Project 101094821 ERA_FABRIC - HORIZON_WIDERA_2022_ERA-01

Deliverable D5.1

Monitoring and Evaluation Methodology (MEM)

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EXECUTIVE SUMMARY

This Monitoring and Evaluation Methodology provides the general framework for the evaluation and monitoring of the ERA_FABRIC project. The document introduces an approach for evaluation and monitoring as well as guidance on its practical implementation. Given the specific and experimental nature of the project (trying to define, structure, populate and validate the "interconnected knowledge space" foreseen by the ERA Hub initiative) we propose an iterative approach that is based on the Theory of Change initially proposed and partly described in the ERA_FABRIC DoA, which will be a key project task to be validated by the end of its timeframe. This created an unavoidable loop in the analysis, namely that the Theory of Change used for implementing the Monitoring and Evaluation Methodology will both influence and be influenced by the Theory of Change of the ERA_Hub model to be released by project's end.

Also, for that reason, the chosen activity, output and outcome indicators and their definitions as well as other concepts in this Monitoring and Evaluation Methodology will be subject to discussion and possible adjustments along the project duration as deemed necessary by the project partners to reflect lessons learned from the other ongoing activities.

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ABBREVIATIONS

CA	Contribution Analysis
DoA	Description of Action
KER	Key Expected Results
KPI	Key Performance Indicators
MEM	Monitoring and Evaluation Methodology
MU	Masaryk University
R&D	Research and Development
ToC	Theory of Change
WP	Work Package

1 Evaluative approach

This chapter outlines the key elements of the evaluative approach being part of the ERA_FABRIC's Monitoring and Evaluation Methodology including the project's initial or 'baseline' Theory of Change as well as Contribution Analysis as a solution to the problem of attribution due to lack of counterfactual.

1.1 Starting point: the DoA

Quoting from DoA (highlights are not in the original):

WP5 – Monitoring, Evaluation and Standards (Lead: MU, M01 – M30)

WP5 aims to carry out a systematic monitoring and assessment of project activities, results and impacts. Particularly it will have the following objectives:

- Draw up a Monitoring and Evaluation Methodology accompanied by KPI and metrics, tools and instruments.
- Carry out two rounds of data gathering and interpretation on of what works, what doesn't, and why within the project.
- Deliver an Outcome Evaluation to assess the results delivered in relation to expectations.
- Deliver an Impact Evaluation to understand progress towards medium- and long-term impacts as stated in the Call.

Task 5.1 Monitoring and evaluation methodology definition (including KPIs and metrics) (Lead: MU, M01 – M06).

Partners involved: ART-ER, NTNU.

This Task will establish the overarching Monitoring and Evaluation Methodology for ERA_FABRIC activities, *directly based upon the definition of Theory [of] Change* proposed in Section 1. MU will design the data collection and analytical protocols, as well as the KPIs and metrics *in accordance with the operational and strategic targets for the project*.

In light of the above, and as a practical proposal, we suggest defining:

- *Operational targets* of ERA_FABRIC: the 12 KERs (*Key Expected Results*) listed in the DoA Part B and associated, to a large extent, with well identified activities at Task and Partner levels;
- *Strategic targets* of ERA_FABRIC: (validation of) the *three dimensions* of the ERA Hub model as described in the DoA according to the project's Theory of Change (see below).

1.2 Theory of Change

Theory of Change (ToC) seeks to identify both the explicit and implicit paradigms of change that underlie interventions. ToC can be defined as a systematic and cumulative study of the links between the activities, the outcomes and context of the intervention. It involves the specification of an explicit theory of how and why an intervention might cause or have caused an effect (Pawson & Tilley, 1997).

In this project, ToC refers to the (expected) change the ERA Hub model should bring to the AS-IS scenario of R&D and innovation at the regional and national levels in the EU, and to the implications of such a change for R&D and innovation policy action. While WP4 globally and Task 4.5 specifically oversee articulating the key features of such a ToC, and identifying the mechanisms that may help the ERA Hub make an impact in the EU national and regional R&D and innovation ecosystems, both WP4 and WP5 rely on an initial ToC definition that we take as the starting point of our analysis. The articulation of the final ToC will be delivered by D4.2 within WP4. The initial ToC can be summarised as follows:

i. The ERA Hub model is composed of three dimensions – Knowledge Ecosystems, Multi Stakeholder Platform, and Policy Toolbox – that are *equally relevant* for its success.
ii. The three dimensions of the model are separately, yet concurrently examined in WP2, WP3 and WP4, starting from a requirement analysis of the actors and stakeholders in each partner community and ultimately leading to the co-design of a few supporting tools, including those marked as KERs #3, #5 and #7.
iii. The first version of the model will be tested empirically within the same partner communities in the three thematic domains identified as key for ERA_FABRIC – Sustainable manufacturing, Biobased circular economy and Clean renewable energy – and based on a number of KPIs that will be generated bottom up from the stakeholder discussions.
iv. Understanding how the three dimensions of the model matter in transforming the *status quo ante* requires stakeholders in the preselected communities to identify the problem(s) they want to tackle and the desired solution(s) they would like to achieve by project's end. This can also be referred to as "change journey" or "policy impact".
v. Additionally, it should be necessary to identify the impact generation mechanisms, or the steps required to get from problems to solutions (throughout activities, outputs and outcomes). This can also be referred to as "contribution to impact" or "policy outcome".

