



SMART ERA

SMART ERA

2ND OPEN CALL FOR FOLLOWERS MICRO-PILOTS

GUIDE FOR APPLICANTS

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Glossary

EC (European Commission) In the context of SMART ERA, it refers to the overarching governing body providing funding (Horizon Europe) and strategic goals, such as the Green Deal and the EU long-term vision for rural areas. [European Union Official Website](#).

EU Macro-Regional Strategy (MRS) Policy frameworks that allow countries located in the same geographical region to jointly tackle and find solutions to common problems or to better use their shared potential. SMART ERA specifically targets rural regions belonging to four Macro-Regional Strategies:

- **EUSALP:** [EU Strategy for the Alpine Region](#)
- **EUSBSR:** [EU Strategy for the Baltic Sea Region](#)
- **EUSAIR:** [EU Strategy for the Adriatic and Ionian Region](#)
- **EUSDR:** [EU Strategy for the Danube Region](#)

Follower Regions: Rural regions located within one of the four (4) targeted EU macro-regional strategies (Alpine, Baltic Sea, Adriatic-Ionian, or Danube) that do not belong to the original six (6) SMART ERA Pilot Regions. Follower Regions are selected to replicate the SMART ERA methodology by identifying their own local needs and co-designing **new** Smart Innovation Packages (SIPs). Priority is given to rural regions that lack previous experience in participating in multi-actor approach projects. [SMART ERA Project Website](#).

GfA (Guide for Applicants): This document. It outlines the rules, requirements, and procedures for participation in the SMART ERA 2nd Open Call. It includes comprehensive information on eligibility criteria, maximum grant amounts, submission rules, timelines, and the evaluation process. [SMART ERA 2nd Open Call Application Portal](#)

IPR (Intellectual Property Rights) Rights granted to creators over their original work. In the SMART ERA Open Call, proposals must be based on the applicant's original work, or the applicant must have the clear right to use the IPR. The IPR of any knowledge, data, or results generated by third-party beneficiaries during the project remains the property of those beneficiaries. [European IP Helpdesk](#)

OC (Open Call) The competitive funding mechanism used by SMART ERA to distribute Financial Support to Third Parties (FSTP). The 2nd Open Call specifically targets "Followers Micro-Pilots" to transfer project results, methodologies, and validation strategies to new rural communities, proving the replicability and impact of the SMART ERA approach.



Smart Innovation Packages (SIPs) A set of integrated innovative elements that include technological and non-technological solutions, business and sustainability models, and governance policies. They are co-designed and validated directly with local communities to ensure they exploit synergies and effectively tackle pressing socio-economic and environmental challenges (e.g., depopulation, mobility, access to services). [SMART ERA Project Website](#) [All you need to know about SIPs and the Methodology](#) [Create your own SIP](#)

SMEs (Small and Medium-sized Enterprises) Businesses whose staff headcount numbers and turnover/balance sheet fall below certain limits. Within the SMART ERA 2nd Open Call consortia structure, an SME or a Technological Provider takes on the crucial role of "Pilot Orchestrator," responsible for the technical adaptation of the solution, data integration, deployment of the SIP, and technical mentoring. [EU SME Definition](#)

TRL (Technological Readiness Level) A systematic method for estimating the maturity of technologies. For the SMART ERA 2nd Open Call, proposed technological solutions must have an initial TRL of at least 4 (technology validated in lab) at the time of application and must be expected to achieve a final TRL of at least 6 (technology demonstrated in a relevant environment) by the end of the deployment. [Horizon Europe TRL Definitions](#)



1. Basic info about SMART ERA

[SMART ERA](#) is an EU-funded project that aims to transform rural areas by addressing their socio-economic and environmental challenges through advanced technology and innovative solutions.

SMART ERA impacts will span across technology, governance, business, society, and policymaking, fostering sustainable development and growth.

The six (6) Pilot Regions leading the way are:

-  [Val di Sole/Trentino, Italy](#)
-  [Tramuntana/Sóller, Spain](#)
-  [Northern Ostrobothnia, Finland](#)
-  [Trebinje/East Herzegovina, Bosnia and Herzegovina](#)
-  [Šmarje-Padna, Slovenia, Italy, Croatia](#)
-  [Devetaki Plateau, Bulgaria](#)



They will become smart villages through the application of [Smart Innovation Packages](#) (SIPs) co-designed and validated with local communities. Joint efforts can revitalize rural communities, combat depopulation, and create resilient, vibrant societies.

[The SMART ERA consortium](#) brings together 25 organisations from 10 countries, counting with the adequate resources for achieving the project objectives.

With this 2nd Open Call for Followers Micro-Pilots, SMART ERA aims to transfer the project's results, methodology, and validation strategies to four (4) new "Follower Regions", engaging new local communities to prove the replicability and impact potential of the SMART ERA approach.

This document outlines the rules for participation in the 2nd Open Call for Followers Micro-Pilots, including eligibility criteria, maximum grant amount, timeline, submission rules and the evaluation process.

Where can you find key information regarding this Open Call?

- This Guide for Applicants is the main document including the most important requirements that must be met by applicants.
- SMART ERA application system: [SMART ERA 2nd OC](#)
- If you have any technical problems or doubts when filling in the online Application Form, tell us directly at: SMARTERA.help@fundingbox.com, or post your questions in the SMART ERA Helpdesk in Discord. Here you can find out [how to access the Community](#). Some webinars about the OC will be organized and announced throughout the Community.



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2. What do we offer?

The SMART ERA 2nd Open Call for Followers Micro-Pilots will select up to 4 Proposals to establish 4 Followers Micro-Pilots. These Micro-Pilots will replicate the SMART ERA methodology by identifying regional needs and co-designing new [Smart Innovation Packages \(SIP\)](#).

The total maximum funding for one Follower Micro-Pilot depends on the application format:

- If applying as a Consortium total lump sum up to **€90,000**, distributed as follows:
 - o Community Activator: Up to €30,000.
 - o Pilot Orchestrator (Technical Provider): Up to €60,000.
- If applying as an Individual (covering both roles):
 - o Total lump sum: Up to **€60,000**.

Each team selected under the SMART ERA 2nd Open Call will join a **12-month Support Programme** with the mentoring from SMART ERA Technical Partners.

The Support Programme includes the following stages:

- **Stage 1: On-boarding Stage**, during which the beneficiary should deliver an **Individual Mentoring Plan** (including planned activities, KPIs, milestones and budget). The duration of this stage is up to **2 months**.
- **Stage 2: Mobilisation Stage**, during which the **Report on Community Engagement** should be delivered. The duration of this stage is up to **3 months**.
- **Stage 3: Deployment Stage**, which should lead to a **Technical Solution Completed**. The duration of this stage is up to **7 months**.

At the end of the Support Programme, the selected teams will have developed:

- **A design for a Smart Innovation Package**
- **A technological solution, as the center of the SIP, developed and tested**



3. Eligibility Criteria

To participate in the SMART ERA Support Programme, applicants have to meet all the criteria described in Section 3 of this Guide, positively pass our Evaluation Process and finally sign the Subgrant Agreement with the SMART ERA Consortium.

The projects that do not comply with the criteria described in this section will be excluded. We will check the eligibility criteria during the whole evaluation process.

3.1. Who are we looking for?

We accept applications from:

1. **Consortia** composed of two entities:
 - **One Community Activator:** Any kind of entities, like local Public Administrations, Universities, NGOs or associations with strong ties to the local community in one of the follower Regions.
 - **One Pilot Orchestrator:** An SME or Technical Provider responsible for technical execution and deploying the SIP. The participation of a technology provider is compulsory.
2. **Individual Applicants** could be accepted, provided they are a single legal entity (e.g., an SME or Tech Provider/Developer) that is capable of **covering both the *Community Activator* and *Pilot Orchestrator* roles** effectively.

The eligible entities should be legally registered on the day of application submission in any of the following countries:

- [The Member States of the European Union](#)¹ and its Overseas Countries and Territories (OCT) or
- [Associated Countries \(AC\) to Horizon Europe](#)².

