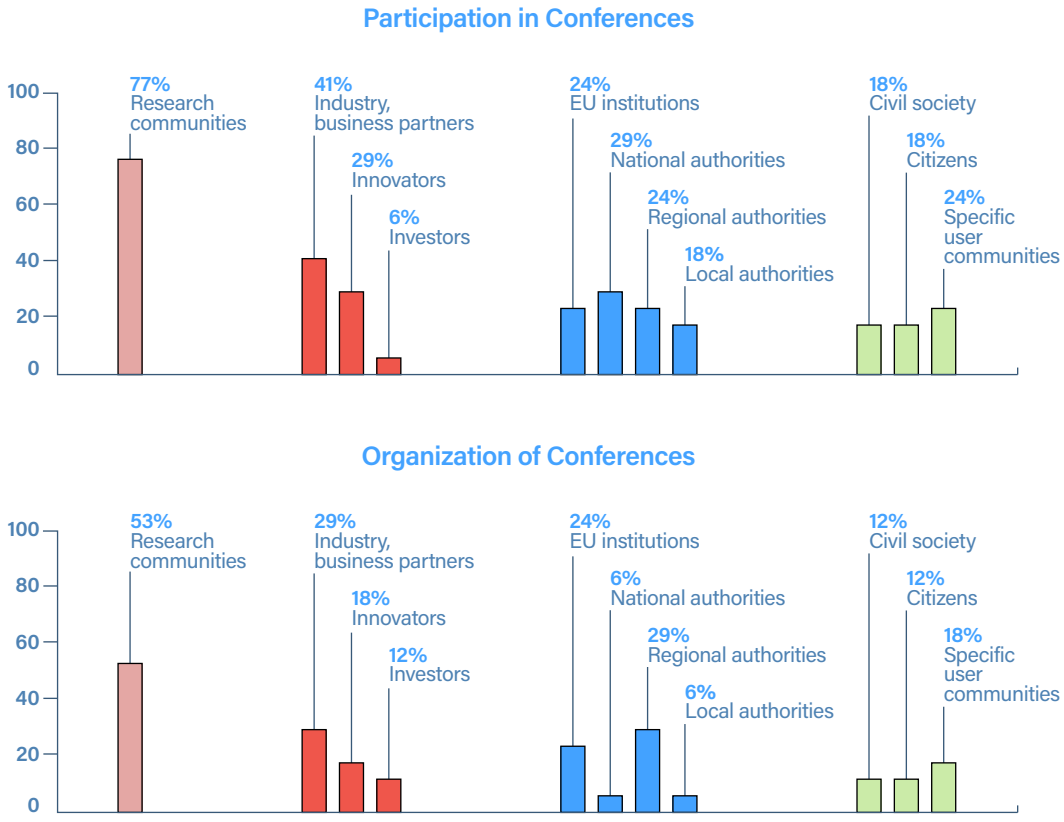


Figure 10. Target audiences of dissemination through the participation and organisation of conferences, as indicated by the surveyed sister projects. The bars represent the % of projects assigning each audience to the dissemination activity. Bar grouping by the four helices of the Quadruple Helix dissemination model was made, and the available options for respondents (meeting the available options for dissemination reporting in SyGMa) are those presented as bar labels.

4.1.1.3. Education and Training Events

While Twinning projects aim to benefit the entire consortium, they emphasise capacity building for widening institutions. Consequently, education and training activities (e.g. summer schools, workshops, exchanges) are central to these projects, hence being an important dissemination item, since they are structured opportunities to share knowledge, skills, and best practices with a wide range of participants, both within and beyond the consortium. Nonetheless, it must be noted that **not all education and training events are dissemination activities[3].** Surveyed sister projects follow this context, with 82% implementing education and training events - the mode and maximum for this implementation KPI was 10 and 20 events per project, respectively (**Table 9**). There was a project indicating three events, which is likely insufficient considering the capacity-building nature of Twinning projects.

Efficiency KPIs for education and training events suggested by the surveyed sister projects included the number of attendees to the event and the development of a position paper concerning bottlenecks of young researchers in their careers. While the first can be effectively interpreted to provide a measure of dissemination efficiency, the latter is harder to configure as an efficiency KPI for education and training events understood as dissemination activities (note that these are also activities in Twinning projects per se as detailed in Chapter 5 of the present guide, contrarily to what is typical in other project typologies). Other efficiency KPIs that can be suggested to monitor the impact of education and training events are:

[3] For example, a course on scientific writing ministered by an expert external to the consortium is an activity without disseminating the project's results. However, if the same course is given by a consortium-capacitated member, this activity is considered a dissemination activity.

(i) participant satisfaction scores from feedback surveys; (ii) the use of training materials produced for the event, measurable e.g. through traceable downloads from repositories or citations in publications; (iii) pre- and post-training knowledge assessments; (iv) invitations to provide further training outside the project; and (v) the number of collaborations or joint outputs initiated as a result of the training.

The audiences targeted by sister projects for Dissemination through education and training events are distributed across the four arenas of the quadruple helix dissemination model, although research communities are naturally the most relevant (**Figure 11**). Two aspects are worth highlighting in this regard. First, not all projects marked research communities as audiences for education and training events, which seem to be misaligned with the objectives and excellence ambition of Twinning projects. Secondly, the assignment of the private sector, policy and society as audiences for disseminating education and training events promoted by Twinning projects is not immediately straightforward, given the objectives and excellence ambition of this type of project.

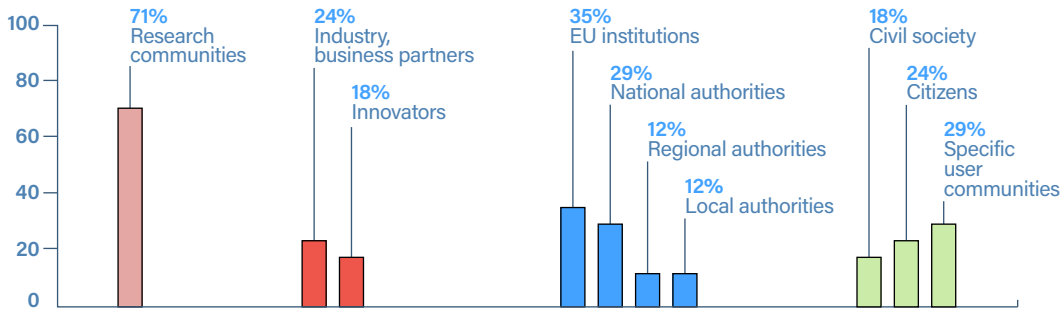


Figure 11. Target audiences for dissemination through Education and Training events, as indicated by the surveyed sister projects. The bars represent the % of projects assigning each audience to the dissemination activity. Bar grouping by the four helices of the Quadruple Helix dissemination model was made, and the available options for respondents (meeting the available options for dissemination reporting in SyGMa) are those presented as bar labels.

4.1.1.4. Meetings

Meetings constitute another way for dissemination within twinning projects. Internal meetings, such as those involving consortium members, facilitate exchanging project outcomes and ensuring alignment among partners. External meetings, including those with advisory boards or stakeholders, serve a more explicit dissemination purpose by communicating results to broader audiences who may influence or benefit from the project. In both contexts, the presentation and application of project findings can inform decision-making processes and enhance the initiative's overall impact. Meetings are used by 65% of the sister projects as a dissemination activity, implementing between 3 and 12 meetings throughout the timeline (**Table 9**). This range seems appropriate, depending on the audiences/stakeholders mapped for each project and their specific interests in the project results. Beyond the number of meetings planned and the number of attendees per meeting, it is critical to establish efficiency KPIs for these events that ensure an effective reach and return of the effort invested by the project, which would not be worthwhile. Possible KPIs in this context are: stakeholder diversity (e.g. sectors, geographic range, roles); number of key decisions made; action points agreed or issues resolved; and the number of follow-up communications, collaborations, or requests for additional information resulting from the meeting.

The linkage of meetings with different audiences made by sister projects meets this rationale in general: Policy stakeholders are the most frequently assigned audiences, followed by research communities and the private sector (**Figure 12**). Responses to

the survey suggest that the research communities are not an obvious target for 60% of the sister projects. Given the importance of leveraging the coordinator network, some meetings should specifically target research communities (e.g., advisory board).

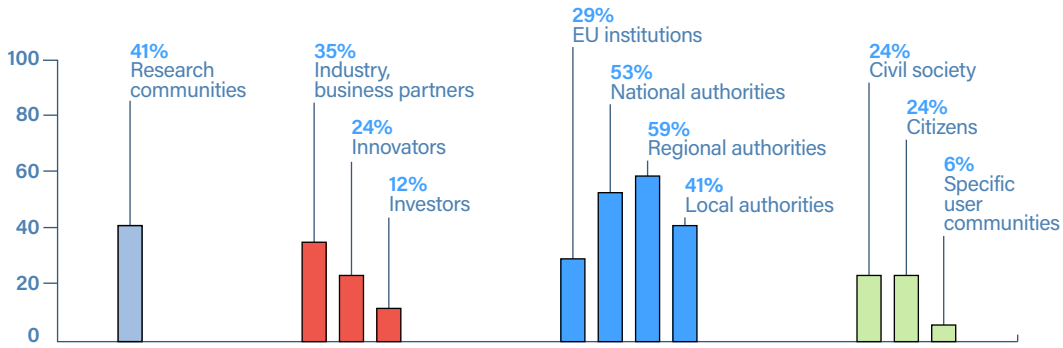


Figure 12. Target audiences of dissemination through Meetings as indicated by the surveyed sister projects. The bars represent the % of projects assigning each of the audiences to the dissemination activity. Bar grouping by the four helices of the Quadruple Helix dissemination model was made, and the available options for respondents (meeting the available options for dissemination reporting in SyGMa) are those presented as bar labels.

4.1.1.5. Clustering activities

Clustering activities within the context of EU projects involves establishing formal or semi-formal networks among different types of stakeholders with a common interest (e.g. specific thematic areas, geographic regions or research domains) focused on combining complementary expertise and resources, creating competitive advantages to innovation (Benissa & Patil, 2024). These activities are characterised by structured governance and long-term strategic planning, combining complementary expertise and resources to create competitive advantages for innovation. Nevertheless, the distinction between collaboration and clustering activities is subtle, and REA should provide some examples to help the PIs discriminate between the project activities involving collaboration.

Clustering is used by 41% of the surveyed sister projects as a dissemination activity (**Table 9**). Among those projects assigning clustering activities to their dissemination strategy, the most common implementation KPI is six clustering activities (**Table 9**). These dissemination activities are primarily directed to research communities and policy actors, while clustering with the private sector is less frequent among the sister projects (**Figure 13**). Provided the accepted definition of clustering within the scope of Research & Innovation (see above), the relevance given to citizens as audiences for dissemination through clustering activities (35% of the projects assigned, similar to research communities and policy authorities; **Figure 13**) is unclear.

Technical synergies, networking and visibility have been noticed by participants in clusters as major motivations for joining (Benissa & Patil, 2024). While the first is related to scientific progress, the last two consistently meet Twinning's primary goals for widening coordinators. The measurability of the success of dissemination through clustering activities is hence important, yet survey respondents suggested no efficiency KPIs. Some suggestions follow: number of projects engaged in clustering activity; number and/or diversity of stakeholders involved in the activity; number of joint deliverables produced; Common tools, platforms, or methodologies adopted; number of shared best practices or lessons learned documented.

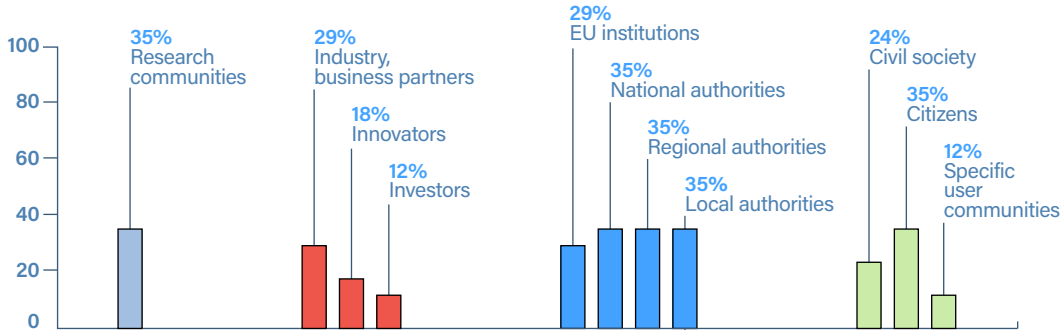


Figure 13. Target audiences for dissemination through clustering activities as indicated by the surveyed sister projects. The bars represent the % of projects assigning each audience to the dissemination activity. Bar grouping by the four helices of the Quadruple Helix dissemination model was made, and the available options for respondents (meeting the available options for dissemination reporting in SyGMa) are those presented as bar labels.