1.3 Visualising the change journey

The following picture – based on the Logic Model of the Kellogg Foundation (1988) – presents a simplified ToC for the ERA_FABRIC project:

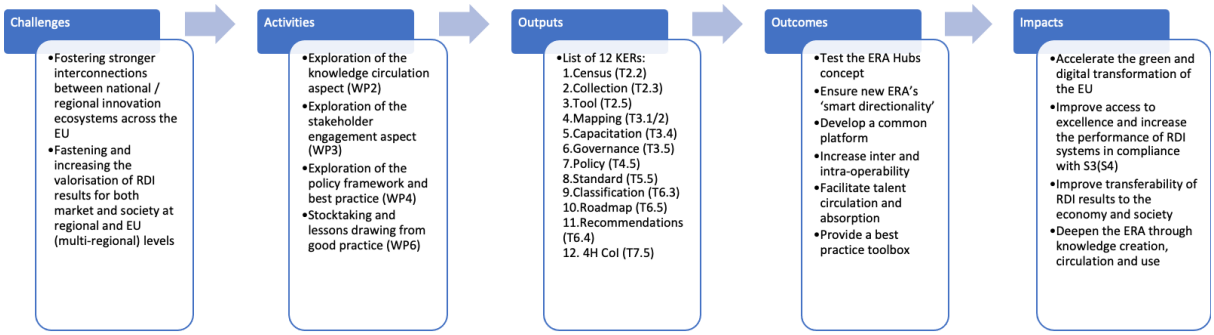

Figure 1: Simplified ToC for the ERA_FABRIC project

The sources of the information contained in the five boxes can be summarised as follows:

Challenges: These are drawn from the European Commission's Communication entitled 'A new ERA for Research and Innovation' (COM/2020/628 final[1]). In the subsection dedicated to 'Strengthening innovation ecosystems for knowledge circulation and valorisation' it is stated that "*the Commission will: - Develop and test a networking framework in support of Europe's R&I ecosystems, building on existing capacities, in order to strengthen excellence and maximise the value of knowledge creation, circulation and use … and … - Update and develop guiding principles for knowledge valorisation and a code of practice for the smart use of intellectual property*".

Activities: These are obviously taken from the ERA_FABRIC DoA (Description of the Action). Basically, they synthesize the high-level descriptions of the four main WPs of the project (WP2 'ERA Hubs as Knowledge Ecosystems', WP3 'ERA Hubs as Multi-Stakeholder Platforms', WP4 'ERA Hubs as a transformative set of measures and tools', and WP6 'ERA Hubs Widening and Sustainability'). In addition, as also requested by the Horizon Europe call ERA_FABRIC successfully responded to[2], "*an independent monitoring mechanism*" has been set up (in WP5) to ensure that validated KPIs and metrics are further used as standard procedures and to define a quality label of future ERA Hubs.

Outputs: These are also taken from the ERA_FABRIC DoA (Description of the Action). In a bit more detail than what a small picture like Figure 1 can display, here is the full list of KERs (project's Key Expected Results):

> **KER #1**: A census of ERA-Hub-like experiences and good practice examples within the EU (output of Task 2.2. Leader: CNR);
>
> **KER #2**: A collection of recurrent characteristics of ERA Hubs as Knowledge Ecosystems (output of Task 2.3. Leader: TTP);
>
> **KER #3**: A self-assessment and guidance tool for Regional and MS stakeholders, similar to HEInnovate (output of Task 2.5. Leader: UNIST);
>
> **KER #4**: A EU-wide mapping of regional/local actors, communities (output of Task 3.1. Leader: UNIST), existing policies and instruments (output of Task 3.2. Leader: ADRNV), with associated needs and gap analyses with respect to the requirements of the new "middle ground" the ERA Hub concept should constitute and preside over;
>
> **KER #5**: A replicable capacity building programme for policy makers and civil servants (output of Task 3.4. Leader: TTP);
>
> **KER #6**: A collection of governance rules and arrangements for the ERA Hub as a stakeholder platform (output of Task 3.5. Leader: ECOPLUS), including stocktaking of the experience of thematic working groups (output of Task 3.3);
>
> **KER #7**: An exemplary and reusable set of policy measures and tools (output of Task 4.5. Leader: EURECAT) focused on four main areas of transformative change: Accelerating the twin transition (Task 4.1), Enhancing the "outward looking" dimension of smart specialisation (Task 4.2), Strengthening the local impacts of EU funded R&D and innovation (Task 4.3), and

[1] Online at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A628%3AFIN

[2] Online at: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-widera-2022-era-01-30

Making human related aspects (RRI, citizen science, user driven innovation) more integrated in regional and local policies (Task 4.4);

KER #8: Supported by a dedicated monitoring and evaluation exercise, definition of a standard and quality label for the upcoming EU funded ERA Hubs (output of Task 5.5. Leader: WUT);

KER #9: As a result of a profiling exercise, a tentative classification of alternative ERA Hub schemes according to their distinctive characteristics (output of Task 6.3. Leader: EURECAT);

KER #10: A business plan and roadmap for the "next generation" of EU funded ERA Hubs taking direct benefit of project results (output of Task 6.5. Leader: INESCTEC);

KER #11: A set of policy recommendations (output of Task 6.4. Leader: ART-ER) drawn from the consortium's joint reflections on innovation management (Task 6.1) and on scalability and sustainability (Task 6.2);

KER #12: The creation of a solid community of interest among Quadruple Helix stakeholders (output of Task 7.5. Leader: CNR) including the establishment of permanent relations with the sister project(s) funded by the same Horizon Europe Call, new and emerging ERA Hubs and other related EU initiatives (such as the European University Alliance, EIT KICs, Enterprise Europe Network, European Digital Innovation Hubs, Smart Specialisation Platform, EURAXESS, ERA4You, Horizon Europe EEN, etc.) (output of Task 7.4. Leader: ECOPLUS).