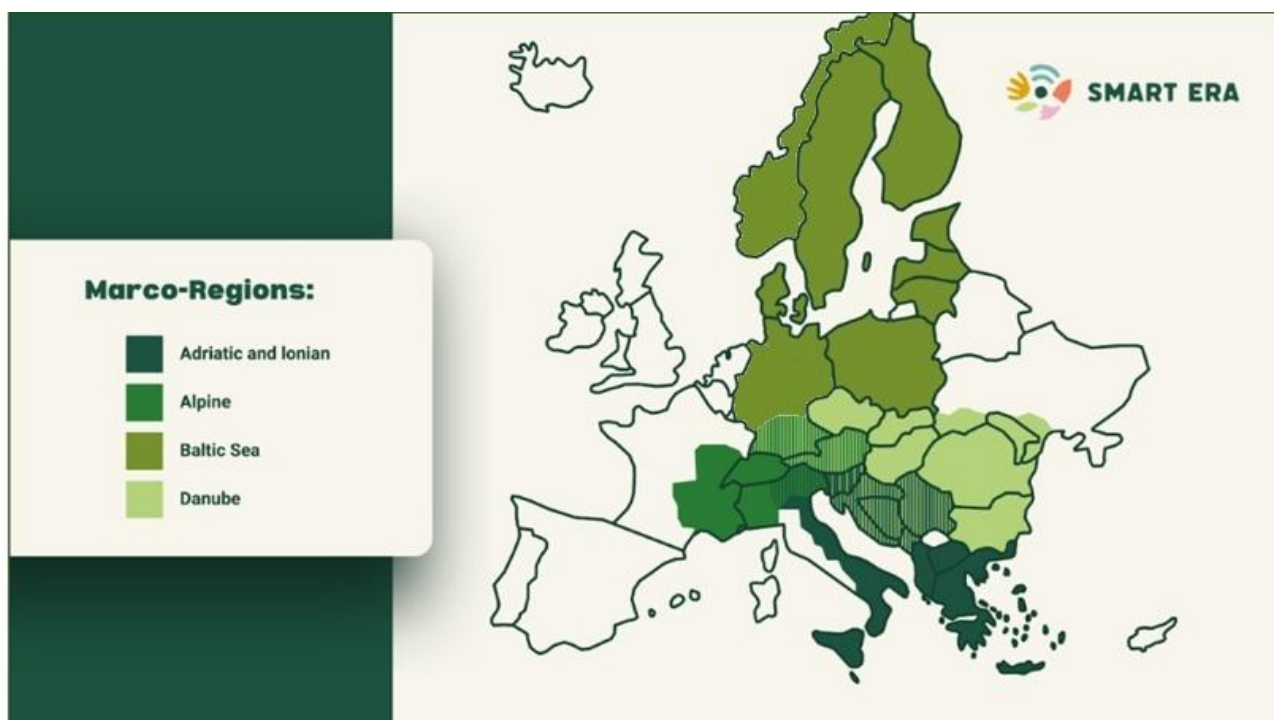
¹ Following the Council Implementing Decision (EU) 2022/2506, as of 16th December 2022, no legal commitments can be signed with Hungarian public interest trusts established under Hungarian Act IX of 2021 or any entity they maintain. Affected entities may continue to apply to calls for proposals. However, in case the Council measures are not lifted, such entities are not eligible to participate in the SMART ERA Open Call.

² AC as of 12.02.2026: Albania, Armenia, Bosnia and Herzegovina, Canada, Egypt, Faroe Islands, Georgia, Iceland, Israel, Kosovo, Korea, Moldova, Montenegro, North Macedonia, Norway, Serbia, Switzerland, Türkiye, Tunisia, United Kingdom, Ukraine, for the most up-to-date list please see first part of this [document](#).



Applicants **must operate in Rural Regions belonging to one of the four EU Macro-Regional Strategies** (MRS), but the proposed project must not be developed in the SMART ERA Pilot Regions (that can be checked in [Section 1](#)):

1. **EUSALP** (Alpine Region)
2. **EUSBSR** (Baltic Sea Region)
3. **EUSAIR** (Adriatic-Ionian Region)
4. **EUSDR** (Danube Region)



Follower Regions should demonstrate a clear need to strengthen their innovation monitoring, governance capacity, and evidence-based policy development.

Priority will be given to regions facing structural socio-economic challenges, such as demographic decline, limited access to services, economic restructuring, or low levels of innovation intensity, **while also exhibiting potential for innovation-driven transformation**.

Suitable regions typically present **emerging or moderately developed innovation ecosystems**, characterised by the presence of relevant stakeholders such as SMEs, public authorities, and intermediary organisations but lacking fully established coordination, monitoring, or analytical frameworks. In addition, regions may have **limited or fragmented data availability**, combined with a **willingness to engage in data-driven approaches** and to enhance their analytical capacities through participation in the SMART ERA methodology.

Strong emphasis will be placed on **institutional commitment**, including the capacity and motivation to actively engage in **stakeholder participation processes**, **Smartness Assessment Implementation** (i.e. collection and analysis of regional data using the SMART ERA indicator framework, participation in joint data screening, and use of assessment results for policy development), and **Smart Innovation Package co-design**.

The selection process will also aim to ensure diversity across macro-regions and rural typologies, in order to maximise learning potential, comparability, and transferability of results within the broader European context.

Projects to be developed in **Rural Regions that do not have previous experience of participating in projects applying a multi-actor approach** will be given priority during the selection process

The applicants who are subject to [EU restrictive measures](#) under Article 29 of the Treaty on the European Union (TEU) and Article 215 of the Treaty on the Functioning of the EU (TFEU)³ **are not eligible to participate in this Open Call**.

Beneficiaries from SMART ERA 1st Open Call **are not eligible for this 2nd Open Call**.

3.2. What types of activities can be funded?

The activities that qualify for financial support under the SMART ERA 2nd Open Call for Followers Micro-Pilots should replicate the SMART ERA methodology by identifying regional needs and co-designing new SIPs based on the set of SMART ERA Innovative Solutions.

These activities include:

- Identification of main gaps and needs for rural innovation in the Region, as an output of engagement activities and
- Deployment of innovative solutions, at social, technology and business level for fostering smart development in the Region.

The new Smart Innovation Package (SIP) should include at least:

- one technological solution (provided by the technology provider)
- one non-technological ingredient
- one policy ingredient
- one business ingredient

More information about SIPs is available [here](#).

Technological Solutions, at the moment of applying, must have an Initial **Technological Readiness Level** (TRL) of at least 4 and achieve a Final TRL of at least 6.

³ Please note that the EU Official Journal contains the official list and, in case of conflict, its content prevails over that of the EU Sanctions Map.



The digital solutions must implement **robust security measures**, including data encryption (if needed) at rest and in transit, user authentication and authorization mechanisms, regular vulnerability assessments, and compliance with relevant security standards such as ISO/IEC 27001.

Solutions developed through the SMART ERA Support Programme should be compliant with the SMART ERA data management plan for a FAIR and privacy-respecting management of collected data and all relevant European regulations regarding the **General Data Protection Regulation** (GDPR).

Projects selected through the SMART ERA Open Call should have a clear **European Dimension**, which means that the Innovative Solution aims to fully exploit the potential of the European economy and society, contributing to EU policies (like the Green Deal or Europe's Digital Decade). The supported activities should strengthen the EU values and help address societal challenges. Also, the solutions should have the capacity to be replicated in other EU regions.

Applicant should also consider the following:

- Where applicable, beneficiaries of the SMART ERA Open Call should comply with the **SMART ERA Integration & Interoperability Methodology** included in Annex 1 of this Guide for Applicants.
- Projects selected through the SMART ERA Open Call are, where applicable, encouraged to use **Open-Source** AI models and/or apps with free or reusable licenses that are aligned with SMART ERA principles.
- Projects selected through the SMART ERA Open Call are, where applicable, encouraged to use the **OpenAPI approach**.
- Where applicable, beneficiaries of the SMART ERA Open Call are encouraged to provide the **output data as free of charge**, to be published in the open data portals.

3.3. Ground rules

When applying to the SMART ERA Open Call, Applicants should note that:

- **Submission deadline:** only proposals submitted through [the online form](#) before the deadline (September 15th, 2026, 13.00 Brussels time) will be evaluated and considered for funding. If applicants submit the form correctly, the system will send a confirmation of the submission. Contact us if it is not the case.
- **Language requirement:** Proposals must be written in English. If mandatory sections are in another language, the proposal will be rejected. Non-mandatory sections in another language will not be evaluated, but the proposal will remain valid.