4.1.1.6. Collaboration with EU-funded Projects

Collaboration with EU-funded projects is another dissemination activity that can foster the impact of Twinning projects. The most immediate example is the present guide, which is the outcome of a joint effort by sister projects collaborating by providing data and interpreting that data towards delivering a useful tool for the management of capacitation projects. Fifty-three percent of the surveyed sister projects use collaboration with EU-funded projects as a dissemination activity, with the mode of the implementation KPI being two collaborations (**Table 9**). This result is surprising since the respondents are part of the focus group for elaborating the present guide, and a result close to 100% was expected. This reinforces our previous comment on the need to unblur the difference between collaboration and clustering.

Although normally, a new collaboration established will promote the impact of the project and its results, KPIs should be defined to monitor the efficiency of this dissemination activity, allowing regulation of effort and investment. Some possibilities for this type of KPIs are: (i) publishing of joint outputs (e.g. the present guide, policy briefs); (ii) records on downloads, use and/or citation of collaboration outputs in the longer term; (iii) preparation of joint proposals for new calls for funding; (iv) joint supervision of PhD students.

Research communities and the private sector (namely, industry/business partners and innovators) are the main target of collaboration activities with EU-funded projects (**Figure 14**). This is not surprising, as these are common partners of EU-funded projects. Sister projects also pointed out policy stakeholders (namely, EU institutions), possibly due to their role as funders in many mechanisms that may benefit future collaborations. Nevertheless, the society was pointed out as a target audience for collaboration activities with EU-funded projects. A possible explanation is that they might refer to projects with a strong societal impact, and society is deeply involved (e.g., through associations, NGOs).

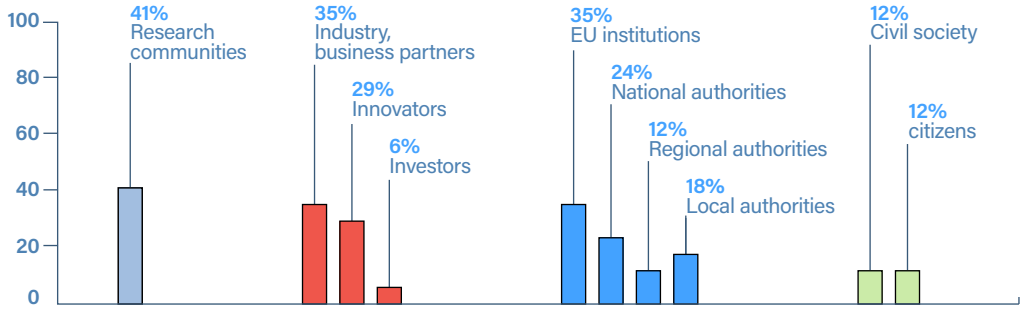


Figure 14. Target audiences of dissemination through collaboration with EU-funded projects, as indicated by the surveyed sister projects. The bars represent the % of projects assigning each audience to the dissemination activity. Bar grouping by the four helices of the Quadruple Helix dissemination model was made, and the available options for respondents (meeting the available options for dissemination reporting in SyGMa) are those presented as bar labels.

4.1.1.7. Other Scientific Collaboration

Twinning projects inherently provide fertile ground for diverse collaborative activities. These can accommodate a broad range of scientific interactions established more informally during the project timeline (e.g., joint research visits, shared development of experimental protocols, co-supervision of doctoral candidates, creation of open-access datasets and digital tools). Less than 30% of the surveyed sister projects use this activity to disseminate their results, implementing between one and five collaborations per project (**Table 9**). The under-identification by the sister projects may indicate that PIs prioritise more concrete collaborations (e.g., clustering with specific stakeholders and collaboration with other EU projects, as described above).

Efficiency KPIs for monitoring this dissemination activity were suggested by sister projects: (i) expansion of the networks; (ii) submission of new projects for funding; (iii) establishment of new cooperation with industry players; (iv) creation of a given number of innovative business models.

Regarding audiences targeted by other scientific collaborations for dissemination, the replies to the survey can be interpreted as inconsistent. Research communities are not the audience more frequently marked by the sister projects, while this should likely be a privileged audience for dissemination through scientific collaboration (**Figure 15**). The private sector reaches higher records, which can be consistent considering technology-based industries and companies that commonly have advanced research and innovation departments, and policy stakeholders reach equivalent records, which is not particularly consistent with the scope of these dissemination activities, as well as are not society stakeholders that reached lower yet appreciable selection frequencies.

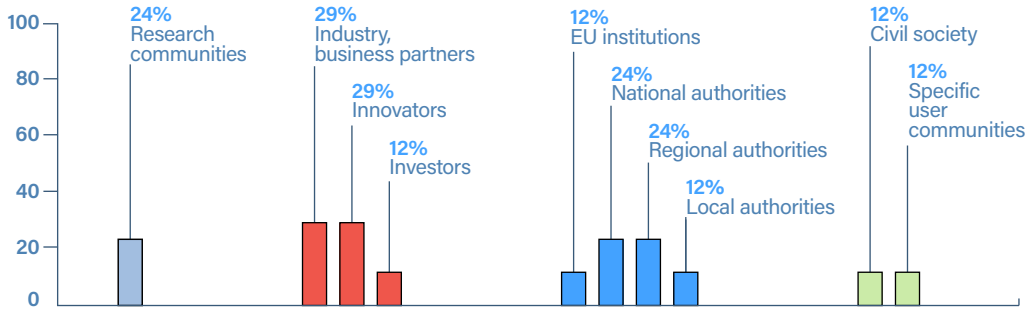


Figure 15. Target audiences of dissemination through other scientific collaborations, as indicated by the surveyed sister projects. The bars represent the % of projects assigning each audience to the dissemination activity. Bar grouping by the four helices of the Quadruple Helix dissemination model was made, and the available options for respondents (meeting the available options for dissemination reporting in SyGMa) are those presented as bar labels.

4.1.1.8. Other Dissemination Activities

Complying with the options available to categorise dissemination activities for reporting purposes in SyGMa, the survey included the following question: "If there are other relevant dissemination activities that may not fit in the categories provided by the SyGMA platform, please share them and the corresponding audiences". The responses either largely suggest difficulties in fully appraising the current categorisation for reporting purposes (e.g. "Validation of the SME innovation boost through the BUU BMI Lab and advocacy to national R&I funding agencies") or indicate confusion between dissemination activities and communication activities ("The project follows a different route in dissemination, and it plans to reach 500 followers, 2000 visitors, 200 institutions using social media, press releases, videos and a website"; "Pupils and children, whom we try to engage with science through Researchers' Night and other activities for children"), a problem that was already highlighted in the communication chapter of the present guide.

4.1.2. Dissemination Specificities Regarding Research Management and Administration

Twinning projects aim to improve Research Management and Administration (RMA) skills and capabilities, recognising their importance for strengthening the research capacity of institutions in widening countries and enhancing their competitiveness globally (Martínez & Tejero, 2025). Moreover, most recent calls for Twinning Actions are more evidently requiring evident RMA capacitation, which should then reflect in targeted dissemination activities. While KPIs for disseminating other project outputs are often intuitive, it can be challenging to establish KPIs for dissemination activities focused on RMA outcomes. The European Competence Framework for Research Managers (RM Comp), developed by the EU-funded projects CARDEA and RM ROADMAP (CARDEA, 2025), and the catalogue of more than 330 professional development opportunities for RMAs across Europe, developed by the RM ROADMAP project, are valuable tools for defining, implementing, and tracking activities targeting the RMA community in Twinning projects. Additionally, the EU document "Success Stories from the Research Management Community: A catalogue of best practices and achievements" provides concrete examples of impactful RMA practices. Incorporating these best practices into Twinning projects and disseminating them, through workshops, mentorship, seminars, tailored guides, internal job shadowing and/or internal networks establishment, can inform, inspire and support RMAs in their professional development, which necessarily translates into an improved institutional performance towards excellence in the

ERA. In the context of widening countries, such dissemination should ensure that the benefits of improved RMA practices reach all research units and researchers, creating a sustainable, institution-wide improvement in research management and administration and fostering a culture of research excellence across the entire organisation. The external (nation-wide but especially at an international level) dissemination of increased success and professionalisation of the widening institution's RMAs should not be disregarded, as it strengthens the institution's reputation and credibility, making it a more attractive and trusted partner for leading research organisations across Europe and beyond. As RMAs develop advanced competencies and demonstrate effective support for research planning, coordination, and compliance, they contribute to a more robust and reliable research environment (Martínez & Tejero, 2025).

On this basis, **Table 10** presents suggested implementation and efficiency KPIs for dissemination activities focused on RMA capacity-building outcomes in Twinning projects.

Table 10. Synthesis of suggestions for implementation and efficiency KPIs for dissemination activities focused on different outcomes that can be considered in Twinning projects regarding the capacitation of the RMA community.

Outcome	Implementation KPIs	Efficiency KPIs
Strengthened RMA Competences	▫ Number of training sessions attended by RMAs (for concrete examples separated by areas and professional levels, consult the RM Comp and the catalogue of RM ROADMAP project); ▫ Number of RMAs obtaining formal certification and/or accreditation; ▫ Number of RMAs participating in mobility activities; ▫ Number of RMAs performing job shadowing with successful RMA.	▫ Knowledge gain (pre- and post-training assessments); ▫ Proposal success rate improvement post-training; ▫ Improvement in guidelines, best practice or other documents produced (e.g., data management plan, guidelines for proposal development, annual reporting, guidelines for depositing data in a data repository) post-training.
Enhance the Value of RMAs Roles	▫ Number and diversity of events organised by RMAs (e.g., workshops, info sessions, stakeholders' meetings); ▫ Number of media coverage of RMAs outcomes (e.g., press releases, interviews); ▫ Number of guidelines, best practices or other documents produced (e.g., data management plan, guidelines for proposal development, annual reporting, guidelines for depositing data in a data repository).	▫ Number of follow-up actions or collaborations initiated (e.g., partnerships, projects); ▫ Stakeholder feedback on RMA contributions.
Strengthened RMA Community and Network	▫ Number of formal and informal networks of RMAs; ▫ Number of collaborations established within the networks; ▫ Number of cross-institutional initiatives or joint activities launched.	▫ Level of engagement in the networks (e.g., participation in working groups); ▫ Number of collaborative outputs (e.g., joint guidelines, shared resources); ▫ Number of success stories or best practices documented and shared.
Improve RMA Support in Competitive Research Funding	▫ Number of training sessions in the area of pre-award attended by RMAs; ▫ Number of info sessions attended by RMAs in different funding schemes; ▫ Number of info sessions organised by RMAs for researchers (or number of attendees in these sessions); ▫ Number of supporting materials for researchers developed by RMAs related to funding (e.g., tips to write successful proposals, hints and tips by evaluators).	▫ Number of proposals submitted in specific funding schemes; ▫ Increase in quality of grant proposals (assessed through evaluation summary reports); ▫ Proposal success rate improvement; ▫ Comparative Success Rates: Supported vs Unsupported Proposals; ▫ Number of views/downloads of supporting materials.

4.2. Exploitation

Exploitation in Horizon Europe projects ensures that results are effectively used to generate scientific, social, economic, or policy impact well beyond the project's duration. Although exploitation is not a contractual obligation, the EC recommends that the beneficiaries use their best efforts to exploit their results (to the extent possible and justified; usually up to four years after the end of the project). A robust exploitation strategy is essential for maximising the return on public investment and ensuring research outcomes' long-term sustainability and relevance[4,5]. To that end, it is useful to anchor the exploitation plans in Key Exploitable Results (KERs), which are results selected and prioritised for their potential to generate tangible benefits. When establishing KERs, it is both critical and useful to realistically consider the following so that the most appropriate exploitation strategies can then be designed: (i) degree of innovation, which involves assessing the result's novelty; (ii) exploitability, which involves evaluating the potential of utilisation of the result by the intended users in practical applications; (iii) impact, which involves consistently analysing the potential benefit on society, economy or science. A note is worth making here on the importance of addressing IPR issues if the project foresees the production of results that might meet commercial exploitation routes. For these cases, IPR plans should be elaborated within the consortium and the corresponding foreseen impact should be reported; local knowledge transfer offices and/or the EC platform Horizon Booster can provide support in these cases. Still, the general vision of the sister projects is that Twinning projects must be interpreted differently from RIA or IA projects. The aim of Twinning projects is primarily to upgrade scientific and management capacity and only 30% of the budget is allocated to research. Thus, the investment on IPR requiring outputs and the consequent valorization of the related impact should be reasonably considered by the consortium and by REA during reporting phases.

Some common examples of exploitation routes include developing, creating, manufacturing, and marketing products or processes or creating and providing services. Nevertheless, other possible and less obvious exploitation routes may be initiating new projects or further research, education/training, and contribution to standards or evidence-based decision-making. In the context of Twinning projects, KERs should be directly linked to their core objectives of strengthening institutional research capabilities, building sustainable networks, and embedding best practices. Possible KERs in Twinning actions are depicted in **Table 11**.

Table 11. Exploitation routes, illustrative examples of KERs and possible end-users in Twinning projects, including adapted replies given by sister project coordinators through the survey.