Outcomes. These are listed in the Horizon Europe call ERA_FABRIC successfully responded to[3]. In a bit more detail than what a small picture like Figure 1 can display, here is the full list of them:

- **Test the new ERA Hubs concept** across different geographies and structures in Europe, based on common compliance criteria; the process should act as an incentive for advanced ecosystems to seek recognition, and for less advanced ecosystems to reach the criteria facilitating support from European, national and regional level.
- **Better coordinate relationships** between the European Research Area and relevant national or regional stakeholders in order to ensure the smart directionality introduced in the new ERA.
- **Develop a common platform for collaboration and best practice sharing** across borders, sectors and disciplines on knowledge production, circulation and use, and facilitate cross-fertilisation and smart directionality among ecosystem actors to achieve transformative changes and advance Europe together.
- **Increase both the interoperability** of the European ecosystems **and the intra-operability** within each territorial ecosystem, aiming to improve coordination, and foster excellence.
- **Facilitate a better circulation and absorption of talents** in countries/regions, as well as improve knowledge circulation and uptake of research results.
- **Provide a toolbox of best practices** for researchers, innovators, industry and institutions across Europe to cooperate.

[3] Online at: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-widera-2022-era-01-30

Impacts: These are also listed in the Horizon Europe call ERA_FABRIC successfully responded to[4]. More specifically, four strands are mentioned in the call, with specific respect to Destination 3 of Annex 11 to the Horizon Europe Work Programme 2021-2022, which correspond to the four objectives set out in the ERA Communication: 1. Prioritise investments and reforms; 2. Improve access to excellence; 3. Translate R&I results into the economy and 4. Deepen the ERA. In a bit more detail than what a small picture can display, here is their full description:

- **Strand 1** recognises the importance of prioritising investments and reforms to accelerate the green and digital transformation and to increase competitiveness as well as the speed and depth of the recovery. It offers support for policy makers and addresses the need for better analysis and evidence, including simplifying and facilitating the inter-play between national and European R&I systems.
- **Strand 2** addresses the need to improve access to excellence and to increase the performance of R&I systems, building on dedicated Horizon Europe measures as well as complementarities with smart specialisation strategies under the Cohesion Policy.
- **Strand 3** addresses the importance of translating R&I results into the economy. R&I policies should aim to boost the resilience and competitiveness of our economies and societies.
- **Strand 4** addresses the challenge of deepening the ERA and includes Open Science, Higher Education and Researchers, Citizen Science, Science Education, Gender and Ethics. It aims at underpinning a new ERA benefiting from knowledge creation, circulation and use. This empowers higher education institutions and research organisations to embrace a transformative process; where a highly skilled workforce circulate freely; where research outputs are shared; where gender equality is assured; where the outcomes of R&I are understood, trusted and increasingly used, by educated informed scientists and citizens to the benefit of society.

1.4 The problem of attribution

Counterfactual Analysis (Loi & Rodrigues, 2012) is an experimental approach to impact evaluation involving a comparison between the outcomes of interest for those who have benefitted from an intervention (the treatment group) with those of a group similar in all respects to the treatment group (the 'comparison/control group'), but who have not been exposed to the intervention. The comparison group provides information on what would have happened to the participants in the intervention had they not been exposed to it. However and for many reasons, in ERA_FABRIC it is not possible to use this approach, which presupposes the existence of a well-defined intervention (while the ERA Hub model is still in its shaping phase), of two well defined groups (while the local partner communities are still in formation, and will grow incrementally all along the project's lifetime), and of the possibility of isolating and "sterilising" the effects of contextual variables having no connection with the intervention (while it is not even understood which contextual variables can or should be considered as instrumental to the success of the model).

For all the above and possibly other reasons, the conditions for counterfactual analysis are not met, which leaves the problem of attribution (i.e. assessing "what works or worked, for whom, and why") practically unattended.

[4] Online at: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-widera-2022-era-01-30

1.5 Proposed solution: Contribution Analysis

Contribution Analysis (Maine, 2012; Befani & Maine, 2014) is an alternative approach to impact evaluation, aimed at constructing a plausible 'contribution story' that explains the contribution of a project, intervention or programme to its expected and/or identified outcomes and impacts. This also allows assessing causal questions and inferring causality in interventions putting all their steps along a causal chain – or 'contribution story' – that links actions and events to outcomes.

A standard Contribution Analysis involves six steps:

1) **Set out the attribution problem** to be addressed – this entails specifying the key evaluation questions, e.g. have the ERA Hub model dimensions influenced the observed results? Why have the results occurred?
2) **Update the initial ToC** about how the intervention is supposed to work, together with
   i) the assumptions underpinning the theory,
   ii) the risks to realisation of the intended outcomes and impacts,
   iii) how strong or weak are the links in the underlying causal chain (and the strength or weakness of available evidence).
3) **Explore and discuss alternative outcome and impact generation mechanisms** – identifying a number of "main" and "alternative" explanations and the evidence associated with them (e.g. different stakeholder positions on what are the causes of particular results).
4) **Build the Contribution Story** – this should specify the narrative proposed to explain how and why a result is caused by a particular sequence of events and actions – why it is reasonable to assume that the actions of the intervention contribute to the observed outcomes. It should also specify the weaknesses in the story.
5) **Seek out additional evidence** – this should focus in particular on resolving the weaknesses so far identified.
6) **Revise and strengthen the Contribution Story** – using the new evidence gathered and assessed.