- **Multiple submissions are not allowed.** If more than one proposal was submitted, only the one submitted closer to the deadline will be considered.
- **Data accuracy:** The information provided must be correct, complete, and allow proper evaluation. Extra material provided that was not requested in the form will not be considered.
- **Completeness:** Applicants have to verify the completeness of the form, as it won't be possible to add any further information after the deadline. After the proposal is submitted, it could be modified until the deadline.
- **Conflicts of interest:** the existence of a potential conflict of interest among Applicants and one or more SMART ERA Consortium partners will be taken into consideration. Consortium partners, their affiliated entities, employees, or persons treated as personnel (ex. working under B2B contract) cannot take part in the SMART ERA Support Programme. All cases of potential conflict of interest will be assessed case by case.
- **Financial stability:** Entities under liquidation, [in financial difficulty](#), or excluded from receiving EU funding are not eligible. Companies in bankruptcy are also excluded.
- **Original work:** Proposals should be based on applicant's original work or their right to use the IPR must be clear. Any work related to the implementation of the project described in the application may not violate the IPR of third parties, and the IPR of the application project may not be the subject of a dispute or proceedings for infringement of third-party IPR.
- **AI content:** The use of AI tools to improve clarity and structure is permitted, provided the content remains accurate and fact-based. Applications may be rejected if found to be AI-generated and lacking a factual foundation. All submissions must be authentic reflections of the project, and the applicant team must evidence the technical and operational capacity required for implementation. Providing unverifiable or non-authentic information is grounds for immediate rejection.
- **Gender Equality Plan:** public bodies, higher education institutions, and research organisations from EU countries and associated countries must have a Gender Equality Plan (GEP)⁴.
- **Acceptance of the Open Call rules:** to apply for this Open Call, Applicants have to accept its rules and regulations detailed in this Guide for Applicants.

⁴ For more details please check: https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/democracy-and-rights/gender-equality-research-and-innovation_en



3.4. Ideal Project

Find here **examples of Projects that could be selected in this Open Call:**

EXAMPLE 1

The applicant: Consortium of 2 entities:

Entity 1: The Community Activator

- o **Type of Entity:** NGO / Public-Private Partnership
- o **Location:** Romania (Rural Mountainous Area) belonging to EUSDR (Danube Region)
- o **Role:** Responsible for community engagement, identifying local needs, and organizing co-design workshops with citizens.

Entity 2: The Pilot Orchestrator

- o **Type:** SME (Tech Developer)
- o **Location:** Romania
- o **Role:** Responsible for the technical adaptation of the solution, data integration, deployment of the SIP, and technical mentoring.

Regional Context & Challenge

Macro-Regional Strategy (MRS): EUSDR (EU Strategy for the Danube Region).

The Rural Challenge: The region suffers from severe depopulation and ageing. Public transport has been cut due to low demand, leaving elderly residents isolated from healthcare services located in the nearest urban center.

Smartness Gap: While 4G coverage exists, digital literacy is low among the elderly, and there is no centralized data on transport needs vs. health appointment schedules.

Proposal

*The project proposes a **SIP containing technological and non-technological elements, replicating SMART ERA methodology.***

Technological Solution: The consortium proposes to replicate and customize a "Shared Mobility & Service Access" solution.

The Tech: A simplified, localized app/web that matches volunteer drivers and community shuttles with elderly residents needing transport to clinics.

Data Integration: The Orchestrator will integrate local transport data and health center schedules, allowing the municipality to visualize "mobility deserts."

Non-Technological Solution

Governance Model: A "Community Health Voucher" system. Local businesses sponsor rides in exchange for tax credits or municipal recognition (Business Model innovation).

Engagement: "Digital Grandchildren" initiative. Young people are trained to act as intermediaries, using the app on behalf of the elderly, fostering intergenerational connection (Social Innovation).

EXAMPLE 2



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The applicant: Consortium of 2 entities:

Entity 1: The Community Activator

- **Type of Entity:** NGO / Public-Private Partnership
- **Location:** North Macedonia (Rural mountain area) belonging to EUSAIR
- **Role:** Responsible for community engagement, identifying local needs, and organizing co-design workshops with citizens.

Entity 2: The Pilot Orchestrator

- **Type:** SME (Tech Developer)
- **Location:** Macedonia
- **Role:** Responsible for the technical adaptation of the solution, data integration, deployment of the SIP, and technical mentoring.

Regional Context & Challenge

Macro-Regional Strategy (MRS): EUSAIR (EU Strategy for Adriatic-Ionian Region)

The Rural Challenge: Strong depopulation and ageing affect a rural area rich in natural, cultural, and gastronomic heritage, which remains under-valorised.

Smartness Gap: Low digital literacy among elderly citizens and lack of a centralised platform for rural tourism networking.

Proposal

*The project proposes a **SIP containing technological and non-technological elements, replicating SMART ERA methodology.***

Technological Solution: The consortium proposes to replicate and customize a B2B platform for rural stakeholders networking and personalised B2C platform for unique tourist experience.

The Tech: User friendly platforms, suitable for low digitally literate users allowing easy producers onboarding and providing unique tourist experiences.

Data Integration: The Orchestrator will integrate local rural tourism data into the SMART ERA Data Dashboard.

Non-Technological Solution

Governance Model A local multi-actor coordination framework that brings together municipalities, rural operators, and civic organisations. A light governance board oversees platform use, data sharing rules, and long-term sustainability, supporting local ownership and scalable replication.

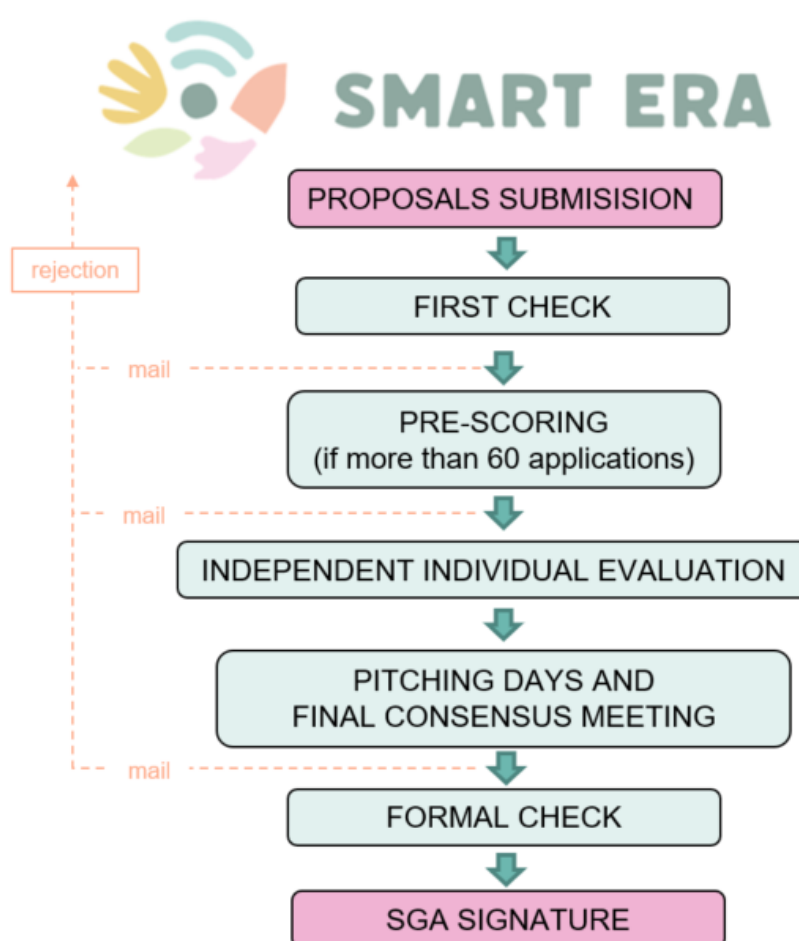
Engagement: A participatory approach combining co-design workshops, local ambassadors, and on-the-job training for rural operators. Citizens and businesses actively contribute to shaping services, fostering trust, adoption, and long-term community empowerment.



4. How will the proposals be evaluated?

SMART ERA evaluation process is transparent, fair and equal to all the participants with a clearly defined complaint procedure (see section [Complaints](#)).