Exploitation Routers	KERs	End-users
Capacity-building and Training	▫ E-learning modules; ▫ Capacity-building toolkits or guidelines; ▫ Training packages; ▫ Design of mentoring programmes; ▫ Design of mobility schemes; ▫ Online platform for training; ▫ General awareness-raising materials and workshops.	▫ Research communities, including RMAs; ▫ Specific user communities.
Further Research	▫ Open and FAIR data; ▫ Development and/or validation of new protocols or methods; ▫ New R&I projects; ▫ Identification of research gaps; ▫ Identification of future collaboration opportunities.	▫ Research communities.

[3] https://research-and-innovation.ec.europa.eu/strategy/dissemination-and-exploitation-research-results_en
[4] https://enspire.science/measures-to-maximize-impact-in-horizon-europe

Exploitation Routers	KERs	End-users
Evidence-based Decision Making	▫ Policy briefs, position papers, reports, recommendations or guidelines related to, e.g., the cultural benefit of scientific evidence generated in the project; RMA roles and competences leveraging; the value of the results for supporting regulation and legislation; ▫ Web-based Decision Support Tool (DSTs), e.g., a platform for climate adaptation planning to assist local authorities; ▫ Data visualisation dashboard (e.g., a dashboard showing real-time energy usage in urban areas); ▫ Strategic research agendas and roadmaps.	▫ EU Institutions; ▫ Local/ regional/national authorities.
Institutional Uptake	▫ Adoption of new protocols/guidelines (e.g., gender equality plan, open science strategy); ▫ Creation of units like a Grant Office or Technology Transfer offices; ▫ Improvement of internal workflows (e.g., for project management, ethics); ▫ Institutional presence in new networks (e.g., EARMA); ▫ Creation of an institutional repository; ▫ Collaborative platform for sharing best practices (e.g., in research administration).	▫ Research communities, particularly Widening institution(s).
Stakeholder Engagement	▫ Stakeholder engagement strategy or toolkit; ▫ Establishment of networks or partnerships with stakeholders; ▫ App (e.g., developed for citizen science, health tracking, or data collection); ▫ Citizen science activities.	▫ Research communities; ▫ Citizens; ▫ Civil Society; ▫ Investors; ▫ Innovators; ▫ Industry, business partners.
Commercial Exploitation	▫ Licensing of a patented technology; ▫ Creation of a new product or prototype; ▫ Setting up a new business.	▫ Innovators; investors; ▫ Industry, business partners.

All the coordinators of Twinning projects recognised the importance of the exploitation of results. Looking in more detail into the reasons for them to explore the projects' results and activities (**Figure 16**), it is evident that "Raise the reputation of the widening institution", "Raise the research profile of widening countries", and "Raise the participation of widening countries in EU funding" are the main drivers (scoring above 70). Analysing the least frequent drivers, as noted by sister projects, is also interesting. To "Generate value or other benefits for the economy" and to "Enhance the process of creating startup companies" were downgraded reasons to exploit results for most of the projects, yet two projects gave both the highest score (5). Considering Twinning projects are flagship actions promoting excellence in widening countries, high weight on innovation, boosting the private sector, and economic benefits do not seem consistent with exploitation. On the other hand, the low weight given by the sister projects to "Establish a European office at the coordinator to support EU projects" seems also not particularly consistent with the aims of Twinning projects regarding the leveraging of the RMA staff in widening countries, yet the replies by the sister project might have been framed by the specific context of their proposals and the resources that already exist in the coordinator.

Whereas some areas have a vast perceived exploitation potential (e.g., STEM), in others, there are difficulties in exploring and appraising results exploitation, as is the case in areas more related to the humanities and culture (e.g., cultural heritage). This was supported by the testimonies of some of the sister projects regarding this topic in the survey. However, nearly all surveyed projects indicated that their results will likely be exploited via sharing knowledge and about half via sharing data and/or skills (**Table 12**). The indication of these valid routes for results exploitation is consistent with the capacitation towards excellence context of Twinning project, but it is somewhat inconsistent with the testimonies of difficulties in finding KERs and an overall exploitation potential in some projects due to the field. The exploitation potential of a given result is linked to its impact, which can be directed to the economy, society, or science according to the Horizon Europe impact framework (see also the reasoning behind the establishment of KERs above). Therefore, knowledge, data, and skills, particularly in Twinning projects as per their capacitation nature, can also be collected in KERs with an associated impact that is not necessarily linked to economic or societal benefits but rather to the acceleration of research advances. In this context, Open and

FAIR (Findable, Accessible, Interoperable, Reusable) data are essential in the exploitation route of research because they enable scientific progress to build cumulatively on previous results. Public availability of well-curated data in open repositories enhances the reproducibility and verification of findings, facilitates meta-analyses, and reduces research waste by allowing new investigations to reuse existing datasets efficiently. The FAIR principles ensure that data are openly available, structured, and described in a way that both humans and machines can interpret, thereby promoting interoperability and reusability across disciplines and projects. This harmonisation and openness are foundational for data-intensive science, where integrating diverse datasets is often necessary to address complex research questions and generate new insights.

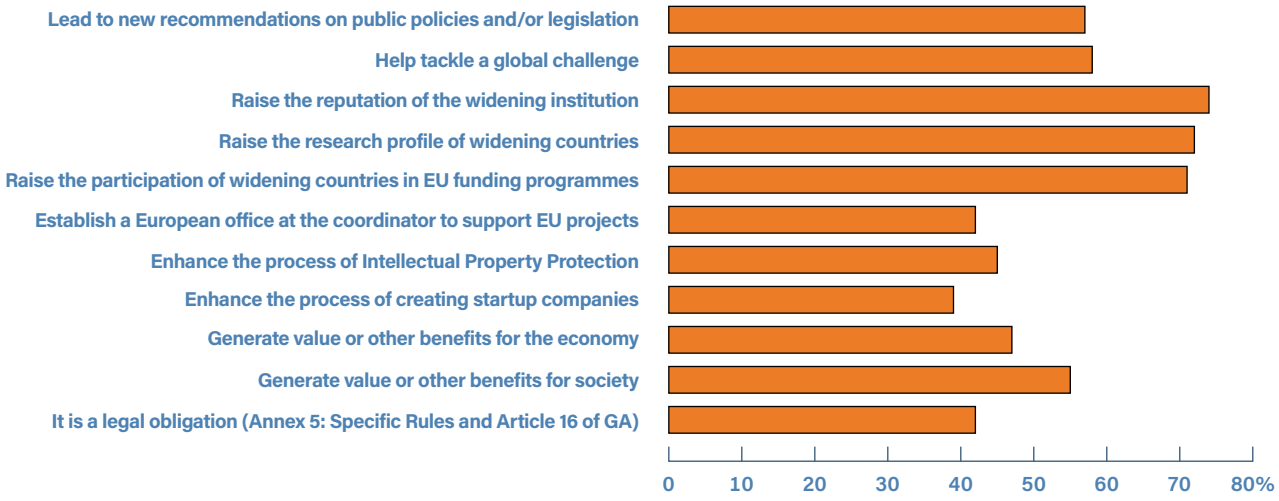


Figure 16. Rating of the importance given by surveyed coordinators of Twinning projects to different reasons behind their investment in the exploitation of the results and activities of their Twinning projects. The question asked was as follows: "Please order by importance (1 – not important, 5 – very important) the following reasons that move you to disseminate the results and activities of your Twinning project".

Table 12. Survey results regarding the question "How do you think the results will be exploited?". The options shown in the table correspond to those given to the respondents in the survey, while comments were allowed for each option.

	Yes (%)	No (%)
Creating Roadmaps, Prototypes, Software, and/or Applications	41.18	58.82
Sharing Knowledge	94.12	5.88
Sharing Data	52.94	47.06
Sharing Skills	52.94	47.06
Creating New Products and/or Services	35.29	64.71

4.3. A Note on the Data Fair Framework

Data should be Findable, Accessible, Interoperable and Reusable (FAIR), complying with Horizon Europe guidelines on FAIR data management, and it will be "As Open as Possible, as Closed as Necessary". In the context of the KERs, this means that, if necessary, data access may be restricted to actors outside of the project consortium due to IP rights. R&I projects, including Twinning, should adopt these principles to enhance the impact and longevity of their research outputs.

Findable - Ensure that data and metadata are easily discoverable by:

- Assigning unique and persistent identifiers to all research outputs (e.g., the repository Zenodo automatically assigns a DOI when a dataset is deposited);
- Providing rich metadata describing the data (including title, authors, date, keywords, and a comprehensive description);
- Registering data and metadata in searchable repositories (through the Registry of Research Data Repositories (re3data.org), coordinators can search for many searchable and trustworthy repositories, either disciplinary repositories like GenBank for genetic sequences or general ones like Figshare; Institutional repositories may also be a solution.

Accessible - Make data and metadata retrievable by:

- Using standardised communication protocols for data retrieval (e.g., HTTP/HTTPS allow users to access data via web browsers or APIs);
- Implementing authentication and authorisation procedures, or providing a contact when necessary (e.g., to access sensitive data);
- Maintain metadata and make contact accessible even if data becomes unavailable.

Interoperable - Ensure data can be integrated with other datasets and used across different systems by:

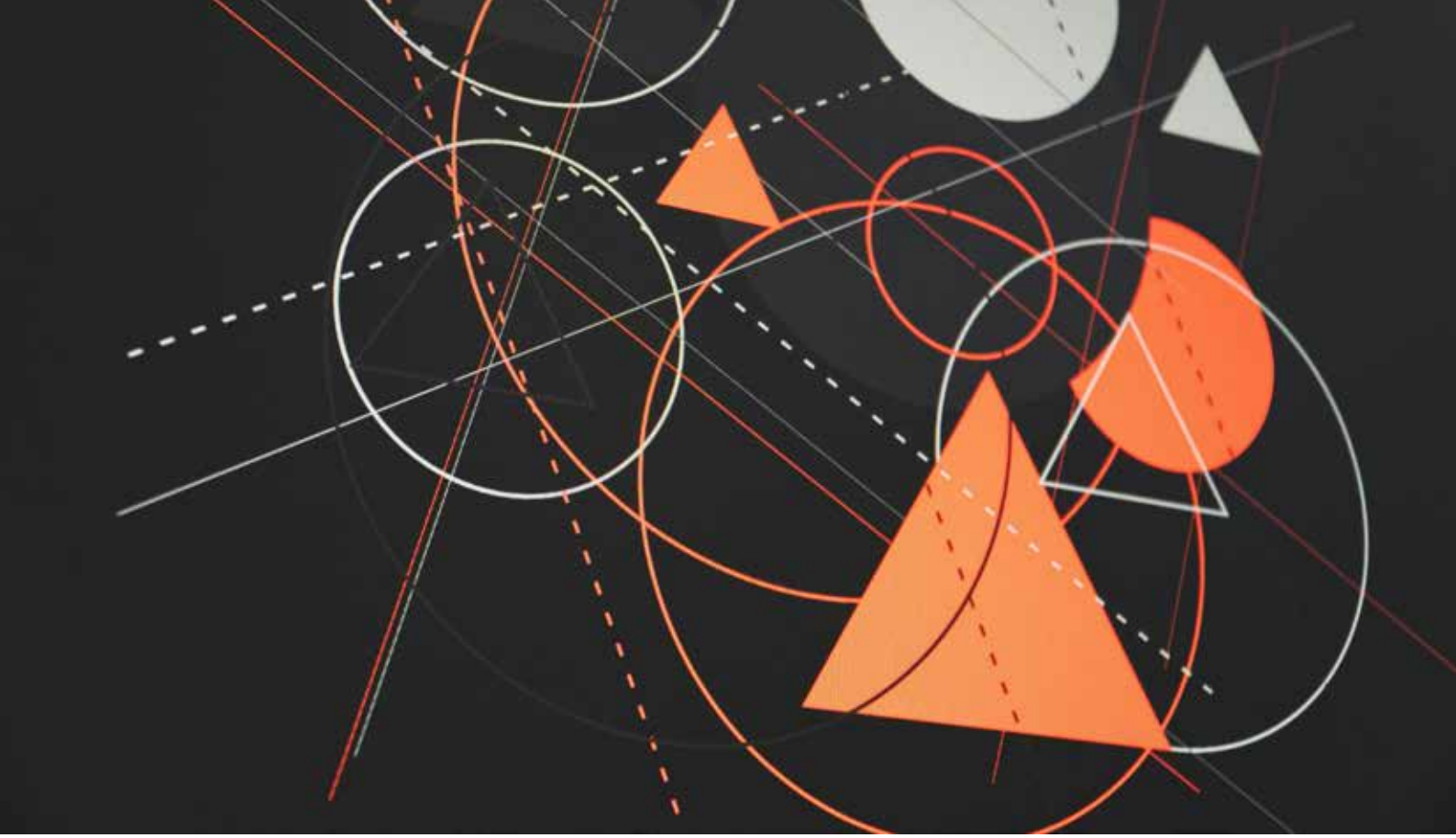
- Using formal, shared languages for knowledge representation (e.g., RDF or OWL to represent data and metadata in a machine-readable format);
- Including qualified references to other data (e.g., including links to related datasets or publications using their DOIs or other persistent identifiers).