2 Monitoring approach

This chapter outlines the key elements of the monitoring approach being part of the ERA_FABRIC's MEM – including its rationale, constituted by the project's Theory of Change, and three sets of indicators. These are proposed to track the evolution of project activities, the achievement of the project's KERs (Key Expected Results) and the attainment of 6 expected outcomes identified by the Horizon Europe call our project has successfully responded to.

2.1 Starting point: the ToC

The capacity of Theory of Change to grasp the bigger picture offers an inspiring framework for a wide range of explorations and analyses, which may also include monitoring of a project's implementation that goes along the lines of the initially stated ToC. This naturally includes:

- observing how ERA_FABRIC activities are carried out by the partners in charge of respective project tasks according to the DoA provisions, or suggesting adjustments in case of strong variations of **activity indicators** from their target values;
- introducing and continuously monitoring some **output indicators** providing evidence that the project is on track towards achieving its KERs;
- introducing and continuously monitoring some **outcome indicators** focused on the specific connections with project KERs described in the initial ToC. For example: are the KERs well addressing all the call's expected outcomes?

2.2 Activity indicators

The monitoring of ERA_FABRIC starts with a collection of indicators directly borrowed from the DoA objectives and sub-objectives, referred to all WPs (except the Project Management one, which may be separately considered) constituting the bulk of project activities. The table below provides an overview of such indicators. Values at the beginning of the project (1.1.2023) are set at zero for all quantitative indicators. Both quantitative and qualitative indicators are used.

Data collection: questionnaires to be shared individually with all project partners.

Operational objectives	Sub-objectives	Targets	Qualitative/ Quantitative	Status: 1/1/2023	Status: 30/06/2024	Status: 30/06/2025
Obj. 1 – Enlist and engage an EU-wide population of Quadruple Helix actors and stakeholders in the co-design of the ERA_FABRIC community of interest.	1.1 Engage actors and stakeholders in each of the participant territories to build and maintain local communities of interest.	9 regional/local communities of at least 50 participants each.	Quantitative	0		
		At least 8 meetings (1 per quarter) per each working group.	Quantitative	0		
	1.2 Involve local communities in parallel working groups, capacity	At least 6 capacity building webinars for the whole project	Quantitative	0		

	building initiatives, needs analyses, co-design, monitoring and evaluation activities	At least 9 short videos of testimonials reporting about their experiences and perceived benefits (1 per region).	Quantitative	0		
Obj. 2 – Schedule a plan of P2P learning events (both online and offline) to ensure a true and consistent exchange of knowledge among the project partners and with their community members (notably including civil society).	2.1 Define (already at kick-off) a tentative list of private (closed-door) and public gatherings (both directly organised and from relevant third parties) to be attended by the project partners.	At least 8 public events (1 per quarter) in combination with the periodic consortium meetings.	Quantitative	0		
		At least 9 ecosystem profiles.	Quantitative	0		
		At least 20 individual partner attendances to third party events (e.g. policy workshops or academic conferences).	Quantitative + Qualitative description	0 N.A.		
	2.2 Ensure a broad participation of local actors and stakeholders (if needed, by appropriate translation of proceedings) to each partner's public event(s).	At least 500 non-unique individual attendances from local actors and stakeholders.	Quantitative	0		
Obj. 3 - Exploit the existing, EU-wide and international networks of the consortium members to raise the awareness and increase the visibility of the ERA_FABRIC project, its aims and achievements.	3.1 Attribute (already at kick-off) to each partner an average number of 2 additional regions or countries, prioritising those that are not represented in the consortium.	At least 10 additional territories covered with formal alliances.	Quantitative + Qualitative description	0 N.A.		
		At least 100 individual attendances to project events from actors and stakeholders not belonging to the consortium.	Quantitative	0		
	3.2 Establish a continuous flow of communication with actors and stakeholders from these regions for the entire project dura□on.	At least 500 recipients of the ERA_FABRIC policy brief e-newsletters.	Quantitative	0		

	3.3 Liaise with the sister project(s) of this call, existing and upcoming ERA Hubs, and other EU initiatives.	At least 10 other projects and initiatives are clustered.	Quantitative	0		
Obj. 4 - Explore and substantiate with field evidence the concept of ERA Hub as Knowledge Ecosystem.	4.1 Deliver a state-of-the-art analysis of knowledge ecology as a territorial production factor, including a census of related experiences and good practice examples.	1 online publication.	Quantitative	0		
	4.2 Run a EU-wide stakeholder survey on the most recurrent characteristics of knowledge ecosystems and assess the degree of conformance of partner regions to the ideal type.	1 survey exercise with at least 100 respondents.	Quantitative	0		
	4.3 Develop a self-assessment and guidance tools for regions aiming to verify their strategic alignment to the model.	1 online self-assessment tool with at least 100 checked profiles.	Quantitative	0		
Obj. 5 - Develop and structure a real-life instantiation of the concept of ERA Hub as Multi-Stakeholder Platform.	5.1 Liaise with regional and local actors, stakeholders and communities from both within and outside the consortium to deliver a needs analysis as well as a gap analysis of their existing policies and instruments.	9 need and gap analyses (1 per partner location).	Quantitative	0		
	5.2 Form thematic working groups at local level, connected with parallel activities in the other partner sites, on three main topics of interest for the consortium.	3 thematic working groups at project level (with instances at each partner site) on the topics of sustainable manufacturing, biobased circular economy and clean renewable energy.	Quantitative	0		