The projects will be evaluated in several phases indicated in the Figure below. Applicants are encouraged to put in the effort to present their projects in the best possible way, offering as much detail as possible.



4.1. First check

After the closure of the Open Call, proposals will be reviewed to ensure they meet the conditions outlined in [Section 3](#). This assessment will be based on the statements provided in the proposals.

At this stage, the eligibility criteria are checked against the Declaration of Honour or self-declarations included in the Application Form, and they will be continuously verified throughout the evaluation process, including the final formal check.

Projects that do not comply with the above-mentioned criteria will be rejected. We will inform applicants about the results of this initial check.

As a result of the checking, a 'List of Eligible Applications' will be produced.

4.2. Pre-scoring

A pre-scoring system may be applied if, after the previous evaluation stage, the number of eligible proposals exceeds 60 eligible proposals (or up to 15 per Macro-Region), in which case, the eligible proposals will be automatically scored by the FundingBox Open Call Management System according to the following criteria:

- **Characteristics of the Rural Region** (up to 40 points): Project alignment with Macro-Regional Specific Challenges, Multi-actor approach Experience, Innovation Ecosystem Maturity and Territorial Needs and Structural Challenges.
- **Excellence** (up to 20 points): Current and Expected to achieve Technological Readiness Level.
- **Impact** (up to 20 points): Community Engagement & co-design and Scalability.
- **Implementation** (up to 40 points): Consortia prioritization, Use of Open-Source Solutions, Gender Balance and Experience working in the specific Rural Region.

Applicants should:

- select the option that best describes the characteristics of their project in relation to each criterion in the application form,
- confirm that no false declarations are made.

In total, projects can get **up to 120 points** at the pre-scoring stage and as a result of this phase, up to 60 (up to 15 per Macro-Region) of the top-ranked Applications will be forwarded to the next phase.



Once the 4 initial rankings are created (1 per Macro-Region), ties (if any) will be solved using the following criteria in order of priority:

- The highest score in the Implementation Section.
- Gender balance among the personnel responsible for carrying out the activities (the team with higher % of females will be prioritised).

4.3. Independent Individual Evaluation

In this phase, each proposal will be evaluated by 3 independent External Experts, appointed according to the specific characteristics of the applicants from the pool of External Experts.

The External Experts must be independent from the applicants and cannot be SMART ERA Consortium partners employees, permanent collaborators, nor board members.

The projects will be evaluated within the following awarding criteria:

(1). EXCELLENCE will evaluate:

- **Ambition.** Applicants need to show how their project contributes to the overall SMART ERA scope, goes beyond the current state of the art and has a European dimension. In addition, they should outline the innovative approach of their project (e.g. groundbreaking objectives, novel concepts and approaches, new products, services, or business and organizational models).
- **Innovation.** Applicants should explain how the project will innovate the sector and describe the differentiation the project will bring to the region.
- **Soundness of the approach.** Applicants should provide concrete and verifiable arguments and/or evidence that demonstrate the soundness of the approach and credibility of the proposed methodology for replication of the SMART ERA engagement methodologies in the region with a multi-actor approach.
- **Gender dimension.** Applicants must illustrate the level to which the gender dimension is incorporated within the innovation content.

(2) IMPACT will analyse:

- **Impact within SMART ERA.** Applicants have to demonstrate a clear idea of what they want to do and whether the new/improved technical solution for rural innovation has potential for integration in a Smart Innovation Package for ensuring its impact.



- **Impact in the Region.** Applicants have to demonstrate a clear understanding of the regional area where the project will be developed, for ensuring the impact and capabilities to cover the region's needs and challenges.
- **Strategy for Sustainability.** Applicants have to demonstrate the level of scalability of the new/improved product, meaning that it does not address only a specific problem but can be commercialised to solve a structural problem in the sector of interest, and be applicable to other regions.
- **Environmental and social impact.** Applicants have to demonstrate the project contribution towards environmental, social and economic impacts to contribute to sustainable development, Green Deal and other regional and European policies.

(3) IMPLEMENTATION will consider:

- **Team.** Applicants have to demonstrate their team's management and leadership qualities, their ability to uptake the SMART ERA methodology, their capacity to carry through their ideas, and their understanding of the dynamics of rural innovation they are trying to tap into. The team should be a cross-functional team, with a strong technical background and skills base, and should take gender balance into account.
- **Resources.** Demonstrate the quality and effectiveness of the resources assigned in order to get the objectives/deliverables proposed, along with previous experience within the region or rural areas and in the technology to be developed.

The evaluators will score each award criterion on a scale from 0 to 5:

- 0 = Proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.
- 1 = Poor – criterion is inadequately addressed or there are serious inherent weaknesses.
- 2 = Fair – proposal broadly addresses the criterion, but there are significant weaknesses.
- 3 = Good – proposal addresses the criterion well, but a number of shortcomings are present.
- 4 = Very good – proposal addresses the criterion very well, but a small number of shortcomings are present.
- 5 = Excellent – proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

Each evaluator will produce an Individual Evaluation Report. Once the Individual Evaluation Reports are submitted, the final score for each individual criterion will be calculated as the average of the scores provided by each evaluator. The final score of each application will be calculated as the sum of the scores for each individual criterion.

The threshold for individual criteria will be 3 out of 5 points. The total maximum score is 15 points. The overall threshold, applying to the sum of the three individual scores, is 10 points.



Once the initial ranking is created, ties (if any) will be solved using the following criteria in order of priority:

- The highest score in the Impact Section.
- Gender balance among the personnel responsible for carrying out the activities (the team with the higher % of females will be prioritised).

Reviewing all proposals takes considerable time, therefore, applicants should expect a significant wait before receiving an update on the process.

4.4. Pitching Days and Final Consensus Meeting

Following the previous step and based on the ranking list, the 3 best-ranked proposals per Macro-Region (provided that they reached all the thresholds and met all of the requirements) will be invited to pitch their project in front of the SMART ERA Selection Committee. This will happen during the on-line sessions that will be held in October 2026 (indicatively).

The SMART ERA Selection Committee, including 4 Representatives from the 4 Macro Regions, will decide, by minimum 2/3 of the votes cast by voting members, the 'Provisional List of FSTP recipients' and 'Reserve List'. The Representatives take part in an advisory capacity (i.e. with voice but without vote).

The SMART ERA Selection Committee will undertake the final evaluation and select the finalists, taking into account the following awarding criteria:

- High potential impact on the SMART ERA Project's goals;
- Vision and attitude of the Team;
- Potential for Scalability/Recreation in other rural regions.

The initial idea is to select 4 projects, 1 per Macro-Region, but finally, it would depend on the quality of the proposals received and the alignment with the project. Whilst normally the highest ranked proposals will be selected for funding, the SMART ERA Selection Committee might have fair reasons for objecting to a specific project, like the alignment with SMART ERA goals and pilots' scope, the ability to achieve the highest impact possible, commercial competition, as well as the existence of significant ethical concerns or a potential conflict of interest. In this case, the choice may pass to the next-ranked proposal.

After the Final Consensus Meeting, results will be communicated to the Applicants.

4.5. Formal Check, Subgrant Agreement Preparation and Signature

Before getting started with the SMART ERA Support Programme, pre-selected applicants need to sign the Subgrant Agreement with the SMART ERA Consortium.

Before signing the Agreement, applicants should provide documents regarding their formal status. The SMART ERA Consortium will verify them to prove the eligibility.

To confirm the organization formal status, SMART ERA may ask applicants for (not an exhaustive list): company's registration document, the legal representation (optionally POA), tax ID number, ownership structure, financial statements, document/s confirming the staff headcount, Bank Identification form, and any other documents in case of doubts raised during the checks.

Be extremely vigilant with respect to:

- **The nature of the documents requested.** If the documents provided do not prove the eligibility, the applicant's participation will end at that point.
- **The deadlines that will be given to provide the documents.** If the requested documents are not delivered on time, without a clear and reasonable justification, the applicant will be excluded from further formal assessment. Another applicant from the Reserve list will then be selected.



5. Our Support Programme and Payment Arrangements

Once the applicant's eligibility has been confirmed following the formal check and the Subgrant Agreement signed, pre-selected applicants will become official beneficiaries of the SMART ERA Support Programme.

