



## **GRANT AGREEMENT**

### **Project 101131859 — COMUNIDAD**

#### **PREAMBLE**

This **Agreement** ('the Agreement') is **between** the following parties:

**on the one part,**

**European Union Agency for the Space Programme** ('granting authority'), under the powers delegated by the European Commission ('European Commission'),

**and**

**on the other part,**

1. 'the coordinator':

**LESPROJEKT SLUZBY SRO (LESPRO)**, PIC 997832890, established in MARTINOV 197, ZARYBY 277 13, Czechia,

and the following other beneficiaries, if they sign their 'accession form' (see Annex 3 and Article 40):

2. **BALTIC OPEN SOLUTIONS CENTER SIA (BOSC)**, PIC 997636465, established in AINAZU IELA 13, SAULKRASTI 2160, Latvia,

3. **CESKA ZEMEDELSKA UNIVERZITA V PRAZE (CZU)**, PIC 999912570, established in KAMYCKA 129 SUCHDOL, PRAHA 165 00, Czechia,

4. **UNIVERSIDAD DE AYSEN (UAYSEN)**, PIC 922580387, established in GENERAL PARRA 101, COYHAIQUE 5951360, Chile,

5. **FUNDACION SOCIALINNOLABS (SOCIALINNOLABS)**, PIC 926255523, established in CALLE SANTA ENGRACIA 4 PLANTA 3 PUERTA DC, MADRID 28010, Spain,

6. **UNIVERSIDAD AUTONOMA DE MANIZALES (UAM)**, PIC 972974409, established in ANTIGUA ESTACION DEL FERROCARRIL DEPARTAMENTO CALDAS, MANIZALES 441, Colombia,

7. **FEDERACION NACIONAL DE CAFETEROS DE COLOMBIA (FNC)**, PIC 920885312, established in CALLE 73 8 13, BOGOTA 110221, Colombia,

8. **FUNDACION PARA LA INNOVACION AGRARIA (FIA)**, PIC 910607774, established in LORELEY 1582, LA REINA, SANTIAGO 7850601, Chile,

Unless otherwise specified, references to ‘beneficiary’ or ‘beneficiaries’ include the coordinator and affiliated entities (if any).

If only one beneficiary signs the grant agreement (‘mono-beneficiary grant’), all provisions referring to the ‘coordinator’ or the ‘beneficiaries’ will be considered — mutatis mutandis — as referring to the beneficiary.

The parties referred to above have agreed to enter into the Agreement.

By signing the Agreement and the accession forms, the beneficiaries accept the grant and agree to implement the action under their own responsibility and in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

The Agreement is composed of:

Preamble

Terms and Conditions (including Data Sheet)

Annex 1 Description of the action<sup>1</sup>

Annex 2 Estimated budget for the action

Annex 2a Additional information on unit costs and contributions (if applicable)

Annex 3 Accession forms (if applicable)<sup>2</sup>

Annex 3a Declaration on joint and several liability of affiliated entities (if applicable)<sup>3</sup>

Annex 4 Model for the financial statements

Annex 5 Specific rules (if applicable)

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<sup>1</sup> Template published on [Portal Reference Documents](#).

<sup>2</sup> Template published on [Portal Reference Documents](#).

<sup>3</sup> Template published on [Portal Reference Documents](#).

## TERMS AND CONDITIONS

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## DATA SHEET

### 1. General data

Project summary:

| Project summary   |
|---|
| <p>COMUNIDAD aims at developing, testing, and implementing a framework that will make use of Copernicus data from agriculture, forestry and rural development in Chile and Colombia. It will develop solutions integrated on the COMUNIDAD platform with different sources of data. The COMUNIDAD Platform will be important base for the use of EGNSS and sharing of expertise with public and private entities from the target countries to introduce EU-space based applications and to use of Copernicus data, to develop jointly algorithms, services and products, which serve local user needs. The interaction with each Pilot Application in Chile and Colombia will feed to long-term policy strategy development, aiming at bringing about the transition into the new paradigm of sustainable agriculture and forestry growth. The combined use of EGNSS and Copernicus to develop innovative downstream applications combining positioning navigation and timing with Earth observation services will be an essential part of the COMUNIDAD development through pilot applications in Chile and Colombia with the direct involvement of regional end users, decision makers and support organisations. This approach is not only demonstrating the possibilities of potential transfer of the results and addressing the potential barriers, but as well introducing the added value for developing new markets, information sharing, open access and transparency. The platform is combining existing components and services for new target regions where potential for utilization is expected. The COMUNIDAD will address 4 main Scientific Objectives via 6 WPs. The cooperation of 9 partners is envisaged, from them 5 are from Chile and Colombia and 4 from EU.</p> |