	5.3 Set up the project's capacity building infrastructure for policy makers and other interested stakeholders.	1 syllabus and IT infrastructure for the delivery of webinars.	Quantitative	0		
		1 collection of governance rules and arrangements.	Quantitative	0		
Obj. 6 - Select a combination of existing (proven) and innovative (yet to be tested) instruments for the implementation of the concept of ERA Hub's Policy Co-Creation Toolbox.	6.1 Structure the activity of the thematic working groups on four main priority areas for policy innovation	4 sections of the Policy toolbox.	Quantitative	0		
		At least 10 meaningful case studies per section.	Quantitative	0		
		At least 5 tested instruments per section / collection of case studies.	Quantitative	0		
	6.2 Organise the results of the three working groups according to the four areas with a summary of the transformative potential of the ERA Hubs "middle ground" model.	At least 1 innovative instrument proposed per section.	Quantitative	0		
		1 theory of change of the ERA Hubs model.	Quantitative	0		
Obj. 7 - Monitor and evaluate the project activities and their results, including gender balance and standardisation potential.	7.1 Define a methodology for impact and outcome evaluation, based on the theory of change.	1 methodology and plan of monitoring and evaluation activities.	Quantitative	0		
	7.2 Deliver two rounds of data collection and interpretation, notably including gender balance.	At least 40 interviews and 2 evaluation surveys involving no fewer than 120 participants.	Quantitative	0		
	7.3 Assess feasibility of a quality label and standardisation approach.	1 feasibility study for a quality label of ERA Hubs.	Quantitative	0		
Obj. 8 - Define a replicable model for ERA Hubs as Knowledge Ecosystems, Multi Stakeholder Platform, and Policy Toolbox.	8.1 Promote a wide reflection on key widening and sustainability related aspects of the ERA_Hub model.	1 business plan and road map for the post-grant phase.	Quantitative	0		
	8.2 Build a taxonomy of ERA Hub schemes with related profiles and implications for policy.	1 classification of ERA Hub schemes.	Quantitative	0		

	8.3 Draw lessons and policy recommendations, particularly for the next genera□on of ERA ubs.	3 ERA_FABRIC policy briefs.	Quantitative	0		
Obj. 9 - Communicate and disseminate project activities and results to accompany the development of the ERA_FABRIC community towards its impact targets.	9.1 Define and maintain a professional graphic design and communication strategy.	Broad international visibility of the consortium and the ERA_FABRIC image.	Qualitative	N.A.		
	9.2 Communicate effectively within the consortium and with the external actors and stakeholders.	1 single message for the vision and mission shared internally and in the participant communities.	Qualitative	N.A.		
	9.3 Develop a project web platform and news feed representing the consortium and its achievements, as a first step towards the official ERA Hubs platform.	1 project web platform and news feed with 15,000 visitors by project end.	Quantitative	0		
	9.4 Disseminate project results to scientific and sectoral targets and channels.	Publication of at least 5 articles and papers on refereed journals and in conference proceedings.	Quantitative	0		

2.3 Output indicators

The monitoring of ERA_FABRIC continues with a second collection of indicators associated with the achievement of the 12 project KERs (Key Expected Results). The table below provides an overview of such indicators. Values at the beginning of the project (1.1.2023) are set at zero for all quantitative indicators. Both quantitative and qualitative indicators are used.

Data collection: questionnaires to be shared individually with project partners.

The WP column includes a link to relevant WPs and tasks and mentions the expected project partner to provide the main contribution (answer to a questionnaire) to KER monitoring. The relevant indicators (quantitative or qualitative) shall be mentioned in the relevant project outputs.

KERs	WP	Indicators	Qualitative/ Quantitative	Status: 01/01/2023	Status: 30/06/2024	Status: 30/06/2025
KER #1: A census of ERA-Hub-like experiences and good practice examples within the EU.	WP2, T2.2 (CNR)	• Number of experiences/examples	Quantitative	0		
		• Distribution by thematic domains (e.g. sustainable manufacturing)	Qualitative	N.A.		
		• Number of related open access publications	Quantitative	0		
KER #2: A collection of recurrent characteristics of ERA_Hubs as Knowledge Ecosystems.	WP2, T2.3 (TTP)	• Typologies of relevant characteristics	Qualitative	N.A.		
		• Frequency of occurrence/recurrence	Quantitative + Qualitative description	0 N.A.		
		• Number of related open access publications	Quantitative	0		
KER #3: A self-assessment and guidance tool for Regional and MS stakeholders.	WP2, T2.5 (UNIST)	• Number of self-assessment and guidance tools developed	Quantitative	0		
		• Number of stakeholder sessions (How many times it was used)	Quantitative	0		
KER #4: A EU-wide mapping of regional/local actors, communities, policies and instruments.	WP3, T3.1+3.2 (UNIST+ADRNV)	• Typologies of actors	Qualitative	N.A.		
		• Types of communities	Qualitative	N.A.		
		• Types of policies	Qualitative	N.A.		
		• Types of instruments	Qualitative	N.A.		
		• Number of related open access publications	Quantitative	0		
KER #5: A capacity building programme for policy makers and civil servants.	WP3, T3.4 (TTP)	• Number of training modules by profile (policy maker/public servant)	Quantitative	0		
		• Number of trainees by profile (policy maker/public servant)	Quantitative	0		
		• Number of webinars	Quantitative	0		
KER #6: Governance rules and arrangements for the ERA_Hub as a stakeholder platform.	WP3, T3.5 (ECOPLUS)	• Number of rules and arrangements	Quantitative	0		
		• Number of involved stakeholders	Quantitative	0		
		• Number of related open access publications	Quantitative	0		
KER #7: An exemplary and	WP 4, T4.5, D4.1 (EURECAT)	• Number of measures and tools	Quantitative	0		