Support Programme

The Support Programme will last up to 12 months and it is planned to start in January 2027.

At the beginning of the Support Programme, the beneficiaries will be invited to participate in an on-line Welcome Event (please note that participation in the Welcome Event is mandatory for at least one beneficiary representative) where they will be matched with the SMART ERA Mentors.

The first step of the Support Program will be the definition of each beneficiary's Individual Mentoring Plan (IMP). This document, once created and validated, will become an Annex to the Subgrant Agreement and will establish the budget planned for the execution of the project (eligible costs should be considered according to Horizon Europe Programme Rules), the Key Performance Indicators (KPIs) that each project should achieve and the Deliverables that will be taken into account when evaluating the projects' performance during the following stages:

- Stage 1: On-boarding Stage (2 months)
- Stage 2: Mobilisation Stage (3 months)
- Stage 3: Deployment Stage (7 months)

Selected beneficiaries will receive a fixed lump sum of **up to €90,000*** (if applying as Consortium) or **up to €60,000** (if applying individually)

The lump sum is a simplified method of settling expenses in projects financed from Horizon Europe Programme funds. It means that the beneficiary is not required to present strictly defined accounting documents to prove the cost incurred (e.g. invoices), but is obliged to demonstrate that the implementation of the project is in line with the milestones set for it. Simply speaking, it means that SMART ERA will carefully assess the beneficiaries progress and the quality of their work during Milestone Reviews. The milestones (deliverables, KPIs and ethical recommendations) will be fixed in the 'Individual Mentoring Plan' elaborated at the beginning of the programme.

The lump sum method does not exempt beneficiaries from collecting documentation to confirm the costs under fiscal regulations.

Payment Arrangements

The grant will be paid in the following scheme:

Stage	Deliverable	Delivery Date	Grant			
			Consortia Project			Individ. Project
			Community Activator	Tech provider	Total	
Stage 1: On-boarding Stage	Individual Mentoring Plan	M2	Up to €10,000	Up to €10,000	Up to €20,000	Up to €7,500
Stage 2: Mobilisation Stage	Report on community engagement	M5	Up to €20,000	Up to €5,000	Up to €25,000	Up to €12,500
Stage 2: Deployment Stage	Technical Solution Report	M12	-	Up to €45,000	Up to €45,000	Up to €40,000
Total		12 months	Up to €30,000	Up to €60,000	Up to €90,000	Up to €60,000

Payment of the given tranche depends on the proper and timely execution of the work planned in the 'Individual Mentoring Plan'. The Selection Committee will evaluate your progress on a regular basis. For more details check the [SGA template](#).

Milestones Review

Beneficiaries performance during the Support Programme will be reviewed by the Technical Partners (with the support of Ethics Partners if needed) at the Milestone Review (established every time a payment is due), according to the following criteria:

For IMP:

- Deliverable quality (90%).
- Deadline Compliance (10%).

For Technical Deliverables:

- Deliverable quality (30%).
- Technical performance indicators (60%).
- Deadline Compliance (10%).

Each criterion will be scored from 0 to 10 and, based on the weight of each criterion, the final score will be calculated. The threshold to continue in the programme is 7 points. According to this final score, beneficiaries over the threshold (7 points) will successfully receive the corresponding part of the grant and continue the programme. The beneficiaries who haven't reached the threshold (7

points) will be invited to leave the programme without receiving the corresponding payments. The Selection Committee will review and validate the evaluations, putting special attention to the 'under threshold' cases, if any, by taking into consideration all possible objective reasons for underperformance (i.e. external factors which might have influenced the beneficiaries' performance).

The SMART ERA Selection Committee will make the final decision, and approve the payments or invite beneficiary projects which have not reached the threshold to leave the programme.



6. Contact us

6.1. How can we help you?

Applicants that have any questions regarding the application process can post their questions at [our Helpdesk](#) or send an email to SMARTERA.help@fundingbox.com.

Responses to any questions are provided on an individual basis, do not constitute a change to this Guide for Applicants, and are provided for informational purposes.

In case of any technical issues or problems, the following information should be included in the message:

- Applicants username, phone number and email address;
- details of the specific problem (e.g. error messages, bug description, i.e. if a dropdown list isn't working, etc.); and
- screenshots of the problem.

6.2. Complaints

If an applicant believes that a mistake has been made after receiving the results of one of the evaluation phases (when foreseen), a complaint may be submitted. To do so, applicants should email their complaint in English at SMARTERA.help@fundingbox.com and include the following information:

- contact details (including email address);
- the subject of the complaint;
- information and evidence regarding the alleged breach.

Applicants have **three (3) calendar days** to submit their complaint, starting from the day after the communication was sent. Complaints will be reviewed within seven (7) calendar days from its reception. If more time is needed to assess the complaint, the applicant will be informed about the extension by email. Anonymous complaints as well as complaints with incomplete information will not be reviewed.

Please take into account that the evaluation is run by experts in the relevant field, and we do not interfere with their assessment. Therefore, we will not evaluate complaints related to the results of the evaluation other than those related to procedural or technical mistakes.

7. Final provisions

Any matters not covered by this Guide will be governed by Polish law and rules related to the Horizon Europe Programme and general rules of EU grants.

Please take into account that we make our best effort to keep all provided data confidential; however, for the avoidance of doubt, you are solely responsible for indicating your confidential or sensitive information as such.

Your IPR will remain your property.

For the selected beneficiaries, the Subgrant agreement will include a set of obligations towards the European Commission (for example: promoting the project and giving visibility to the EU funding, maintaining confidentiality, understanding potential controls by the EC/ECA, EPPO and OLAF).

The SMART ERA Consortium might cancel the call at any time, change its provisions or extend it. In such a case we will inform all applicants about such change. The signature of the Sub-grant agreement is an initial condition to establish any obligations among applicants and any Consortium partners (with respect to the obligation of confidentiality of the application).

In the event of any discrepancies between these GfA and its Annexes, the GfA shall prevail.

Did not find what you were looking for? [Contact us](#) and we will happily answer all your questions.



8. Extra hints before you submit your proposal

A proposal takes time and effort and we know it. Here are a few crucial points you should read before submitting your proposal.

- Is your project in line with what SMART ERA is looking for? You are not sure? You can consult [this section](#) and [this one](#).
- Did you present your project in a way that will convince evaluators? Not sure if you did? Go back to [this section](#).
- Is your project fulfilling all eligibility requirements described in the Guide? Check again [this section](#).
- Are you sure you can cope with our process of the Sub-grant agreement signature and payment arrangements for selected proposals? You may want to go over [this section](#).
- Did you check our Sub-grant agreement template? You didn't? Check it [here](#).

Do you need extra help? [Contact us](#).

Good luck!



Annex 1

SMART ERA

Integration & Interoperability Methodology



About this Annex

This annex provides the SMARTERA Integration & Interoperability Methodology. Its purpose is to present a **concise overview** of the practical implementation of the methodology.

The focus here is on the **operational dimension**: how the methodology is applied in practice across the project's pilot sites.

This version is intended to serve as a practical reference for stakeholders directly involved in the deployment of SMART ERA's technological components, such as **technical partners, pilot coordinators, and Open Call applicants**, who require a clear understanding of the step-by-step activities and processes related to implementation.

Methodology Implementation

This section concludes the methodological definition by outlining the structured approach to be followed for enabling interoperability of SMART ERA pilots data and supporting their integration into technical solutions. More specifically, the core idea behind this approach is that, by following shared interoperability guidelines, heterogeneous datasets from diverse rural contexts can be harmonized, standardized, and made accessible. This enables the development of Software Innovation Packages (SIPs): customized digital solutions designed to address the specific needs of rural pilots, ultimately fostering sustainability, economic growth, improved service efficiency, and other benefits within rural communities.