Reusable - Optimise data for reuse by:

- Providing clear and accessible data usage licenses (e.g., applying a Creative Commons license to specify how others can use the data);
- Including detailed provenance information (e.g., collection methods, processing steps, and any transformations applied);
- When referring to software, include detailed metadata explaining how users can get started and write good comments and docstrings;
- Adhering to domain-relevant community standards (e.g., using Gene Ontology terms to describe biological processes).

Good Practices
Good practices guide for widening projects' management

Chapter 5
Organization of Capacitation Activities



Chapter 5

5. Organization of Capacitation Activities

A critical aspect of WIDERA projects, particularly Twinning actions, is the promotion of capacity building of research institutions in widening countries, aiming for research excellence. **Effective capacity-building activities should be grounded in well-defined competences tailored to the needs of researchers at all career stages, as well as research management and administrators (RMAs),** while also being adapted to the specific thematic field of each project. Capacity building should encompass (i) hard skills – namely, scientific and technical expertise; (ii) soft skills - related to personality traits and habits such as communication, teamwork, and empathy; and (iii) transferable skills - interchangeable and flexible competencies that may apply to a variety of jobs which may include hard (e.g., statistical analysis) or soft (e.g., problem-solving, leadership) skills. These multifaceted competences are essential for success in complex, multidisciplinary research environments and for supporting diverse career trajectories, both within and beyond academia. Aiming to provide guidance on the competences of both researchers and RMAs, the European Commission created two distinct frameworks: ResearchComp and RM Comp. These frameworks may be a useful tool guide the coordinators of Twinning projects to better adapt and develop the training offer for both. Strengthening such skills enhances employability, organisational effectiveness, and innovation capacity, thereby contributing to the objectives of the Horizon Europe programme, particularly its Widening Participation and Strengthening the European Research Area (ERA) components. Moreover, these efforts align with the ERA's overarching goal of creating a unified and inclusive European research ecosystem by fostering balanced talent flows, reducing disparities, and enhancing research excellence across all EU regions (EC, 2021; OECD, 2012).

Within this context, capacitation for excellence in Twinning projects follows two complementary paths: the first involves continuous hands-on capacitation, which occurs organically throughout project implementation, enabling participants to develop skills through practical involvement in research activities; the second pathway consists of structured capacitation activities that are clearly defined in terms of scope, timing, and format, such as dedicated courses, schools, workshops, and seminars. While these activities can include hands-on sessions, they are distinct from the ongoing, immersive capacitation embedded in project execution. The sections below provide further details on these two pathways.

5.1. Hands-on Training

Hands-on training constitutes an experiential learning opportunity to develop expertise and practical skills through engagement with authentic tasks, tools, and scenarios relevant to the participants' professional context (Kline et al., 2021). For researchers and RMAs, this type of hands-on training transcends theoretical or simulated instruction by immersing participants in exercises that closely replicate real-world research and tackling research management challenges. In our interpretation, this hands-on component is intrinsic to Twinning projects, in which learning by doing is embedded in research implementation. In fact, while implementing an ambitious research project, widening institutions and the involved teams of researchers and RMAs, with the guidance of partners, assume both the risks and the benefits of such an approach, which more efficiently translates into a growth of capacity towards excellence. Regarding researchers, some examples of hands-on training may involve mastering new methodologies or using specific testing or analysis platforms. Typical examples of hands-on training for RMAs throughout project implementation include collaborative grant-writing sprints to draft non-scientific sections (e.g., for Horizon Europe), as well as financial reporting exercises using actual institutional templates to simulate the preparation of compliant financial documentation. This also surely applies to transferable skills, as immediate opportunities arise within a Twinning project, such as managing teams, conducting research, and meeting dissemination and communication goals. When asked to reason the benefits of hands-on training, sister project coordinators confirmed that enhancement of advanced technical skills, network, and motivation are very important aspects (**Figure 17**). Ensuring that the planned research in the project is effectively performed was also valued, though to a lesser extent, likely reflecting a pragmatic view of the coordinators regarding the fulfilment of obligations defined by the Grant Agreement (**Figure 17**).

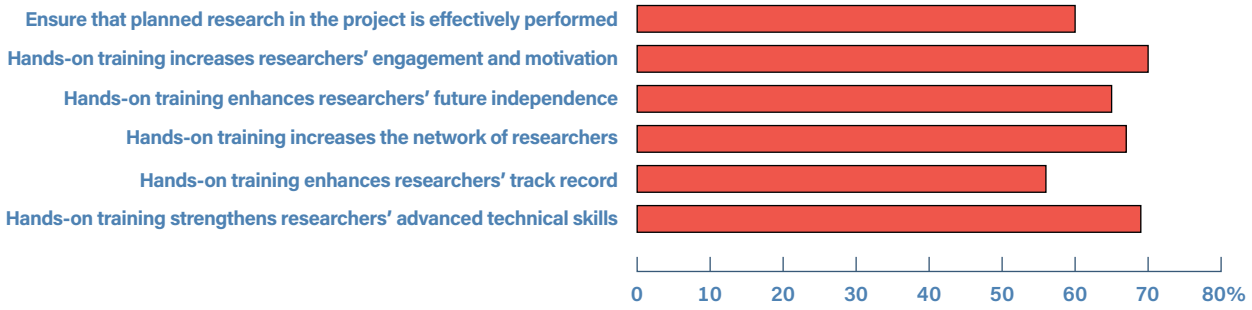


Figure 17. Reply of sister project coordinators in the survey on the importance of hands-on training (learning by doing) of the team. The reasons in the plot were provided in the survey and respondents were asked to rate each reason for its importance (1 – not important; 5 – very important). The plotted data represent the sum of scores obtained per reason. Respondents were also allowed to suggest other reasons and rate them; however, no significant additions were made worth exploring.

5.2. Exchanges

Exchanges represent a fundamental training component within Twinning projects, defined as **short- or long-term secondments involving the mobility from one partner to another**; not necessarily limited to movements from the coordinator to the partners. Their bidirectional structure enables researchers from widening countries to access advanced facilities and infrastructure, as well as expertise at partner institutions. In contrast, researchers from partners provide targeted training, share best practices, and co-develop research strategies at widening institutions. This approach aligns with global policy trends that recognise scientific workforce mobility as a valuable boost for knowledge production and the advancement of research systems (Fernández-Zubieta et al., 2016).

Exchanges are typically coordinated with the project's work package dedicated to research/innovation activities and also aligned with relevant funding calls or administrative cycles for RMAs, thereby ensuring impactful and timely experiences. As highlighted by the CESAER report on Research Careers (Heitor et al., 2024), such exchanges deliver substantial personal and professional benefits, including the development of advanced research skills, increased confidence, and enhanced career progression. By exposing participants to new methodologies and collaborative environments, these exchanges further contribute to staff motivation, retention, and the sustained strengthening of research teams.

Sister projects have consistently made substantial investments in facilitating exchanges, with some trends emerging. Most of the exchanges predominantly involve Principal Investigators (PIs) or researchers from partner institutions, while visits and exchanges involving RMA staff appear less prioritised, as illustrated in **Figure 18**. Furthermore, data indicate that visits from the coordinator to partners tend to last longer than reciprocal visits from partners to the coordinator. This pattern may reflect a greater eagerness of coordinators to leverage the benefits afforded by these immersive visits.

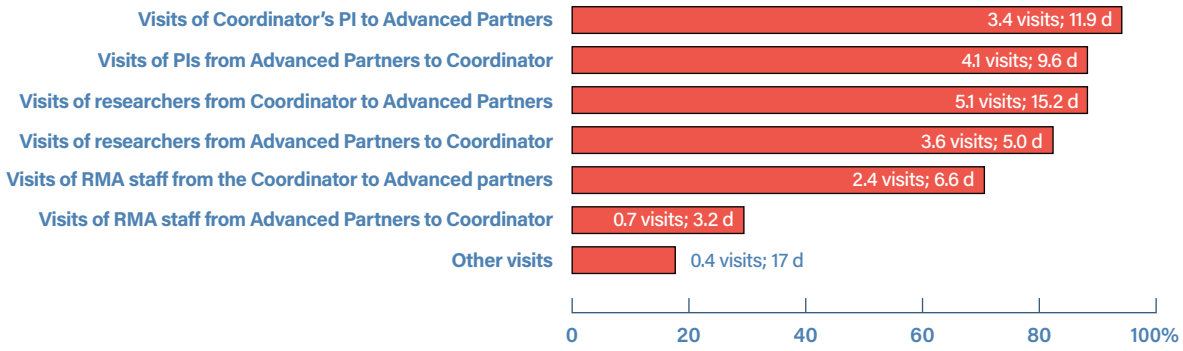


Figure 18. Percentage of sister projects implementing different types of exchanges. Each bar is associated with records on the average number of visits and the average duration of those visits.

The preparation of short reports following an exchange is always recommended, as these documents provide tangible evidence of the activities carried out, competencies acquired, and shared best practices. Joint publications resulting from collaborations established during exchanges are another significant output that enhances the project's impact. Empirical evidence demonstrates that internationally co-authored publications achieve higher citation impact than those produced without international collaboration, thereby enhancing research visibility and participating researchers' career prospects (Chinchilla-Rodríguez et al., 2019). In addition to measurable outputs, the intercultural and educational dimensions of exchanges for researchers and RMAs represent important outcomes that facilitate the establishment of long-term institutional partnerships and contribute to the sustainability and impact of Twinning actions.

5.3. Other Capacitation Activities

Capacitation activities implemented by sister projects typically include **courses (both short and advanced), schools, workshops, and seminars/webinars.** Some surveyed projects also noted the organisation of more specific capacitation activities, such as **meetings with defined collaborative tasks, participation of RMAs in dedicated conferences for networking and training, and hackathons.**

Although capacitation is primarily directed towards the widening coordinator, partners should have access to it for specific skills. This approach broadens the ERA audience and enhances reach and sustainability of Twinning projects.

The organization of capacity-building activities increasingly embraces online and hybrid formats as essential components. The increasing adoption of online and hybrid formats provides greater accessibility and inclusivity, reduces travel-related carbon footprint, and overcomes distance barriers, promoting equal opportunities in ERA and beyond. Crucially, the effectiveness of hybrid activities hinges on careful planning and implementation. Advances in digital tools, methodologies, and interactive techniques have enabled the overcoming of physical distance barriers, fostering meaningful engagement and fruitful collaboration. When well-designed, hybrid capacity-building initiatives can deliver outcomes that are not only resilient and accessible but often surpass the limitations of traditional in-person formats, supporting sustainable and inclusive research networks (Mena-Guacas et al., 2023).

Several factors influence the effectiveness of capacitation activities implemented in Twinning projects. Key ones are listed below, along with general recommendations.

Allocation of Resources

Each training activity should reflect the complexity of delivery, including speaker honoraria, venue or platform costs, educational materials, and participant support. Leveraging institutional resources and securing supplementary funding are important for quality and sustainability. All expenditures must be documented in accordance with Horizon Europe financial guidelines. The establishment of a fee for participants deserves particular attention, as it must not create a double-funding scenario; i.e., the income from the fees must not constitute a surplus when final accounting for the activity is performed.

Participant Registration

Online platforms generally manage registration, but coordinators need to ensure that all necessary information is collected from registrants and that data protection regulations, specifically the GDPR, are complied with. The survey of sister projects coordinators reveals that 88% of projects record the participant category (such as early-stage researcher, senior researcher, or technical staff), 71% collect the country of the home institution, and 47% gather gender data.

Participants must be clearly informed about how collected personal data will be used and give their explicit consent to its use. If there is a vacancy restriction for the activity, the selection criteria must be clearly explained in the programme and announcements, and the registration form must collect the information needed to assess them. A recommended practice is to include competency self-assessments of the participants in the registration form, which can help tailor the content to participants' baseline knowledge and skills (Baumann et al., 2025). Gender balance and diversity issues may become criteria for participants' selection; however, note that the collection and treatment of these data must particularly comply with GDPR, as they belong to special categories of personal data (Article 9, Regulation (EU) 2016/679: 2016). Given that handling personal data is likely to be involved when implementing registration forms, it is advisable to request assistance from the institutional data protection officer and confirm whether there are any institutional requirements beyond those specified in the Grant Agreement. For example, at the University of Aveiro, an institutional platform should be used for any forms that collect personal data and a dossier clarifying

the inquiry, the type of personal data collected and the data handling and treatment procedures should be submitted for approval before launching the form; more than a void obligation consuming time and resources, this is a protection offered by the institution that enforces a sustainable management of risks associated to personal data breaches and its civil rights hampering, preventing harsh legal outcomes. According to the survey conducted among the coordinators of sister projects, 76% of the projects collected statistics on the registration data for capacitation activities, making registration tracking the most widely adopted method for monitoring activities' implementation and evaluating their impact on the project (see the global picture and options provided in **Figure 19**).

Evaluation

Following each activity, a structured evaluation (e.g., participant surveys or feedback forms) should be implemented to assess the training's relevance, quality, and impact. Despite the benefits, this evaluation is conducted by less than half of the sister projects that were inquired about (**Figure 19**). Notably, even when links are sent, response rates remain very low, as one of the sister projects commented. Evaluation should measure knowledge acquisition and/or the usefulness of the learned skills, as well as participants' perceptions of the quality of the speakers, materials, and sessions. Where appropriate, a follow-up assessment 6–12 months after the activity can be used to measure long-term skills development and the sustained impact of the activity (Baumann et al., 2025).