KERs	WP	Indicators	Qualitative/ Quantitative	Status: 01/01/2023	Status: 30/06/2024	Status: 30/06/2025
reusable set of policy measures and tools.		• Number of related open access publications	Quantitative	0		
KER #8: A standard and quality label for the upcoming EU funded ERA_Hubs	WP5, T5.5 (WUT)	• Number of quality features	Quantitative	0		
KER #9: A classification of alternative ERA_Hub schemes.	WP6, T6.3 (INESCTEC)	• Number of schemes	Quantitative	0		
		• Classification criteria	Qualitative	N.A.		
		• Number of related open access publications	Quantitative	0		
KER #10: A business plan and roadmap for the "next generation" of EU funded ERA_Hubs.	WP6, T6.5 (INESCTEC)	• Plan/roadmap aims and targets	Qualitative	N.A.		
		• Involved actors (from the Quadruple Helix)	Qualitative	N.A.		
		• Number of related open access publications	Quantitative	0		
KER #11: Recommendations on innovation management, scalability, sustainability.	WP6, T6.4 (ART-ER)	• Number of policy recommendations per each category	Quantitative	0		
		• Number of related open access publications	Quantitative	0		
KER #12: A solid community of interest among Quadruple Helix Stakeholders	WP7, T7.4 + T7.5 (ECOPLUS+CNR)	• Number and typology/location of involved (partner/non partner) stakeholders	Qualitative	N.A.		

2.4 Outcome indicators

The monitoring of ERA_FABRIC finalises with a third collection of indicators associated with the 6 expected outcomes of the Horizon Europe call. The table below provides an overview of such indicators. Values at the beginning of the project (1.1.2023) are set at zero for all quantitative indicators. Both quantitative and qualitative indicators are used.

Data collection: questionnaires to be shared individually with project partners.

Outcomes	Indicators	Qualitative/ Quantitative	Status: 01/01/2023	Status: 30/06/2024	Status: 30/06/2025
Test the new ERA_Hub concept across different geographies and structures in Europe, based on common compliance	• Number of (partner / non partner) locations where the concept has been tested	Quantitative + description	0		
	• Number of structures where the concept has been tested	Quantitative	0		
	• Typology of structures where the concept has been	Qualitative	N.A.		

Outcomes	Indicators	Qualitative/ Quantitative	Status: 01/01/2023	Status: 30/06/2024	Status: 30/06/2025
criteria.	tested				
	• Number of common compliance criteria	Quantitative	0		
	• Typology of common compliance criteria	Qualitative	N.A.		
Better coordinate relationships between the European Research Area and relevant national or regional stakeholders in order to ensure the smart directionality introduced in the new ERA.	• Number of coordination models at multinational/ transnational level	Quantitative	0		
	• Typology of coordination models at multinational/ transnational level	Qualitative	N.A.		
	• Number of coordination models at multiregional/ transregional level	Quantitative	0		
	• Typology of coordination models at multiregional/ transregional level	Qualitative	N.A.		
	• Number of involved (Quadruple Helix) stakeholders	Quantitative	0		
	• Typology of involved (Quadruple Helix) stakeholders	Qualitative	N.A.		
Develop a common platform for collaboration and best practice sharing across borders, sectors and disciplines among ecosystem actors.	• Number of countries represented	Quantitative	0		
	• Number of sectors represented	Quantitative	0		
	• Number of disciplines represented	Quantitative + Qualitative description	0 N.A.		
	• Number of actors represented	Quantitative	0		
	• Number of ecosystems represented	Quantitative	0		
Increase both the interoperability of the European ecosystems and the intra-operability within each territorial ecosystem.	• Measure(s) of ecosystem interoperability	Qualitative	N.A.		
	• Measure(s) of ecosystem intra-operability	Qualitative	N.A.		
Facilitate a better circulation and absorption of talents, improve knowledge circulation and uptake of research results.	• Measure(s) of talent circulation	Qualitative	N.A.		
	• Measure(s) of talent absorption	Qualitative	N.A.		
	• Measure(s) of knowledge circulation	Qualitative	N.A.		
	• Measure(s) of research results uptake	Qualitative	N.A.		

Outcomes	Indicators	Qualitative/ Quantitative	Status: 01/01/2023	Status: 30/06/2024	Status: 30/06/2025
Provide a toolbox of best practices for researchers, innovators, industry and institutions across Europe to cooperate.	• Number of best practice examples in the toolbox	Quantitative	0		
	• Number of pan-European, multi-stakeholder cooperation models	Quantitative	0		
	• Typology of pan-European, multi-stakeholder cooperation models	Qualitative	N.A.		

3 Implementation methods

This chapter describes how the ERA_FABRIC's MEM – introduced in the previous two chapters – will be practically implemented.