To achieve these goals, the methodology follows a **structured sequence** of phases with defined directional flows between them:

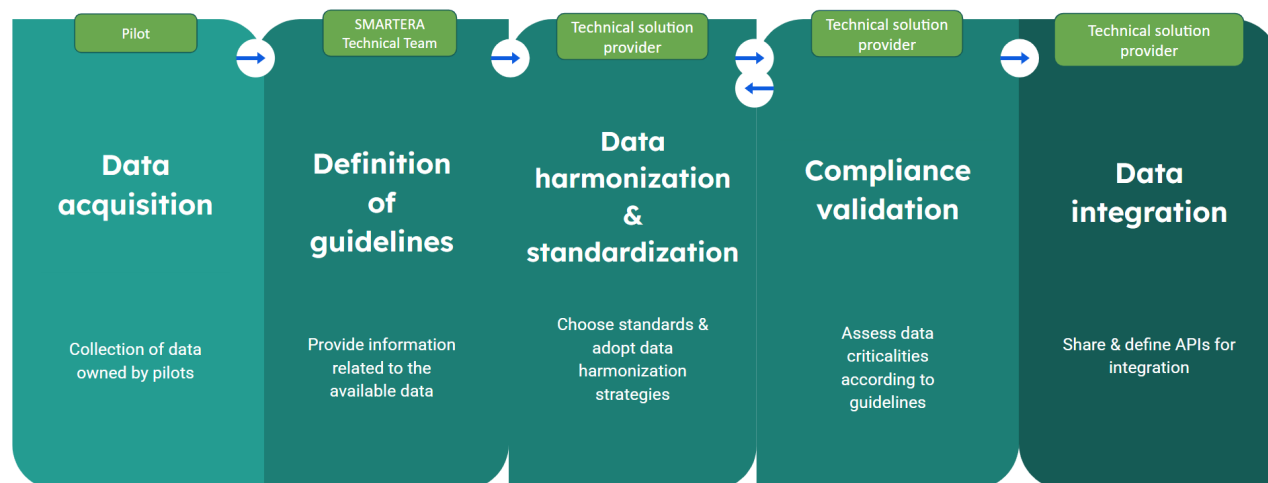
1. **Data Acquisition:** The **Pilot** provides datasets classified by domain, organization type, license, format, and access method, ensuring a structured data collection process. The output of this phase is raw data, which moves forward for standardization. The initial data collected in this phase have already been analysed and discussed in the deliverable D5.1 Pilot needs and gap analysis where the domains of major interest have been individuated for the pilots.
2. **Definition of Guidelines:** The **SMART ERA Technical Team** establishes metadata schemas, standard formats, and governance policies to ensure interoperability. These guidelines are then communicated to the **Technological solution provider**, which must implement them during the harmonization phase. The arrow flows forward as the process advances, but feedback loops may be needed if additional clarifications are required.
3. **Data Harmonization & Standardization:** The **Technological solution provider** processes and transforms data according to interoperability guidelines. This involves schema mapping, data cleaning, and quality assurance. The data then moves forward for compliance validation.
4. **Compliance Validation:** The **Technological solution provider** verifies schema conformity, security compliance, and cross-pilot consistency to ensure data integrity. At this stage, there is a **bidirectional arrow** leading back to **Data Harmonization & Standardization**. This backward flow is crucial because, if issues such as incorrect formatting, missing metadata, or structural inconsistencies are identified, the data must be



reprocessed to meet the required standards. **This iterative validation ensures high data quality before integration.**

5. **Data Integration:** Once compliance is validated, the data is made accessible through APIs by the **Technological solution provider**, enabling dashboards and supporting the development of **Software Innovation Packages**. At this stage, there is no backward movement, as only validated and harmonized data enters the integration phase.

The following Figure represents what have just been described:



In order to technically sustain these phases, a list of tools is recommended in [Appendix A: Supporting Tools and Technologies](#).

1.1. Data Acquisition

In this phase, pilots provide their data, which is systematically categorized to facilitate integration into the SMART ERA ecosystem. According to what was identified in the Pilot needs and gap analysis, the data is first classified according to its domain type, ensuring that it aligns with one of the six key sectors: tourism, agriculture, mobility, healthcare, commerce, or environmental & cultural protection. This classification allows for a structured approach to managing diverse data sources and ensures relevance to rural development objectives. Beyond domain classification, datasets are also categorized based on the type of organization providing the data, distinguishing between government institutions, private companies, research entities, and citizen-driven initiatives. Each dataset is further assessed in terms of its license type, which determines whether the data is open, restricted, or subject to specific access conditions.

To ensure seamless integration, the data format is specified, covering common standards such as CSV, JSON, XML, and specialized geospatial formats like GeoJSON. Finally, the method of data access is defined, whether through APIs, batch file downloads, or real-time data streams. This structured categorization enables a scalable and interoperable approach to data sharing. Then, once data are gathered from the different data sources, in order to let the Technical solution providers to proceed with the harmonization and implementation so that the technical solution can be developed, the two entities (the pilot and the technical solution provider) need to formalize a Data Usage Agreement, as described in Data Access and Usage Control section in the full document.

1.2. Definition of guidelines

Formulation of comprehensive guidelines is the critical foundation for successful implementation of the SMART ERA program. This paragraph provides an overview of how the SMART ERA Technical Team develops and releases guidelines required for system-wide interoperability, data consistency, and governance coherence. These guidelines constitute the architectural framework that the Technological Solution Provider has to adhere to during the process of harmonization, enabling standardization while leaving space for domain-specific requirements.

Metadata Schema Development:

The SMART ERA Technical Team considers metadata schema creation as a fundamental element that underpins the general information architecture. At its most basic level, it is an activity of creating ontological frameworks that laboriously define how entities relate to one another within the broader ecosystem. Hierarchical classification systems are created by the team that traverse both domain-specific taxonomies and cross-domain relationship mappings, conforming to current international standards wherever possible. This ontological model provides a shared semantic meaning to all the participating systems and stakeholders.

Standard Format Specifications:

Standardization of formats is a complementary aspect of metadata schema effort and extends across a number of fronts of the SMART ERA universe. The Technical Team spends a lot of time specifying the correct data exchange formats that fit today's expectations while still being able to support legacy. They tend to prefer JSON and JSON-LD formats for today's API interactions due to their extreme flexibility and their use far and wide. XML formats are accommodated for compatibility with legacy systems so that organizations that have existing infrastructure can participate without wholesale replacement of current systems. For use cases of semantic web, the group establishes standards about RDF and Turtle serializations, but more simple tabular exchange cases could utilize CSV or TSV standards with explicit field definitions.

1.3. Data harmonization & standardization

Data standardization and harmonization are a key step in the SMART ERA implementation model, wherein abstract guidelines confront real-world data realities. This paragraph discusses the end-to-end process by which the Technical Solution Provider converts disparate data sources into an integrated, standardized information environment. Harmonization is more than a technical translation: it is the philosophical and methodological link between heterogeneous data environments and the vision of unified interoperable information systems which directly determines subsequent utility, reliability, and interoperability of all downstream applications of the data.

Schema Mapping Techniques:

Schema mapping is the intellectual heart of data harmonization and requires both technical precision, domain expertise and pilot engagement. The Technological solution provider applies different mapping strategies depending on the complexity of the source-to-target relationship and the semantic richness of the data domains involved.

Direct field mapping provides the simplest transformation approach, where source data elements map to target schema elements with minimal transformation. The team documents such simple mappings in large crosswalk tables that establish an explicit field-to-field correspondence.



Conceptually simple, even direct mapping requires consideration of data type compatibility, field length constraints, and character encoding differences between the systems.

Complex mappings address the cases when the straightforward mapping does not suffice: there may be mathematical calculations, unit transformations, terminology translations, or structure reorganizations.

Data Cleaning Processes:

Data cleaning is an integral part of the harmonization process, addressing quality issues that could otherwise undermine the utility of the standardized dataset. Systematic cleaning procedures are implemented by the Technical Solution Provider at different levels of granularity and address different types of data quality issues. Structural cleaning should apply standardization rules early in the pipeline, using automated pattern recognition to detect and unify inconsistent formats such as those encountered when handling dates, addresses, phone numbers, and delimiters. Capitalization and special character usage should follow predefined conventions aligned with international standards to reduce ambiguity and processing errors.

Value normalization should prioritize the use of controlled vocabularies and reference dictionaries, ideally developed with input from domain experts. Synonyms, abbreviations, and unit conversions must be mapped systematically to common representations, ensuring that semantically equivalent values are harmonized across datasets.

Moreover, handling missing data should not rely on a single approach but instead differentiate among types of absence. The data model should explicitly distinguish between missing values due to errors, intentionally uncollected data, and non-applicable fields. Each case should have a specific code or marker in the standardized schema, preserving the underlying meaning and supporting accurate downstream interpretation.