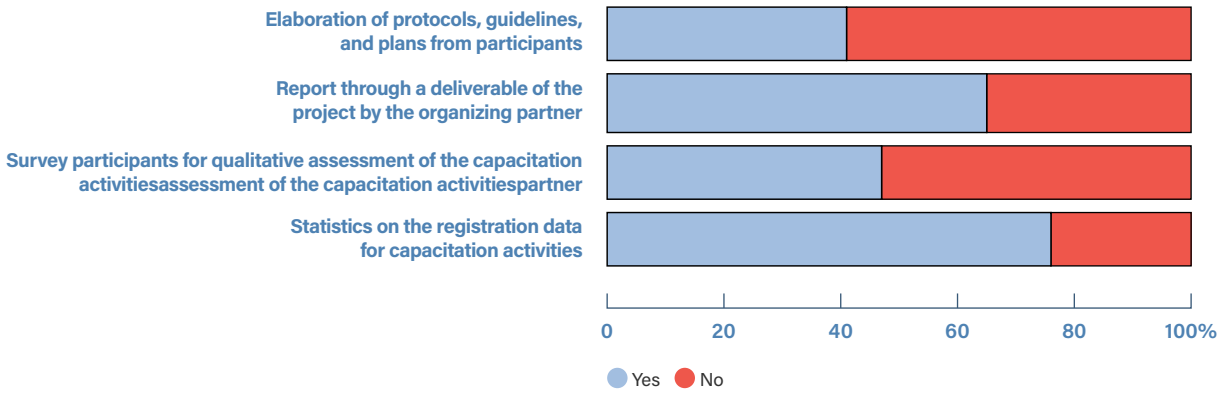


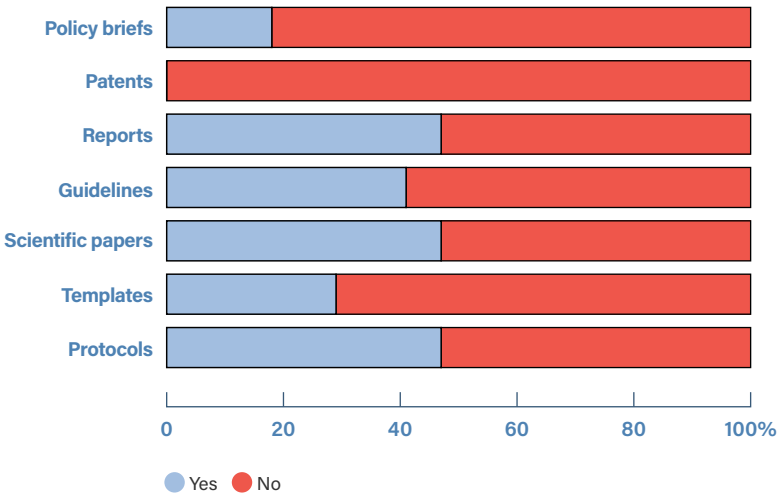
Figure 19. Responses collected in the survey to the coordinators of the sister projects to the question 'Regarding capacitation activities, what kind of resources will you use to keep the record and evaluate their impact on the project?'. The options shown in the plot were available in the survey, along with an additional one for a free reply for other possibilities. This latter was not used by sister projects to provide additional information.

Outputs

Tangible results that can be produced during the organisation and/or implementation of training activities include training materials, templates, tutorials, case studies, and guidelines (please see **Table 13** for specific examples). These outputs serve as valuable resources not only for participants but also for the broader consortium, providing long-term benefits and serving as examples of best practices. The survey results indicate that ca. 40% of projects plan to deliver these tangible results after training activities (**Figure 20**). The most commonly anticipated outputs are reports, scientific papers, guidelines, protocols, and policy briefs, each of which is selected by approximately 40% of respondents. In contrast, patents are not typically expected as outcomes; this aligns with the nature of Twinning projects, which generally do not pursue research maturity that directly leads to market-ready innovations.

The limited expectation of tangible results suggests that many coordinators may not fully recognise the long-term impact these outputs can have on their projects. It also seems to underscore that difficulties are in place while reasoning and defining clear pathways for impact within Twinning projects, particularly when compared to consortia implementing RIA or IA under Horizon Europe.

Figure 20. Expected outputs from training activities planned by the sister projects.



While the above commonalities apply to different types of capacitation activities that can be organised or supported by Twinning projects, each type has specificities that should be taken into account during planning stages. These are summarised in **Table 13** and discussed in further detail through sub-sections below. These sections also include insights from sister project coordinators on the implementation of each type of activity, organisational responsibilities, preferred formats, and the incorporation of hands-on sessions.

Table 13. Summary of training activities that can be implemented in Twinning projects according to the views expressed by the sister projects surveyed and published literature (Drougas & Westhoff, 2003; Šimić et al., 2021) and web sources.

Activity	Scope	Target Audience	Duration & Format	Outputs
Courses	▫ Intensive; ▫ Interactive learning; ▫ Strong emphasis on practical application; ▫ Domain-specific expertise and transferable skills.	[Open to external participants] ▫ Researchers; ▫ RMAs; ▫ Stakeholders.	▫ Several hours to a few days; ▫ In-person, virtual, or hybrid; ▫ 15-25 participants.	▫ ECTS credits; ▫ Certificate; ▫ Training materials; ▫ Individual or group assignments; ▫ Policy briefs or recommendations.
Schools	▫ Immersive and intensive; ▫ Multi-activity programme; ▫ Strong networking component.	[Usually open to external participants] ▫ Early career researchers.	▫ Up to 2 weeks; ▫ In-person; ▫ 20-30 participants.	▫ ECTS credits; ▫ Certificate; ▫ Training materials; ▫ Posters/ presentations/ short reports; ▫ New career opportunities; ▫ Joint publications; ▫ Alumni networks or community of practice.
Workshops	▫ Interactive; ▫ Focus on skill-building and collaborative problem-solving; ▫ Practical exercises.	[Usually not open to external participants] ▫ Researchers; ▫ RMAs.	▫ 1/2 to 3 days; ▫ In-person, virtual, or hybrid; ▫ 8-12 participants.	▫ Training materials; ▫ Best practice guides; ▫ Reports; ▫ Use cases/prototypes/ mock-ups/models; ▫ Action plans; ▫ Project proposals; ▫ Joint publications; ▫ Policy briefings or recommendations.
Seminars / Webinars	▫ Focus on a topic aligned with the project's objectives; ▫ Structure: Intro to the topic > expert-led presentations > Q&A session.	Open to external participants] ▫ Researchers; ▫ RMAs.	▫ Hours; ▫ In-person or virtual; ▫ 10-50 participants.	▫ Recorded presentations; ▫ Slide presentations; ▫ Q&A summaries or key takeaways; ▫ Event report.

5.3.1. Courses

A course within the context of capacitation projects can be defined as a **structured, intensive educational programme designed to impart specialised knowledge and hard skills in the project's scientific field.** Within Twinning projects, courses may be open to participants beyond the consortium, thus broadening engagement, fostering new professional networks, and benefiting from the involvement of external experts. The scope of external lecturers' participation should, however, be planned in advance and clearly defined within the pedagogical framework.

Courses are typically classified as either short or advanced, based on their duration. According to a survey of sister Twinning projects, short courses typically last from a few hours to one week, are organised by both widening and leading partners, and frequently target research management and administration staff (approximately 35%). Most short courses (70%) incorporate practical, hands-on sessions. Advanced courses are less common and usually last from several days to a couple of months, primarily aimed at doctoral candidates and early-career researchers.

Advanced courses should be aligned with the European Credit Transfer and Accumulation System (ECTS) to facilitate academic recognition and mobility. Clear communication of ECTS allocation, together with the issuance of formal certification, enables participants to integrate learning outcomes into their academic records. Embedding ECTS-credited advanced courses into doctoral or master's programmes as optional curricular units can increase the academic impact and sustainability of Twinning projects. This approach not only reinforces institutional capacity but also attracts new students and researchers, broadening the project's outreach and strengthening expertise in the targeted scientific domains.

From a pedagogical perspective, both short and advanced courses should prioritise experiential and active learning (e.g., case studies, lab sessions, debates, group projects) over memory-based approaches. Modular structures enhance flexibility, while blended and online formats improve accessibility and participation, regardless of geographic or economic constraints (Mena-Guacas et al., 2023).

5.3.2. Schools

Within the Horizon Europe Twinning programme, schools (typically seasonal schools) are established as key networking and training activities to strengthen research and innovation performance in developing countries through enhanced cooperation with leading partners. These programmes provide intensive and immersive, **particularly designed for early-career researchers**, supplementing traditional doctoral education by fostering interdisciplinary skills, expanding professional networks, and providing practical training to address complex research challenges.

The preferred format for these schools is in-person, as this format is especially effective for fostering professional and personal networks, promoting interdisciplinary collaboration, and a supportive atmosphere that encourages informal knowledge exchange and open dialogue. Typically, in-person schools combine lectures, workshops, group discussions, and practical sessions (Cvitanovic et al., 2024).

Openness to participants beyond the consortium is a key feature of Twinning project schools, enabling collaboration across institutions, disciplines, and countries and facilitating the exchange of best practices, resources, and expertise. By extending capacity-building opportunities to a broader audience, these schools amplify the project's overall impact and long-term sustainability. Involving external experts,

considering interdisciplinary and intersectoral dimensions, further enhances the learning environment by introducing new perspectives and specialised knowledge. To maximise their contribution, the participation of external experts should be planned several months in advance, with clearly defined roles, such as delivering keynote lectures, leading workshops, or participating in panel discussions, fully integrated into the programme structure.

Analysis of surveyed Twinning projects revealed that over 71% plan to implement schools, with a maximum duration of up to two weeks and a marked preference for in-person delivery. While the principal audience comprises ECRs (including PhD researchers), some schools also target senior researchers and external stakeholders, such as industry representatives, public administration managers, and journalists.

The structure of schools is diverse, as illustrated in **Figure 21**. Lectures delivered by consortium members are the most common activity, integrated into nearly all projects. A relevant proportion of projects also includes lectures from invited academic experts, though even fewer feature contributions from the private sector, other stakeholders or end-users. Talks by researchers presenting their work and by consortium members, as well as by external academic and private-sector experts, are among the less frequent activities used by sister projects. The reported trends regarding lectures and talks reveal inconsistencies worth exploring, particularly regarding invited experts from the private sector, other stakeholders, or end users. Given the the definition of both formats (clarified for survey respondents; see **Figure 21** legend), a marked prevalence of talks over lectures from individual experts might have been expected. However, this was not the case as only 18% of schools included talks, compared to 47% including lectures). Talks by researchers submitting their work for presentation, considered in 24% of the projects (**Figure 21**), are also not very clear, which is more typical of conferences than of schools.

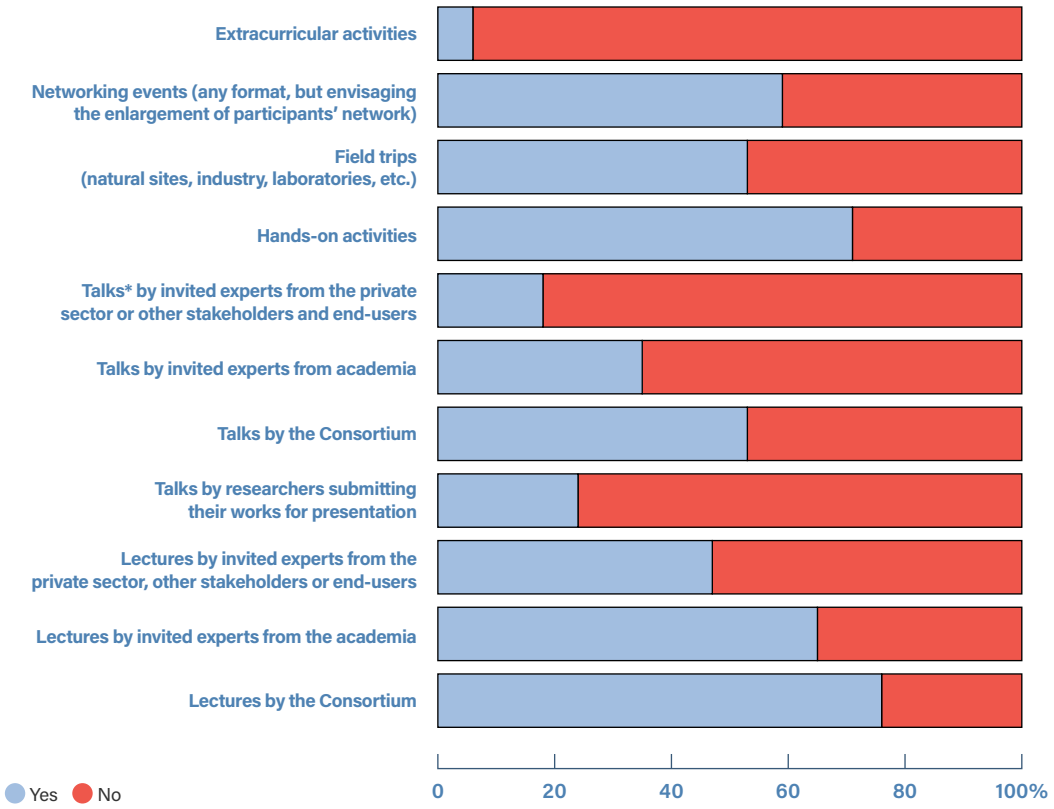


Figure 21. Type of activities integrated in Schools as identified by the surveyed Twinning coordinators. All the options shown in the plot were available for selection in the survey. A clarification on the difference between talks and lectures was provided to avoid misinterpretation and the corresponding bias in the replies: "a talk should be a condensed presentation of a specific work, while a lecture covers the broader field related to a given topic".