3.1 Due dates

As already evident from the tables presented in the previous chapter, we propose five distinct Monitoring and Evaluation due dates:

- **01/01/2023**. This is the starting date of the project at which all indicator values are set at zero.
- **27/07/2023**. This is the date of release of the present document. A first workshop was organized in July 2023 involving project partners, during which the three lists of indicators in the previous chapter and the monitoring and evaluative approach were presented, discussed and eventually approved;
- **31/10/2023**. During the month of October 2023 a second workshop will be organised with all the partners in the context of a scheduled consortium meeting, during which the Draft Evaluation Questionnaire presented in the Annex will be used to brainstorm about how the ToC of the project can be updated and to define how Contribution Analysis can help solve the Attribution Problem of the ERA Hub model (see Sections 1.5 above and 3.3 below);
- **30/09/2024**. According to the DoA, this coincides with the end of Task 5.3, when the learning from a first round of data collection and interpretation will be presented. We propose the organisation of a third workshop until this date involving all the partners, to facilitate the achievement of a shared understanding of the project's progress;
- **30/06/2025**. According to the DoA, this coincides with the end of Task 5.4, when the learning from a second round of data collection and interpretation will be presented. We propose the organisation of a fourth workshop until that date, involving all the partners, to facilitate the achievement of a shared understanding of the project's final status.

3.2 Glossary and definitions of terms

Full understanding and definitions of individual indicators are crucial to a common understanding between all project partners and the correct implementation of the methodology. The glossary and definitions will be elaborated during the project's lifetime and based on achieved outcomes. A common glossary of definitions will be established with inputs from all project partners on the project's shared data space. The initial version will be established by the time of October 2023 workshop.

3.3 Protocols

The compilation of the three tables of Monitoring indicators presented in the previous chapter will be carried out by the WP5 leader, first in a draft version, which will be discussed during the workshops, and then in a final one, collated at the end of each internal event.

The results of the first workshop in July 2023 have served to validate the proposed approach and the contents of the present document.

The results of the third and fourth workshop will be handed out to the Project Coordinator, being in charge of the delivery of D5.2 and D5.3 – two executive summaries of the Monitoring and Evaluation activities performed until then.

According to the DoA, WP5 is also in charge of realising two rounds of stakeholder surveys and interviews – evidently within the same due dates introduced above. **At least 40 interviews and 2 evaluation surveys involving no fewer than 120 participants are targeted**.

We expect 20 interviews to be held by 30.06.2024 and 20 more by 30.03.2025. An interview script will be provided. On average, every partner will be in charge of doing 2 interviews per year.

The 2 surveys will be set up in collaboration with the partner TTP. Again, 30.06.2024 and 30.03.2025 will be the milestones for this task. On average, every partner will be in charge of procuring 6 answers per year. The survey text will be provided in due time.

Specific effort will be dedicated mainly to the implementation of Contribution Analysis as specified below.

3.4 Contribution Analysis

Having in mind the six steps of Contribution Analysis outlined in the first chapter of this document, Monitoring and evaluation will be implemented as follows:

3.4.1 Step 1 and Step 2: Setting out the attribution problem and updating the initial ToC

The aim of this first block, to be achieved through a workshop with the participation of all the project partners, is to lay the foundations for the Contribution Analysis by:

- Specifying the initial hypotheses of how the three dimensions of the ERA_Hub Model can be transformative of the status quo ante in R&D and innovation policy and deriving an indicative list of actions and events;
- Naming the intended outcomes and impacts to be observed at the end of the intervention, which the Contribution Story is supposed to link to those actions and events;
- Identifying some relevant pieces of evidence to be gathered (borrowed from the descriptions of ERA FABRIC tasks and other inputs from the partners and key EC documents) in order for the Contribution Analysis to be carried out successfully;
- Considering the risks to realisation of the intended outcomes and impacts, how strong or weak are the links in the underlying causal chain, and the strength or weakness of available evidence;
- Supporting the construction of the high-level evaluation questions to be answered by the Contribution Analysis going forward. These are presented in the Annex to this document.

All activities pertaining to these two steps should be finalised within the workshop to be held in October 2023.

3.4.2 Step 3 and Step 4: Exploring and discussing outcome and impact generation mechanisms and building the Contribution Story

The aim of this second block, to be achieved via the aforementioned survey and interviews and with the participation of all project partners, who will also involve key local actors and stakeholders in the task, is to develop the Contribution Story across a number of likely explanations of the way outcomes and impacts are generated. The points of weakness of the narratives in the Story should also be identified.

All activities pertaining to these two steps should be finalised until **30/09/2024**.

3.4.3 Step 5 and Step 6: Exploring and discussing outcome and impact generation mechanisms and refining the Contribution Story

The aim of this third block, to be achieved via another round of the aforementioned survey and interviews and with the participation of all project partners, who will also involve key local actors and stakeholders in the task, is to refine the Contribution Story by especially removing or rewording the points of weakness of the narratives identified in the previous block.

All activities pertaining to these two steps should be finalised until **30/06/2025**.

3.5 Review

Indicators and their definitions and other concepts in the Monitoring and Evaluation Methodology will be subject to discussion and possible adjustments as deemed necessary by the partners during the project to reflect lessons learned meanwhile. Critical considerations shall take place during the proposed workshops and after finalising the first cycle of Monitoring and Evaluation.

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ANNEX 1

DRAFT EVALUATION QUESTIONNAIRE

The core tenet of the ERA_FABRIC project is that in order to promote and increase the valorisation of ERA (European Research Area) activity results for both market and society, through broadening and fastening their uptake, as well as improving the effectiveness and efficiency of R&D and innovation policies at regional and multiregional levels, a new 'interconnected knowledge space' has to be built, which doesn't exist yet, the main characteristics of which it is our challenge to identify, also with your help, in this questionnaire.