Quality Assurance Framework:

Quality assurance extends beyond the first data cleaning to build a continuous structure for data monitoring and quality assurance along the harmonization pipeline. The Technological solution provider implements an effective quality assurance architecture with various verification layers and feedback mechanisms.

Automated validation processes represent the first layer of quality assurance, performing syntax checking, constraint checking, relation checking, and pattern matching against predefined data characteristics. These are done on pre-transformation data as well as post-transformation data, with each having an applicable rule set for that phase. The generic validation rules appropriate for all data types and specific domain rules applying to each area define special quality specifications for a given type of information.

Pilots and Technical Solution Providers collaboration during harmonization:

Successful harmonization requires ongoing cooperation between the technical solution provider and the pilots since this is a delicate phase. Such collaboration allows to increase the efficacy of this data transformation process and to overcome the obstacles that may be encountered when it comes to handling data in different languages that may lead to a loss of information or even errors.

Domain expert advice is of greatest value at the early stages of mapping design, where domain experts help uncover semantic nuances that may be lost through technical exploration alone. The



technical solution provider can conduct shared mapping workshops where technical staff and domain experts review example data transformations jointly, separating prospective issues before full implementation. During these workshops, such unstated assumptions and context familiarity are typically revealed as need to be made explicit in the transformation rules.

Recurring feedback loops provide opportunities for continuous refinement during the harmonization process. The technical solution provider uses systematic processes for domain stakeholders to review transformation outputs and provide structured feedback on accuracy and usefulness. This feedback is documented with careful attention and prioritized, with clearly defined criteria for determining which recommendations should be taken forward straight away and which should be subject to further consultation before being implemented.

1.4. Compliance validation

Compliance verification is the systematic activity of determining whether data management practices are aligned with established regulatory requirements and industry standards (adherence to standard data models). It confirms whether data handling, processing, and storage comply with legal stipulations and organizational policies. This activity also assesses the compatibility with the technical components input data format in order to proceed with the subsequent integration phase.

Technical Aspects:

Rule-Based Verification: This involves creating and implementing rules that automatically check data against compliance requirements. Rules can be created on data formats, data values, access rights, and audit trails.

Audit Trail Analysis:

Compliance Validation: This involves auditing trail review for data access, modification, and deletion monitoring. This renders the data handling transparent and accountable.

Data Integrity Checks: It includes verifying data accuracy and completeness so that it meets the compliance requirements. It includes techniques like data validation rules, checksums, and data integrity constraints.

Access Control Verification: Compliance testing includes validation of access to confidential data being restricted to authorized users. This involves verification of access logs, user privileges, and authentication procedures.

Reporting and Documentation: Compliance testing generates reports and documentation evidencing adherence to regulatory requirements and organizational policies. This evidence is required for compliance audits and reviews.

Automated and manual testing: Compliance validation uses both automated systems and manual tests. Automated tests allow for continuous and repetitive checks of large volumes of data. Manual tests, on the other hand, are used to verify specific cases or to assess the actual functionality of the systems from the end user's perspective.

Key Considerations:

Regulatory Compliance: Compliance validation must address relevant legal and regulatory requirements, such as, GDPR, HIPAA, and industry-specific legislation.



Risk Management: Validation of compliance helps to identify and mitigate risks associated with non-compliance, such as legal penalties, loss of reputation, and data breaches.

To summarise, the Technical solution providers should also verify the compliance of the harmonized and standardised data with standard data models. To this goal, for instance, they can exploit tools such as the Data Models Contribution API Full Test⁵, developed by the Smart Data Models program⁶, that allows to validate a certain submission of a data model and it provides feedback in case it is not compliant with the guidelines and the contribution manual and also whether the properties are already used in other data models.

1.5. Data Integration

In SMART ERA, data integration is a foundational element and represents the last step of the methodology. This phase is designed to ensure that diverse datasets from multiple pilots can be effectively harmonized, shared, and reused for the tailored technical components. The strategy is structured around four main pillars: API-based integration, a modular and federated architecture, continuity with previous phases, and adherence to data exchange standards.

By leveraging APIs, the integration phase enables dynamic and seamless access to harmonized data, which is modeled using widely accepted Smart Data Models. This ensures interoperability and supports scalable connections between different systems and services.

The modular and federated nature of the architecture enhances the adaptability of the platform to the specific requirements and governance structures of individual pilots. Rather than enforcing a centralized model, this decentralized approach allows pilots to maintain local control over their data while still contributing to a shared infrastructure. This is crucial in rural contexts and in the specific case of SMART ERA, where technological and organizational diversity across regions must be accommodated without compromising interoperability.

Continuity with previous phases is another key element: by standardizing data through Smart Data Models early in the process, this methodology is based on the fact that APIs and data access protocols are defined once and then reused across pilots. This promotes efficiency, consistency, and reduces the engineering effort required for integration when it comes to integrating data which belong to different pilots with the components owned by the partners.

As already discussed, standards-based data exchange is essential to guarantee long-term sustainability and compatibility with broader European data initiatives. The use of NGSI and NGSI-LD standards allows real-time exchange of contextual data while maintaining semantic consistency. These standards are especially relevant in the context of EU data spaces and smart environments, as they provide a solid foundation for interoperability and future integration with other domains.

A wide number of tools can be employed to implement this integration framework, for instance, FIWARE components, such as the Orion Context Broker and the Scorpio Broker, are widely used for compliant, real-time management of contextual information. They provide reliable mechanisms for data publishing, subscription, and querying using NGSI interfaces. In addition, Idra is another tool that could play a central role in the data dissemination process. Once data is harmonized, Idra enables its publication using the DCAT-AP metadata standard, ensuring uniform and discoverable datasets across platforms. More importantly, Idra supports a federation of datasets from heterogeneous ODMs such as CKAN, DKAN, Socrata, and Orion Context Broker, making them

⁵ <https://smartdatamodels.org/index.php/data-models-contribution-api/>

⁶ <https://smartdatamodels.org/>



available through a single access point. This capability significantly reduces fragmentation, simplifies access for the Technical Solution Providers and their components, and encourages data reuse in line with EU open data regulations.

Appendix A: Supporting Tools and Technologies.

Tool Name / Standard	Description	Application Phase	Strength	License / Cost
Talend Open Studio	Open-source ETL platform for data integration, transformation, and synchronization.	Data Harmonization & Standardization	Wide range of connectors, intuitive graphical interface, active community.	Open-Source (Freemium)
AWS Glue	Fully managed ETL service from Amazon Web Services that simplifies data preparation for analysis.	Data Harmonization & Standardization	Serverless (no infrastructure to manage), integrates natively with the AWS ecosystem.	Pay-per-use
XML / XSD	Standard for representing and exchanging structured data (XML) and for defining their schemas (XSD).	Definition of Guidelines, Data Integration	Universal standard, human-readable, highly extensible.	Open Standard
Protégé	Free and open-source editor for building ontologies and knowledge bases.	Definition of Guidelines	De-facto tool for ontology engineering, supports W3C standards (OWL, RDF).	Open-Source
Apache Camel	Open-source integration framework based on well-known Enterprise Integration Patterns (EIP).	Data Harmonization & Standardization , Data Integration	Highly configurable, lightweight, integrates seamlessly with Java and other frameworks.	Open-Source
Altova MapForce	Graphical tool for mapping, converting, and integrating data between different formats.	Data Harmonization & Standardization	Powerful visual mapping engine, supports XML, JSON, databases, EDI, and more.	Commercial
CKAN	An open-source platform for managing and publishing open data. It provides structured environments to catalogue datasets using metadata standards like	Definition of Guidelines, Data Harmonization & Standardization , Data	Structured environment for cataloguing datasets, supports metadata standards (e.g., DCAT), enables automated data validation and transformation	Open-Source