Approximately two-thirds of the projects intend to incorporate practical, hands-on activities in schools, supporting the recommendation that at least 50% of activities should be interactive and participatory (Cvitanovic et al., 2024). Field trips to natural sites, industry, or laboratories are present in about half of the programmes, providing valuable experiential learning opportunities. Although recognised as a primary motivation and benefit for participants, networking events are included in just over half of the schools, highlighting a need for further emphasis on structured collaboration and peer support opportunities. Extracurricular activities are the least commonly integrated, suggesting that most programmes focus on core academic and professional objectives.

When organised by accredited higher education institutions, these schools are often aligned with the European Credit Transfer and Accumulation System (ECTS). ECTS recognition ensures formal acknowledgement of participants' achievements by their home institutions, allowing participants to earn academic credits based on workload and achievement of defined learning outcomes. As detailed in Section 5.3.1, awarding ECTS extends the academic and institutional impact of these activities, thereby increasing the long-term influence of the project. Within this context, emphasis should also be placed on engaging participants from widening countries, aligning with the outcomes foreseen for Widening Actions, and career stage (considering that ECRs are recognised as the primary audiences of schools). Post-event, maintaining alumni networks helps sustain collaborations and knowledge sharing, amplifying the school's long-term impact.

5.3.3. Workshops

Workshops are dynamic training activities, designed to address the evolving needs of research teams and RMAs within Twinning projects. They are most effective when scheduled at key project milestones, such as introducing new methodologies, launching new research phases, or when a clear need arises for skill development, knowledge exchange, or collaborative problem-solving. Workshops should prioritise interactivity and experiential learning, engaging participants through practical exercises and real-world problem-solving scenarios. This approach facilitates the acquisition of conceptual knowledge, helping participants develop skills directly relevant to their research and professional contexts. This more practical approach is followed by **most** of the sister projects, with 70% of them implementing workshops organised either by the coordinator or the partners. While some projects specifically organise workshops for RMAs, most are primarily directed toward researchers, reflecting a predominant focus on scientific skill development. Interestingly, 41% of the sister projects implement workshops promoting the interaction between researchers and RMA staff. Notably, 41% of sister projects specifically promote interaction between researchers and RMA staff during workshops. Such cross-staff engagement enhances teamwork and the integration of scientific and management expertise, for instance, in workshops on proposal writing or policy briefs, optimising overall project implementation success.

Workshops can be delivered via in-person, online, or hybrid formats. This flexible approach enhances engagement and supports continuity, even during periods of travel or budget constraints, a fact corroborated by survey data from sister projects, which indicate that 60-80% of the planned workshops are expected to be delivered in a hybrid format.

Typically, capacity-building workshops last from half a day to three days, offering focused training and comprehensive skill development. In line with this, surveyed

coordinators reported durations ranging from one to five days, slightly wider but consistent with effective workshop design. Group sizes of 10 to 15 participants foster active engagement and personalised learning, consistent with observed practice and effective small-group dynamics (Šimić et al., 2021). The workshops mainly target consortium members and often include external experts from academia, industry, or the public sector, who bring specialised knowledge and broaden perspectives.

5.3.4. Seminars/Webinars

Seminars are typically concise training events focusing on scientific or other topics aligned with the project's objectives. The structure of a seminar generally includes an introduction to the topic, followed by expert presentations delivering key information and insights. These presentations usually last 1-2 hours in total. Following the main talks, participants are invited to participate in a dedicated Q&A session, providing an opportunity for direct interaction with speakers and other attendees. The environment is relatively informal, encouraging questions and discussion, but the primary emphasis remains on knowledge transfer rather than hands-on practice.

Seminars usually accommodate a medium-sized number of participants, ranging from 10 to 50. However, larger groups are also possible for information-focused sessions with less direct interaction. When conducted virtually, seminars (webinars) allow participation across multiple institutions while minimising logistical constraints. A reliable and user-friendly webinar platform should be selected, featuring webinar recording, interactive tools like polls and chat, and the capacity to handle the expected number of participants. Recorded webinars enable those unable to attend live sessions to access the content at their convenience, thereby extending the seminar's reach and impact and creating an archive for future reference or training.

Depending on the topic addressed, these events may be open to participants beyond the consortium. This openness fosters broader dissemination of knowledge, supporting the principles of open science and European collaboration. Inviting external experts or attendees can further enhance the seminar's quality, credibility, and networking potential.

Despite these advantages, not all sister projects fully utilise this type of capacitation activity. In fact, only about half of the surveyed sister projects implement seminars or webinars, the large majority as online or hybrid events, organised by the coordinator and/or the partners. The most prevalent number of seminars/webinars foreseen by sister projects is 10 or more, but there are projects organising one to four of these events.

5.4. Challenges in the implementation of capacitation activities by sister projects

As discussed in the beginning of the present chapter, the implementation of training activities can be a demanding task for coordinators. Sister projects acknowledged some difficulties felt in this context, as exposed in **Figure 22**. The most frequently cited obstacle was the finding of time slots for activities that suit all partners, with over 60% of respondents reporting this issue. Coordinating across institutions and countries often results in scheduling conflicts that impede broad participation. To mitigate this, **early and transparent joint planning is essential, leveraging digital tools for hybrid or asynchronous formats** (e.g., recorded content, flexible deadlines) to facilitate engagement regardless of institutional constraints (Cvitanovic et al., 2024).

The lack of engagement and motivation among participants affects around 40% of the projects. For researchers, this may stem from a perception that sessions offer limited value to their specific scientific trajectory, while for RMAs, a lack of direct applicability to their operational roles can reduce interest. Addressing these factors requires designing activities based on systematic needs assessments and close dialogue with both target groups. Emphasising experiential learning through hands-on workshops, real-case exercises, and interactive sessions is crucial. Recognition strategies, such as digital badges, certificates, or explicit links to career development pathways, have been shown to boost motivation for both communities (Baumann et al., 2025; Kline et al., 2021). A considerable number of coordinators identified a lack of motivation also from partners, primarily due to the organisational burden and time-consuming nature of activities. This issue is pronounced when researchers or RMAs from partners are expected to lead multiple initiatives without a clarified workload distribution. Solutions include rotating organisational roles, co-leadership models between research and RMA representatives, and clear communication of the mutual benefits of engagement, such as reputational growth and network expansion, ensuring the burden of coordination and delivery is shared (Drougas & Westhoff, 2003; Heitor et al., 2024).

Technical difficulties faced by some participants, such as unfamiliarity with digital platforms or software, remain non-negligible, particularly in hybrid or virtual contexts. Proactive responses include offering user-friendly platforms, providing targeted technical guidance ahead of sessions, and ensuring readily available technical support during activities. Finally, resource constraints due to insufficient planning for equipment and materials were reported by approximately 20% of projects. Early drafting of detailed checklists, assignment of resource managers, and the use of institutional infrastructures are recommended measures to address these challenges and safeguard the quality and sustainability of capacitation activities (Baumann et al., 2025; Heitor et al., 2024).

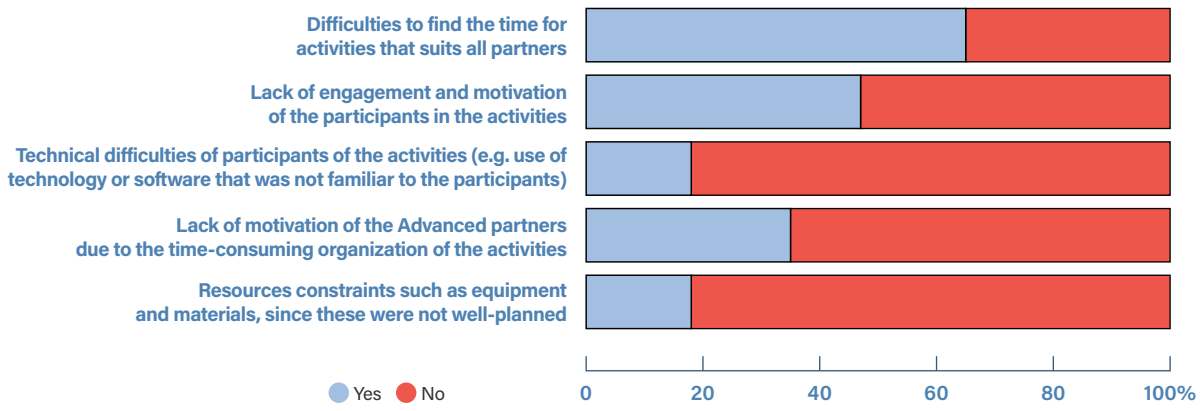


Figure 22. Main difficulties encountered by sister projects regarding the implementation of the capacitation activities.

Good Practices
Good practices guide for widening projects' management

Chapter 6
Overall Project Management and Reporting

Chapter 6

6. Overall Project Management and Reporting

The complexity of Horizon Europe projects, including but not exclusively derived from the required flows among partners and interactions with a variety of stakeholders/audiences with different perspectives and objectives, demands significant management effort. Despite the extensive guidance provided by the EC in this regard, sister projects have faced and identified several difficulties, which motivated the inclusion of the present chapter in the guide. Importantly, the lack of a designated project management officer at the coordinator institution or the shortage of experienced project managers at institutions that can efficiently support project implementation, implying an extra (and necessarily inadequate) load for scientific coordinators, were highlighted as pitfalls constraining the successful management of Twinning projects.

This chapter was elaborated with the above context in mind. Knowing that specific tools are available to help project managers optimize their work, here we provide some examples of such tools, yet each coordinator and project manager should adapt to the specific needs of the project and workflow, as well as to their experience. An overall appraisal of financial management is also made, largely based on the difficulties surveyed with the sister projects. The same approach rules a final section on project reporting, a critical task which necessarily drives efficient project management.

6.1. Project Management Methodology

A project management methodology is a structured, repeatable system that defines how a project should be planned, executed, monitored, and completed. It provides a set of principles, processes, roles, tools, and documentation standards that guide the work from start to finish. The purpose is to ensure consistency, clarity, risk control, and predictable outcomes across projects. Methodologies differ in their level of prescriptiveness or flexibility, but all serve as an agreed-upon framework that teams follow to manage scope, time, cost, quality, communication, and responsibilities throughout the project lifecycle.

An important assistant, regardless of the methodology used, is the software employed. Tedious activities, such as data consolidation, formatting, gathering information, creating overviews, onboarding, delegating tasks, sharing information, managing document versions, among others, can quickly consume time that would be better spent pushing the project forward. Although it is possible to effectively manage a project using more than one piece of project management software, it is beneficial to use a single piece that allows e.g. improved timeline estimation, more effective use of project resources, enhanced team communication, and improved budget estimation. For example, EMDESK provides a list of the top 5 most popular project management software for HE projects – the list is available **here**. Nevertheless, the proposed options are not open source in their full versions (though there are limited free plans in most cases). Open-source software is being increasingly developed, and suitable alternatives for project management are available to assist with most project management tasks.

Recognising the importance of supporting funded projects, the EC developed the **PM² Project Management** methodology. This methodology provides guidelines to assist organisations and teams in managing the entire lifecycle of their projects. It facilitates the definition and planning of projects, guiding the production of deliverables that align with their intended purpose, respect time and cost constraints, and create value for stakeholders, based on four pillars:

1. Project governance model:
PM² clearly defines the roles of the possible actors in a project and the respective responsibilities. This includes stakeholders, Project Steering Committee, Business Manager, Project Manager, among others.

2. Project lifecycle:
The PM² project lifecycle has four sequential and non-overlapping phases: (1) Initiating phase, (2) Planning Phase, (3) Executing Phase, and (4) Closing Phase. These phases have a predominant type of activity (i.e. initiating activities are predominant in the Initiating Phase, etc.). However, while phase-related activities peak in effort during a specific phase, activities of this type can also be performed during neighbouring phase(s) (e.g. planning activities are also repeated in the Executing Phase). A project moves on to the next phase when the goals of its current phase have been deemed achieved as the results of a formal (or less formal) phase-exit review.