Such 'interconnected knowledge space' – named ERA Hub – is provisionally defined as addressing 3 distinct and intertwined dimensions, being reciprocally interoperable and jointly significant: its nature of Knowledge Ecosystem, Multi Stakeholder Platform, and Policy Co-creation Toolbox.

As a Knowledge Ecosystem, the ERA Hub should gather and organise the users and producers of ERA activity related knowledge, orchestrate their interaction, and create market and societal value by delivering the best possible products and services.

A specific and peculiar aspect of such an interaction is that it can easily involve actors that are not territorially co-located, thanks to the opportunities offered by modern technologies; this enables to consider the heterogeneity of cultural contexts and the gap between research foci and industrial needs at a broader level than the regional one – ideally, at the EU level.

Compared with the current situation, what additional contribution could a Knowledge Ecosystem of such a kind give to promote and increase the valorisation of ERA results and improve the effectiveness and efficiency of R&D and innovation policies?

Please elaborate on (some of) the following impact generation pathways:

- Knowledge creation
- Knowledge sharing
- Knowledge diffusion
- Knowledge absorption
- Knowledge transformation
- Knowledge valorisation
- Other (please suggest)

Which actions / events / activities can be transformative of the status quo ante? Where and how can we gather reliable evidence around them?

Please elaborate on (some of) the following triggers:

- New public policies / regulatory changes in the same vertical domain
- New public policies / regulatory changes cutting across different vertical domains
- Alliances of different regions within the same country
- Alliances of diverse regions from different countries
- External shocks (e.g. on price/availability of natural resources)
- New business strategies in the same vertical domain
- New business strategies cutting across different vertical domains
- New market needs/demands
- New inventions/innovations
- Other (please suggest)

"What are the main risks associated with the realisation of such contribution?"

Please elaborate on (some of) the following risks:

- Risks related to the conception phase
- Risks related to the design phase
- Risks related to the implementation phase
- Risks related to the evaluation phase
- Other (please suggest)

As a Multi Stakeholder Platform, the ERA_Hub should host, facilitate and be supported by a variety of R&D and innovation stakeholders – ideally, from the Quadruple Helix (i.e. involving actors from the Academia, Business, Civil Society and Government communities) – who come together with their own respective interests and aims, in a seamless and uninterrupted discussion and deliberation on strategic priorities, actions and results evaluation.

As above, we do not expect this convergence and integration of efforts to be limited to territorially co-located actors, but open to multiregional and multinational, if not pan-European, collaborations.

Compared with the current situation, what additional contribution could a Multi Stakeholder Platform of such a kind give to promote and increase the valorisation of ERA results and improve the effectiveness and efficiency of R&D and innovation policies?

Please elaborate on (some of) the following value creation pathways:

- More variety
- More interaction
- More sharing
- More complementarity

- Lower costs
- Lower risks
- Other (please suggest)

Which actions / events / activities can be transformative of the status quo ante? Where and how can we gather reliable evidence around them?

Please elaborate on (some of) the following triggers:

- New public policies / regulatory changes in the same vertical domain
- New public policies / regulatory changes cutting across different vertical domains
- Alliances of different regions within the same country
- Alliances of diverse regions from different countries
- External shocks (e.g. on price/availability of natural resources)
- New business strategies in the same vertical domain
- New business strategies cutting across different vertical domains
- New market needs/demands
- New inventions/innovations
- Other (please suggest)

"What are the main risks associated with the realisation of such contribution?"

Please elaborate on (some of) the following risks:

- Risks related to the conception phase
- Risks related to the design phase
- Risks related to the implementation phase
- Risks related to the evaluation phase
- Other (please suggest)

As a Policy Co-Creation Toolbox, the ERA_Hub should design, test and implement a new wave (perhaps already existing, at least in part) of transformative measures and tools, to increase the effectiveness and efficiency of R&D and innovation policies in the direction of result valorisation and value creation for both market and society.

As above, these measures and tools should not necessarily operate in a small territorial area but help configure that "middle ground" or "intermediate space" being distinct from both the EU and the MS national/regional levels.

Compared with the current situation, what additional contribution could a Policy Co-Creation Toolbox of such a kind give to promote and increase the valorisation of ERA results and improve the effectiveness and efficiency of R&D and innovation policies?

Please elaborate on (some of) the following policy innovation pathways:

- New combinations of target domains/sectors
- New compositions of target territories
- New profiles of target beneficiaries
- New approaches to policy implementation
- New ways to measure policy performance
- Other (please suggest)

Which actions / events / activities can be transformative of the status quo ante? Where and how can we gather reliable evidence around them?

Please elaborate on (some of) the following triggers:

- New public policies / regulatory changes in the same vertical domain
- New public policies / regulatory changes cutting across different vertical domains
- Alliances of different regions within the same country
- Alliances of diverse regions from different countries
- External shocks (e.g. on price/availability of natural resources)
- New business strategies in the same vertical domain
- New business strategies cutting across different vertical domains
- New market needs/demands
- New inventions/innovations
- Other (please suggest)

"What are the main risks associated with the realisation of such contribution?"

Please elaborate on (some of) the following risks:

- Risks related to the conception phase
- Risks related to the design phase
- Risks related to the implementation phase
- Risks related to the evaluation phase
- Other (please suggest)