	DCAT, ensuring discoverability and accessibility.	Integration	processes. It acts as a centralized metadata repository.	
Apache Nifi	An ETL (Extract, Transform, Load) framework.	Data Harmonization & Standardization	Allows organizations to process and harmonize data from multiple sources, applying transformations to ensure consistency with selected standards.	Open-Source (Inferred)
Pandas	A data wrangling tool.	Data Harmonization & Standardization	Helps to clean and structure data while aligning it with predefined schemas.	Open-Source (Inferred)
nRefine	An open-source data wrangling application supporting schema crosswalking through GREL expressions and reconciliation services.	Data Harmonization & Standardization	Helps clean and structure data. Provides functionality for field normalization, character encoding transformation, and batch processing for large-scale direct field mappings.	Open-Source
Swagger OpenAPI	Tools for the formal definition of API interfaces using machine-readable contracts (typically YAML or JSON). OpenAPI is a specification for formal API description.	Definition of Guidelines, Data Integration	Enables formal definition of API interfaces, ensures consistent documentation, facilitates collaborative development, supports interactive testing environments, and can auto-generate client SDKs, server stubs, and interactive documentation.	Open Standard / Tool (Swagger has open-source components, OpenAPI is a specification)
Postman	A tool for the formal definition of API interfaces.	Definition of Guidelines, Data Integration	Enables formal definition of API interfaces, ensures consistent documentation, facilitates collaborative development, and supports interactive testing environments.	Freemium (Inferred)
Kong	An API gateway solution.	Data Integration	Provides centralized	Open-Source



			control planes for routing API traffic, enforcing security policies, managing rate limits, and authenticating client access. Serves as a reverse proxy and mediates communication.	(Community Edition) / Commercial (Enterprise) (Inferred)
Prometheus	A time-series monitoring and alerting tool.	Data Integration	Allows for the real-time tracking of API latency, request throughput, and error rates.	Open-Source (Inferred)
Grafana	A time-series monitoring and alerting tool.	Data Integration	Allows for the real-time tracking of API latency, request throughput, and error rates.	Open-Source (Community Edition) / Commercial (Enterprise) (Inferred)
ELK Stack (Elasticsearch, Logstash, Kibana)	Provides powerful search and visualization capabilities for aggregated logs.	Data Integration	Enables developers and DevOps teams to investigate failures and audit usage patterns from aggregated logs.	Open-Source (Community Edition) / Commercial (Enterprise) (Inferred)
Datadog	A comprehensive observability platform.	Data Integration	Combines metrics, traces, and logs in a unified view, which is especially useful in complex multi-cloud or hybrid deployments.	Commercial (Inferred)
Idra	A tool that plays a central role in the data dissemination process.	Data Integration	Enables data publication using the DCAT-AP metadata standard, ensuring uniform and discoverable datasets. Supports federation of datasets from heterogeneous Open Data Management Systems (ODMSs) like CKAN, DKAN, Socrata, and Orion Context Broker, making them	Not Specified (Likely Open-Source)



			available through a single access point.	
Orion Context Broker	A FIWARE component for real-time management of contextual information.	Data Integration	Provides reliable mechanisms for data publishing, subscription, and querying using NGSI interfaces. It is a central component for managing contextual data.	Open-Source (Part of FIWARE ecosystem)
Scorpio Broker	A FIWARE component for real-time management of contextual information.	Data Integration	Provides reliable mechanisms for data publishing, subscription, and querying using NGSI interfaces.	Open-Source (Part of FIWARE ecosystem)
FIWARE Lab	A sandbox environment to test FIWARE implementations.	Data Integration	Provides a dedicated environment for testing.	Not Specified (Likely Free/Part of FIWARE ecosystem)
STH-Comet	A FIWARE component for historical data archiving.	Data Integration	Stores historical data for FIWARE contexts.	Open-Source (Part of FIWARE ecosystem)
Wirecloud	A FIWARE component for creating customized dashboards.	Data Integration	Allows for the creation of customized dashboards.	Open-Source (Part of FIWARE ecosystem)
GeoServer	An open-source server that allows users to share and publish geospatial data.	Data Integration	Supports Web Map Service (WMS) and Web Feature Service (WFS) standards, ensuring compliance with INSPIRE requirements. Enables creation of interoperable web services for viewing and accessing spatial data.	Open-Source
HALE (HUMBOLDT Alignment Editor)	A powerful tool designed for schema mapping and data transformation.	Data Harmonization & Standardization	Especially useful for aligning source datasets to INSPIRE-compliant data models.	Not Specified (Likely Open-Source)
Feature	A tool that offers a visual	Data	Its extensive connector	Commercial



Manipulation Engine (FME)	drag-and-drop interface with over 500 connectors.	Harmonization & Standardization	library supports various formats like shapefiles, GML, GeoJSON, PostgreSQL/PostGIS, WFS, etc...	(Inferred)
INSPIRE Validator	A validation platform used to check whether datasets and services comply with the INSPIRE Technical Guidelines.	Compliance Validation	Offers both online and offline validation modes and supports metadata, data, and service validation, which is essential for ensuring published resources meet EU interoperability standards.	Not Specified (Likely Free/Public Service)
OpenMetadata	A metadata repository. Provides functionalities for metadata support.	Definition of Guidelines	Enables organizations to maintain structured metadata registries, ensuring High-Value Datasets (HVDs) remain accessible and interoperable. Supports role-based access control and compliance monitoring.	Open-Source (Inferred)
Apache Atlas	A metadata repository. Provides functionalities for metadata support.	Definition of Guidelines	Enables organizations to maintain structured metadata registries, ensuring High-Value Datasets (HVDs) remain accessible and interoperable.	Open-Source (Inferred)
DataHub	A data catalogue solution.	Definition of Guidelines	Acts as a centralized repository where metadata is indexed, enabling users to efficiently explore, retrieve, and understand available datasets. Ensures information from different sectors can be easily accessed.	Open-Source (Inferred)
FastAPI (Python)	A lightweight, modular framework for API development.	Data Integration	Facilitates rapid prototyping and integration with	Open-Source (Inferred)



			microservice architectures. Leverages Python's type annotations to automatically generate validation rules and OpenAPI documentation, enabling high developer productivity.	
Express.js (Node.js)	A lightweight, modular framework for API development.	Data Integration	Facilitates rapid prototyping and scalable deployment, making it ideal for multi-service, microservice, or edge-computing architectures.	Open-Source (Inferred)
Spring Boot (Java)	A framework for API development.	Data Integration	Supports rapid prototyping and scalable deployment, ideal for multi-service, microservice, or edge-computing architectures.	Open-Source (Inferred)
Apigee	An API gateway solution.	Data Integration	Provides centralized control planes for routing API traffic, enforcing security policies, managing rate limits, and authenticating client access.	Commercial (Inferred)
Azure API Management	An API gateway solution.	Data Integration	Provides centralized control planes for routing API traffic, enforcing security policies, managing rate limits, and authenticating client access.	Commercial (Part of Microsoft Azure) (Inferred)
AWS API Gateway	An API gateway solution.	Data Integration	Provides centralized control planes for routing API traffic, enforcing security policies, managing rate limits, and authenticating client access.	Pay-per-use (Part of AWS) (Inferred)



Mqa-scoring tool	A tool that calculates the score a metadata obtains according to the MQA indicators and verifies the requirements specified by the MQA.	Compliance Validation	Helps to improve the quality of metadata harvested by the data.europa.eu portal.	Not Specified (Likely Free/Public Service)
Data Models Contribution API Full Test	A tool developed by the Smart Data Models program that allows to validate a certain submission of a data model.	Compliance Validation	Provides feedback if a data model is not compliant with guidelines and contribution manual, and indicates whether properties are already used in other data models.	Not Specified (Likely Free/Public Service)
AJV JSON Schema Validator	A JSON Schema Validator leveraged by the Data Model Mapper tool for validation and reporting.	Data Harmonization & Standardization	Validates resulting objects against the JSON schema corresponding to a target Data Model.	Open-Source (Inferred)
Data Model Mapper	An open-source software developed by Engineering Ingegneria Informatica SpA that enables conversion of various file types (e.g., CSV, JSON, GeoJSON) to different Data Models (NGSI entities).	Data Harmonization & Standardization	Performs input file parsing, streaming to intermediate objects, mapping to NGSI entities, and validation against JSON schema. It can produce a report file and send validated objects to Orion Context Broker or a local file.	Open-Source
KNIME	A data analytics platform with extensible ETL nodes for schema alignment operations.	Data Harmonization & Standardization	Features semantic type detection, controlled vocabulary integration, and workflow-based mapping persistence. Includes visual data transformation editors supporting complex mathematical expressions, conditional logic, and custom scripting.	Open-Source (Community Edition) / Commercial (Enterprise) (Inferred)