3. Set of processes:
Project management activities which are separated by phases.

4. Set of project artefacts:
Documentation templates and guidelines for the described activities.

The methodology is clearly described in a dedicated guide and a very complete set of artefact templates is also available (check **here** for the most recent versions). PM² is well embedded within EU Institutions and is continuously improved. Moreover, it is in the public domain, being available to all, with the corresponding guide being available in many languages. PM² Project Management Methodology introduces several commonly used Project Management Tools & Techniques for addressing various challenges in project management. There are tools and techniques from different areas of project management, aiming to support the delivery of high-quality results. Each tool or technique includes a high-level overview, and guidelines on how to use it. Some examples are the PESTEL Analysis, Make or Buy Analysis, and Stakeholder Interest/Influence Matrix (SIIM), all can be checked **here**.

6.2. Financial Management

Financial management is a crucial part of any funded project, and it is critical to consider it from the moment of grant writing. A realistic and detailed budget at the application stage, coupled with close monitoring of the expenditure, will enable efficient and successful project implementation. In the Twinning call where the authors of the present guide acquired funding (HORIZON-WIDERA-2021-ACCESS-03), the budget per project was set at 1.5 M€, to distribute among the coordinator from a widening country and advanced partners (minimum of two) meeting two critical rules: i) a maximum of 30% of the budget was allowed to accommodate costs related to a preparatory research project, and ii) from this fraction, 70% should be allocated to the coordinator. These specificities create unique challenges in the financial management of Twinning projects, once coordinators and partners must continuously monitor budget distribution to ensure compliance. Furthermore, as in most cases, financial reporting in Twinning projects is due only at the end of the project (i.e. intermediate reporting covers only the technical implementation of the project), careful control of financial distribution throughout is critical to prevent difficulties in claiming costs. In the sections below, suggestions are provided to assist project coordinators and managers in this task.

A note is due at this point regarding the funding schemes applied to Twinning projects. Although the funding scheme in the call related to the present guide was actual cost-based, the subsequent calls follow a lump sum model (Horizon Europe Work Programme 2026-2027 explicitly targets 50% of its call budget for lump sum funding). Relevant definitions regarding both funding models are included in chapter 2 of the present guide.

6.2.1 Main Challenges Related To Financial Management

Avoiding redundancy with other guidance documents readily available from the EC and several recognized institutions and consortia, the present chapter of the guide focuses mostly on the most challenging aspects of financial management as experienced through sister projects implementation and identified through surveys. These are explored in the sub-sections below.

6.2.1.1 How to address the eligibility of specific cost items?

The best source for clarification on this question is the **Annotated Grant Agreement (AGA)**. This document is a user guide that explains to applicants and beneficiaries the EU Model Grant Agreements for the EU funding programmes 2021-2027. By avoiding technical vocabulary, legal references and jargon, it seeks to help readers find answers to practical questions they may encounter when setting up or implementing their projects. In this document, it is clearly defined what is considered eligible costs with many examples provided. Moreover, it defines and provides examples of direct and indirect costs. Twinning projects follow the basic set of common cost categories in Horizon Europe projects (A. Personnel, B. Subcontracting, C. Purchases and D. Other). Specific eligibility conditions for each budget category are also explored in the AGA, but there are still some questions that potentially arise during the implementation of Twinning projects, which are covered in sub-sections below. Indeed, some sister projects refer to issues in understanding the AGA, suggesting that there is still scope for improvement in this mastering document.

6.2.1.2. Are there specifics of personnel costs that should be taken into account?

Personnel costs are typically the largest budget component in Horizon Europe projects, often representing 60–80% of total expenses. Personnel costs are calculated using a standard formula defined in AGA, based on the cost per Person*Month (PM) unit. These calculations should be done at the proposal stage to foresee personal costs and then normally once per reporting period for each person who worked on the action. Here you can find a free interactive calculator to determine the exact cost for each personnel category, along with a clear description of each category.

It is important to keep in mind already at the proposal stage that, as per the typology of Twinning projects, involving capacitation objectives, recruitment of additional personnel specifically for project implementation are not eligible. Nevertheless, costs related to newly recruited staff (by the institution) can be allocated to the project. Also, the costs of PhD students who work for the beneficiary can be accepted if the agreement is work-oriented (not training-oriented) and comply with Horizon eligibility criteria. Costs linked to master students, however, are considered ineligible.

Twinning and other Widening projects focus on capacity building activities that involve many staff members from the coordinator and partner institutions, most of whom are not individually budgeted as project-paid personnel. Due to the capacity-building nature of Twinning projects, the coordinating institution often mobilizes a large internal team of researchers, technicians, and administrators to participate in and/or organize activities, including workshops, mentoring sessions, proposal preparation, joint publications, etc. However, the grant budget only covers a few key staff because Twinning projects have modest budgets; often key staff budgeted covers administrative officers, the project manager, and the scientific coordinator when their salaries are not funded by external funding agencies. For these non-budgeted staff, whose participation is essential to ensure institutional learning and wider research excellence, employment costs are covered by the organisation's own funds or other grants, not from the EU Twinning grant itself. This frequent peculiarity in Twinning projects often creates an apparent inconsistency between the effort allocated to project implementation and the personnel costs declared in the financial report(s). In fact, these unbudgeted human resources represent own contribution provided to the action free of charge (part of the coordinator's co-financing and institutional commitment to the project), thus not appearing as eligible costs in the financial statements. The resulting differences between the actual staff involved and the person-months originally budgeted reflect this institutional engagement rather than a problematic deviation in cost eligibility or project scope, with the scientific and capacity-building objectives remaining fully on track. Nevertheless, flagging this aspect at the proposal stage and in the technical report is advisable for full clarification, usually in the section dedicated to deviations. Acknowledging it as an own contribution in the technical report demonstrates the extent of institutional support and justifies apparent PM deviations between the originally budgeted staff and the actual team involved.

6.2.1.3. Is it worth allocating budget to a designated project manager?

Having a project manager is a critical asset for easily achieving the expected project results (De Marco and Mangano 2023). In fact, among barriers to cooperation in EC Framework Programs, the lack of project management capacity has been frequently highlighted (Kerridge et al. 2023). It is also recognized that inequity in research management at this stage can lead to unfair allocation of credit between partners (Kerridge et al. 2023).

Although we recognize that, in some cases, one person fully allocated to one Twinning project may be unadjusted to the foreseen burden (consortia are typically small in Twinning projects), we still recommend one person dedicating at least 50% of their work time to each project. This RMA will be facilitator of activities such as partnership management, budget management, organisation of capacitation activities, reporting, coordination of dissemination, exploitation and communication activities, hence responsible for pushing the consortium towards following the plan on time and supporting the achievement of the best outcomes. In fact, the most sustainable and strategic approach, especially for Widening institutions, is to maintain an internal pool of experienced RMAs who can be flexibly allocated across multiple projects. This ensures continuity of effort, prevents the loss of critical mass, and allows expertise to grow and consolidate across successive initiatives. Over time, this approach strengthens institutional capacity in project coordination, financial management, and communication. Ultimately, this progressive internalisation of research management skills is precisely one of the main goals of capacity building instruments such as Twinning projects.

6.2.1.4. In which situations do cost category B (Sub-contracting) apply instead of category C (Purchases)?

The distinction between these cost categories is not based on the amounts involved, but rather on the nature of the cost. When the cost covers the entire responsibility of a task as described in Annex 1 to the GA (i.e., the task would not be done without them), it should be declared under category B (Sub-contracting). When the cost covers goods (consumables, reagents, etc.), works, services, equipment, temporary staff, etc., that are needed to implement a task by a given partner (who still remain fully responsible for the task implementation), then it should be declared under category C (Purchases). There are examples in the AGA that can be checked to complete this clarification. It is noteworthy that cost category B is not used for claiming indirect costs. As such, the use of this cost category should be discussed with and agreed upon by the Institution.

6.2.1.5. Which sub-categories are commonly considered under category C (Purchases)?

As detailed in AGA, cost category C (Purchases) may include the sub-categories 'Travel, accommodation and subsistence'; 'Equipment'; and 'Other goods, works and services.' Beyond the eligibility rules defined by the AGA, it is important to comply with local regulations and national law, e.g. differential purchasing procedures depending on the amounts involved or institutional structure for purchases, VAT-related costs, and depreciation rate handling rules. As well, costs related to the project incurred beyond the project lifetime (generally within 60 to 90 days after the project ends) are extremely limited. Costs that may be eligible are final reporting costs for drafting and submitting the technical and financial reports or audit certificates on financial statements by independent auditors. This may constrain some activities in Twinning projects; hence, it is critical to plan implementation taking such restrictions into account. Nonetheless, there are costs where further flexibility could be beneficial, particularly for dissemination, exploitation and communication. These activities are to be continued beyond the project' timeline as highly recommended by the EC to maximize as much as possible the impact of the Actions, more even in Twinning projects to leverage the acquired capacity of the Widening coordinator in the long term. Although the EC provides different free platforms for dissemination and exploitation, these are often not the most explored by some specialized audiences. Thus, greater flexibility in this rule would be welcome, especially for cases such as maintenance of the project communication channels, participation in conferences to disseminate results obtained before the project ended, costs related the publication of results obtained during the project implementation (peer-reviewed publication often requires very large periods to become completed) or IPR-related costs associated with knowledge and results generated during the project.

The sub-category **'Travel, accommodation and subsistence'** refers to mobility costs, including flights, other transport, accommodation, and daily allowances. These costs should primarily comply with internal rules established by the institution in agreement with the applicable international and national regulations. For example, it is common to find internal rules limiting hotel accommodation fares by classification or reimbursement of transport expenses when these are not made using public transport. Travel and subsistence for persons other than the project personnel (e.g. conference speakers, visiting experts) that participate in project activities may be eligible, provided that these persons are necessary to the good implementation of the project activities and their participation is foreseen in Annex 1 of the GA or has been agreed by REA and justified in the technical report. As far as we understand, despite there have been some reports by the sister projects on difficulties in covering traveling expenses made by scholars (PhD students or equivalent), there are no such eligibility constraints in Twinning projects (which are clearly dedicated to capacitation towards excellence, including training of early-career researchers such as these scholars), as long as these persons are appropriately listed in the SyGMa researchers table; the issues reported are possibly linked with internal rules that must be observed beyond the rules imposed by the funding programme.

The sub-category **'Equipment'** is relatively self-explanatory, referring to purchases of equipment or other related assets in Twinning projects. AGA is detailed in describing the eligible costs and reporting requirements for this sub-category; the most critical aspect being that the purchase and eligibility require the actual need of the item in the project and its acquisition/use exclusively for the project. Notably, assessment of equipment costs should take into consideration depreciation rates determined by the local regulations, meaning that depreciation costs must be covered as an own contribution by the institution beyond the project timeframe, as

in many other project typologies.

'Other goods, works and services' is a broad sub-category that covers purchases of consumables, reagents, raw materials, parts and other supplies (including services and items related to the organization of events); communication and dissemination costs (including publication fees, printing of promotional items, design services, conference fees, costs of speakers); costs for financial certificates and guarantees. As for the other cost categories and sub-categories, one Beneficiary partner cannot purchase under any purchase sub-category from another Beneficiary partner.

6.2.1.6. Which sub-categories are considered under category D (Other) that are not under C (Purchases)?

Cost category D (Other) includes expenses that do not fit the eligibility rules for the other cost categories, including purchases, but can still be eligible depending on the programme. The AGA provides a complete list of such costs, along with their programme-specific eligibility. For Twinning projects, the applicable sub-category regards 'Internally invoiced goods and services' as costs for goods/services provided between entities within the same beneficiary (e.g., between its departments, services or labs), calculated as unit costs excluding profit. However, some institutions might not have implemented the internal methodology to calculate these costs, excluding non-eligible fractions. In such cases, access to this sub-category is restricted.

6.2.1.7. How to efficiently distinguish research and twinning costs?

This distinction is critical in Twinning projects as per the call rules, which define that the preparatory research project can be funded up to a maximum of 30% of the overall budget, and deviations may imply payment difficulties. The remaining 70% of the budget (Twinning budget) must be used in capacitation/training activities; this latter budget also includes dissemination and outreach. Please note that this percentage may vary with different calls.

There are key questions that may help determine whether a specific cost is related to research or training/twinning, and some examples are shown in **Table 14**.

Table 14. Examples of guiding questions that allow a given cost to be classified as Research or Twinning cost.

	Research cost	Twinning cost
Main purpose	Generate new knowledge, data, results, answer scientific questions.	Knowledge transfer, building capacity, networking.
Main beneficiaries	Research communities/end-users.	Partner institution staff/students.
Tangible output	Publications/ datasets/ prototypes.	Workshops/manuals/curricula.
Data purpose	Answer scientific questions.	Learning, Dissemination, Exploitation.

A practical way to make this distinction is to define a WP containing the research project associated with the Twinning Action, as mandatory in the current (2026) call for Twinning proposals. This will ensure full compliance with both the recommendations of the Twinning calls and the structure of Financial Statements that must be submitted for reporting purposes. Using this approach, all costs incurred from the implementation of this WP are logically claimed under the Research budget. The hands-on training activities should then be considered in another WP to facilitate the allocation of related expenditure to Twinning costs, consistently with each call rules.