Keywords:

- Earth Observation / Services and applications
- Global Satellite Navigation System (GNSS) / Services & Applications
- Copernicus, GNSS, remote sensing, forestry, agriculture, coffee, environment, snow

Project number: 101131859

Project name: Combined Use of EGNSS and Copernicus Data to Develop Innovative Downstream Services for the Users from Chile and Colombia

Project acronym: COMUNIDAD

Call: HORIZON-EUSPA-2022-SPACE

Topic: HORIZON-EUSPA-2022-SPACE-02-56

Type of action: HORIZON Research and Innovation Actions

Granting authority: European Union Agency for the Space Programme

Grant managed through EU Funding & Tenders Portal: Yes (eGrants)

Project starting date: fixed date: 1 March 2024

Project end date: 28 February 2026

Project duration: 24 months

Consortium agreement: Yes

### 2. Participants

List of participants:

| N° | Role | Short name | Legal name                          | Ctry | PIC       | Total eligible costs (BEN and AE) | Max grant amount |
|----|------|------------|-------------------------------------|------|-----------|-----------------------------------|------------------|
| 1  | COO  | LESPRO     | LESPROJEKT SLUZBY SRO               | CZ   | 997832890 | 287 543.75                        | 287 543.75       |
| 2  | BEN  | BOSC       | BALTIC OPEN SOLUTIONS CENTER SIA    | LV   | 997636465 | 236 237.50                        | 236 237.50       |
| 3  | BEN  | CZU        | CESKA ZEMEDELSKA UNIVERZITA V PRAZE | CZ   | 999912570 | 204 150.00                        | 204 150.00       |

| N°           | Role | Short name     | Legal name                                   | Ctry | PIC       | Total eligible costs (BEN and AE) | Max grant amount |
|--------------|------|----------------|--|------|-----------|-----------------------------------|------------------|
| 4            | BEN  | UAYSEN         | UNIVERSIDAD DE AYSEN                         | CL   | 922580387 | 224 725.00                        | 224 725.00       |
| 5            | BEN  | SOCIALINNOLABS | FUNDACION SOCIALINNOLABS                     | ES   | 926255523 | 174 775.00                        | 174 775.00       |
| 6            | BEN  | UAM            | UNIVERSIDAD AUTONOMA DE MANIZALES            | CO   | 972974409 | 144 662.50                        | 144 662.50       |
| 7            | BEN  | FNC            | FEDERACION NACIONAL DE CAFETEROS DE COLOMBIA | CO   | 920885312 | 101 150.00                        | 101 150.00       |
| 8            | BEN  | FIA            | FUNDACION PARA LA INNOVACION AGRARIA         | CL   | 910607774 | 126 650.00                        | 126 650.00       |
| <b>Total</b> |      |                |  |      |           | 1 499 893.75                      | 1 499 893.75     |

**Coordinator:**

- LESPROJEKT SLUZBY SRO (LESPRO)

**3. Grant****Maximum grant amount, total estimated eligible costs and contributions and funding rate:**

| Total eligible costs (BEN and AE) | Funding rate (%) | Maximum grant amount (Annex 2) | Maximum grant amount (award decision) |
|-----------------------------------|------------------|--------------------------------|---------------------------------------|
| 1 499 893.75                      | 100              | 1 499 893.75                   | 1 499 893.75                          |

**Grant form:** Budget-based**Grant mode:** Action grant**Budget categories/activity types:**

- A. Personnel costs
  - A.1 Employees, A.2 Natural persons under direct contract, A.3 Seconded persons
  - A.4 SME owners and natural person beneficiaries
- B. Subcontracting costs
- C. Purchase costs
  - C.1 Travel and subsistence
  - C.2 Equipment
  - C.3 Other goods, works and services
- D. Other cost categories
  - D.1 Financial support to third parties
  - D.2 Internally invoiced goods and services
  - D.3 Transnational access to research infrastructure unit costs
  - D.4 Virtual access to research infrastructure unit costs
- E. Indirect costs

**Cost eligibility options:**

- In-kind contributions eligible costs
- Parental leave
- Project-based supplementary payments
- Average personnel costs (unit cost according to usual cost accounting practices)

- Limitation for subcontracting
- Travel and subsistence:
  - Travel: Actual costs
  - Accommodation: Actual costs
  - Subsistence: Actual costs
- Equipment: depreciation only
- Costs for providing financial support to third parties (actual cost; max amount for each recipient: EUR 60 000.00)
- Indirect cost flat-rate: 25% of the eligible direct costs (categories A-D, except volunteers costs, subcontracting costs, financial support to third parties and exempted specific cost categories, if any)
- VAT: Yes
- Other ineligible costs