6.2.1.8. How to deal with the increasing prices when compared with the application phase?

Sister projects were implemented in a timeframe where significant economic fluctuation was experienced worldwide, with a generalized increase in inflation rates. Some experienced a significant increase in personnel costs that reflected in a significant increase in costs per PM. Depending on the magnitude of the increase observed, reporting of deviations in staff costs with the corresponding justification was required for some sister projects, including details on staff category, their responsibilities in the project and an overview of the costs, even in the intermediate report. As such, a detailed record of these aspects should be kept throughout the project by the financial manager, the project manager, and/or the scientific coordinator throughout the implementation timeline.

Given the strong training component underpinning Twinning projects, replacing some of the physical short-term mobilities, training sessions, or meetings with online or blended formats is a highlightable strategy to accommodate severe inflation-driven cost increases. This maintains capacity-building objectives while cutting on travel and accommodation costs. When the possibilities are limited in this context, reallocating the budget is the recommended strategy. In the Lump sum model, the budget can be used across cost categories as long as the project is implemented as defined in the GA. Budget transfers between work packages and/or partners may require an amendment depending on whether the consortium wishes/needs to reflect such changes in the GA.

In other funding models, such moves are considered internal budget management only if they are minor (a 20% threshold is generally taken as a reference). When these conditions are not met, an amendment to the GA is generally required, but advice from the REA project officer should be collected. Transfer of shares between partners is also a possibility to tackle inflation issues, with increased flexibility in Lump sum funding models; these transfers need to be justified by the Coordinator and may or may not require an amendment procedure to the GA. Although these are possibilities, it is worth noting that Twinning projects follow rules governing the distribution of the budget to the Widening coordinator and the non-Widening partners that may constrain the transfers.

6.3. Project Reporting

As with any other Horizon Europe Action typology, Twinning projects respond to periodic reporting through implementation. Commonly, there is a mid-term report and a final report requesting technical and financial elaboration; the mid-term report is often only technical, but in some cases, financial reporting is also requested. In parallel to the specific documents required at these two stages (part B of the technical periodic report as a deliverable and eventually the system-embedded financial report), the REA provides a continuous reporting module based on SyGMa – System for Grant Management. The information compiled here is automatically compiled to create part A of periodic report(s) when each report is prepared (locked for review). On the other hand, this can be a critical tool, effectively helping the consortium report project progress throughout the project lifetime, thus an important management asset if kept up to date by the Coordinator and the partners. SyGMa is indeed an easy to walkthrough module available in the project management section of the EU portal (Figure 23). It becomes available after the signature of the GA, tuned to the DoA, and contains all relevant sections to guide the management of any Horizon Europe project.

Recognizing that this might be new to many coordinators of widening countries, below you can find some recommendations for reporting based on our experience:

1) When beginning the management of a Twinning project, explore all sections of the module, keeping a record of what is asked in each. This helps the Coordinator to organize management calendars as well as internal management documents or platforms in an efficient manner.

2) Inform the partners of deadlines that are to be met in the continuous reporting module (e.g., for deliverables, milestones) at the beginning of the project. Although they have access to the module as well it is important to inform them through other means. Communication with partners according to the submission dates should also be maintained throughout the project timeline to avoid delays in information submission.

3) Even when deadlines are not specified (e.g., table of researchers, dissemination activities, communication activities), it is important to keep the continuous reporting platform up to date. Regardless of the management resources available externally to the reporting module, this can efficiently work as a general logbook, an assurance that nothing is left behind, when consulted and fed continuously throughout the project timeline.

After completing or updating each section, validation or saving should be performed using a button available within each section of the module. This will update the summary signs, providing an immediate visual clue on the status of the continuous reporting as the module is accessed. Importantly, any delays in the meeting of formal submission dates should be communicated to the REA Project Officer (PO). In such a case, the Communication Centre should be used, and the information should include a reasonable justification for the delay with a concrete request for the postponement of the submission deadline (delays longer than three months should additionally be justified in the corresponding periodic report, thus additionally subjected to the review process). Approval of the request will result in a concordant change in the related deadline operated by the PO. Effective communication between the PO and the Coordinator is indeed critical for the successful implementation of the project. It should be emphasized that all communications with the PO should occur electronically through Portal. Issues in communication with the PO were reported by surveyed sister project. These mostly related to technical problems of the platform, namely automatic notifications emission as a message is posted in the communications centre. When a relevant delay is noted by the Coordinator, it is worth re-sending the message to overcome this issue.

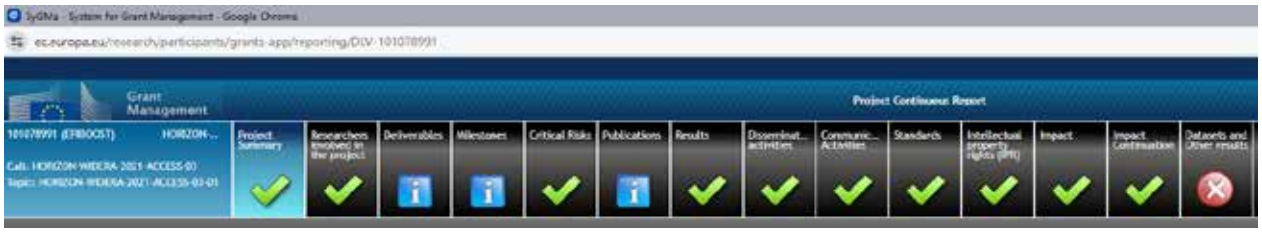


Figure 23. The different sections of the continuous reporting platform based on SyGMa, as available for the EPIBOOST project by February 2026. Sections that have been updated and have validated contents are signaled with a correct green mark; the red round symbol with a white cross indicates that critical information characterizing the uploaded items needs to be completed; and the info blue sign marks sections open for completion.

The SyGMa continuous reporting platform contains typically the following sections: 'Project Summary'; 'Researchers involved in the project', 'Deliverables', 'Milestones' and 'Critical Risks' (populated with the information provided in the Grant Agreement), 'Publications'; 'Results'; 'Dissemination Activities'; 'Communication Activities'; 'Standards'; 'Intellectual property rights'; 'Impact'; 'Impact continuation'; 'Datasets and Other results'. Most SyGMA sections are straightforward and do not pose major issues in completing the information required. Moreover, several adequacy aspects of the SyGMa continuous reporting platform have already been explored in previous chapters of this guide, especially regarding results, dissemination and communication activities, and impact and Impact continuation. Thus, for conciseness, the sub-sections below address only previously unexplored issues noted by sister projects that entail reporting difficulties. In fact, some sister projects noted that the availability of more detailed guidance (e.g. with templates) for correctly filling the SyGMa continuous reporting platform would be an important asset supporting appropriate and timely reporting.

6.3.1 Researchers Involved in the Project

All researchers who have been involved in project activities should be listed in this section, regardless of whether the costs associated with their contracts with the institution are budgeted. The list is primarily based on the GA but should be continuously updated. This is particularly important in Twinning projects, as capacitation activities throughout the project lifetime may involve different researchers, some of whom may not have been considered at the proposal stage (e.g. researchers participating in exchanges and other specific training activities involving mobility supported by the project, newcomers) organised by the project. Updates may include the addition of a new researcher, the indication of the new position for a researcher leaving the project (who should not be removed from the list as they were involved at some point in the project lifetime) or a change in the category of the researcher. Regarding the categories available to position researchers by career stage, the earlier ones are D1 – First Stage Researcher (PhD student) and D2 – Other First Stage Researcher. There is no explicit guidance from the EC or REA stating that RMAs should not be added to the table of researchers involved in the project in SyGMa, yet this is a common assumption among several coordinators in Horizon Europe projects. This is likely an interpretation rooted in the structure of the reporting fields (requiring information on research career stage, academic degree, professional research role, contract duration, etc.), which clearly suggests an intention of collecting information on research personnel rather than RMA staff. Considering the critical importance given to RMAs and their capacitation in Twinning projects, this absence of RMAs in the table of researchers or the inexistence of a table that can collect information for personnel involved whose role is not linked to research implementation, but critical for the achievement of project objectives, is apparently inconsistent.

6.3.2 Deliverables

This section is updated when a deliverable is uploaded by the responsible partner and the upload is validated by the Coordinator, when the PO changes the due dates for deliverables and when the PO adds mandatory deliverables (reports) during reporting phases.

Depending on issues arising during the implementation of the project and critical risks (foreseen or unforeseen in the GA; note that unforeseen risks can also be added to the Critical Risks section), the preparation and upload of deliverables may be delayed. When the delay can be justified on such grounds, communication with the PO to request a reasonable postponement of the deliverable due date should be made. Upon the analysis of the justification provided, the PO can agree to the change in the due date and operate the corresponding change on the platform. This change is, however, a deviation from the initial plans and should hence be reported as such in the technical report submitted at the end of the corresponding reporting period. More complicated situations may arise when the delay results from a partner underperformance and the lagging in the elaboration of the deliverable can place the project successful implementation at risk (for example, for deliverables that reflect the reaching of project critical stages, constraining the progress of subsequent tasks). If this underperformance cannot be reversed within a defined timeframe discussed with the partner involved, the availability of other partners for taking over the related task(s) should be explored. Once the consortium agrees to the reallocation of resources, the situation and the agreed strategy should be communicated in detail to the PO for advice and the eventual triggering of an amendment procedure if necessary.

Deliverables are approved after assessment of the progress reports, and those marked as public are automatically transferred to CORDIS. This means that the information contained in such documents, including disclosed project results, will become openly available. Thus, sensitive information should be avoided in public deliverables. It also means that public deliverables are a dissemination channel and, as such, reference to the funding should be made, as required for any other dissemination or communication activity.

6.3.3 Results

This section covers project's results other than those recorded in the other sections of the SyGMa continuous reporting platform (e.g. publications, datasets, software, protocols and workflows, etc.). Here, the focus is on the content of the results and on their potential impact if these are identified as key exploitable results (KERs). The existence of KERs is recommended and, if their exploitation is not done within one year after the end of the project, the Horizon Results platform must be used to identify interested parties for the purpose (obligation under the GA; can be waived by REA). In any case, efforts to exploit KERs should continue for up to four years after the end of the project.

In practice, the upload of a given result starts with designating it and selecting its type among (i) SCI - a scientific discovery, model, theory and similar; (ii) PROD - a product; (iii) SERV - a service; (iv) PROC - an industrial process; (v) BUS - a business model; (vi) DSG - a design; (vii) EVNT - an event, including conferences, seminars, workshops, etc.; (viii) STAFF - qualified personnel exchanges (of the Coordinator or partners); (ix) LEARN - learning and training modules or curricula; (x) INFRA - new or improved infrastructure or facilities; (xi) OTHER. While most types of results are self-explanatory, questions may arise regarding INFRA and OTHER. Guidelines for improving infrastructure capacity can possibly be considered in INFRA, e.g. guidelines for the efficient management of core facilities of the coordinator institution; discipline-specific results (e.g. scores, documentaries, artistic installations) or educational videos are examples of results fitting OTHER that do not fit the types of other results recorded in SyGMA sections ahead (**see section 6.3.4**) – note that the most typical results related to research (e.g., articles, datasets, software, protocols and prototypes) have dedicated sections for upload in SyGMa. Each result should then be identified as a KER if it can have a recognized exploitable impact – this impact can be scientific, societal, environmental, technological, economic or policy/regulatory, and further description is required

regarding the potential, the audiences, steps towards exploitation and the market maturity.

In Twinning projects, it is expected that a significant part of the results relates to qualified personnel exchanges. The development of learning and training modules or curricula as well (**see Table 11 in chapter 4** for concrete and/or additional examples). These are often less usual KERs but can certainly become it depending on the defined exploitation strategies. These less common KERs also have fewer correspondence options when classifying the steps undertaken towards exploitation. The options available on the continuous reporting platform for the purpose are (i) 'Prototyping in laboratory environment'; (ii) 'Prototyping in production environment'; (ii) 'Pilot, demonstration or testing'; (iv) 'Intellectual property management'; (v) 'Licensing to third party'; (vi) 'Complying with regulatory framework'; (vii) 'Contribution to standards'; (viii) 'Feasibility study'; (ix) 'Market study'; (x) 'Business plan'; and (xi) 'Other.' It then becomes evident that the most suitable option is often 'Other,' which characterizes poorly the exploitation strategy, revealing that there is a scope for improvement of the reporting platform towards better adequacy to different project typologies.

6.3.4 Datasets and Other Results

This section differs from the section for results (**see section 6.3.3**). As currently presented in SyGMA continuous reporting, it serves to record the datasets, software, workflows, protocols, prototypes, or other similar tangible results that were achieved during the project lifetime. Impact appraisal is not requested for any of these items, but rather information on FAIR and OpenAIRE compliance. Uploading results here does not exempt from deposit in an OpenAIRE-compliant repository for long-term preservation following the provisions of the project Data Management Plan and, in some cases (protocols and workflows, for example), the project Dissemination and Exploitation plan. This deposit is mandatory for datasets and only recommended for the other results recorded.

Good Practices
Good practices guide for widening projects' management

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