**Budget flexibility:** Yes (no flexibility cap)

**4. Reporting, payments and recoveries**

**4.1 Continuous reporting** (art 21)

**Deliverables:** see Funding & Tenders Portal Continuous Reporting tool

**4.2 Periodic reporting and payments**

**Reporting and payment schedule** (art 21, 22):

| Reporting         |            |          |                 |                                       | Payments             |  |
|-------------------|------------|----------|-----------------|---------------------------------------|----------------------|--|
| Reporting periods |            |          | Type            | Deadline                              | Type                 | Deadline (time to pay)   |
| RP No             | Month from | Month to |                 |                                       |                      |  |
|                   |            |          |                 |                                       | Initial prefinancing | 30 days from entry into force/10 days before starting date – whichever is the latest |
| 1                 | 1          | 12       | Periodic report | 60 days after end of reporting period | Interim payment      | 90 days from receiving periodic report   |
| 2                 | 13         | 24       | Periodic report | 60 days after end of reporting period | Final payment        | 90 days from receiving periodic report   |

**Prefinancing payments and guarantees:**

| Prefinancing payment     |            |
|--------------------------|------------|
| Type                     | Amount     |
| Prefinancing 1 (initial) | 824 941.56 |

**Reporting and payment modalities** (art 21, 22):

Mutual Insurance Mechanism (MIM): Yes

MIM contribution: 5% of the maximum grant amount (74 994.69), retained from the initial prefinancing

Restrictions on distribution of initial prefinancing: The prefinancing may be distributed only if the minimum number of beneficiaries set out in the call conditions (if any) have acceded to the Agreement and only to beneficiaries that have acceded.

Interim payment ceiling (if any): 90% of the maximum grant amount

Exception for revenues: Yes

No-profit rule: Yes

Late payment interest: ECB + 3.5%

Bank account for payments:

CZ0320100000002702715982 FIOBCZPP

Conversion into euros: Double conversion

Reporting language: Language of the Agreement

#### **4.3 Certificates** (art 24):

Certificates on the financial statements (CFS):

Conditions:

Schedule: only at final payment, if threshold is reached

Standard threshold (beneficiary-level):

- financial statement: requested EU contribution to costs  $\geq$  EUR 430 000.00

Special threshold for beneficiaries with a systems and process audit(see Article 24): financial statement: requested EU contribution to costs  $\geq$  EUR 725 000.00

#### **4.4 Recoveries** (art 22)

##### **First-line liability for recoveries:**

Beneficiary termination: Beneficiary concerned

Final payment: Each beneficiary for their own debt

After final payment: Beneficiary concerned

##### **Joint and several liability for enforced recoveries (in case of non-payment):**

Individual financial responsibility: Each beneficiary is liable only for its own debts (and those of its affiliated entities, if any)

Joint and several liability of affiliated entities — n/a

#### **5. Consequences of non-compliance, applicable law & dispute settlement forum**

##### **Suspension and termination:**

Additional suspension grounds (art 31)

Additional termination grounds (art 32)

**Applicable law** (art 43):

Standard applicable law regime: EU law + law of Belgium

**Dispute settlement forum** (art 43):

Standard dispute settlement forum:

EU beneficiaries: EU General Court + EU Court of Justice (on appeal)

Non-EU beneficiaries: Courts of Brussels, Belgium (unless an international agreement provides for the enforceability of EU court judgements)

**6. Other**

**Specific rules (Annex 5):** Yes

**Standard time-limits after project end:**

Confidentiality (for X years after final payment): 5

Record-keeping (for X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

Reviews (up to X years after final payment): 2

Audits (up to X years after final payment): 2

Extension of findings from other grants to this grant (no later than X years after final payment): 2

Impact evaluation (up to X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

## **CHAPTER 1 GENERAL**

### **ARTICLE 1 — SUBJECT OF THE AGREEMENT**

This Agreement sets out the rights and obligations and terms and conditions applicable to the grant awarded for the implementation of the action set out in Chapter 2.

### **ARTICLE 2 — DEFINITIONS**

For the purpose of this Agreement, the following definitions apply:

Actions — The project which is being funded in the context of this Agreement.

Grant — The grant awarded in the context of this Agreement.

EU grants — Grants awarded by EU institutions, bodies, offices or agencies (including EU executive agencies, EU regulatory agencies, EDA, joint undertakings, etc.).

Participants — Entities participating in the action as beneficiaries, affiliated entities, associated partners, third parties giving in-kind contributions, subcontractors or recipients of financial support to third parties.

Beneficiaries (BEN) — The signatories of this Agreement (either directly or through an accession form).

Affiliated entities (AE) — Entities affiliated to a beneficiary within the meaning of Article 187 of EU Financial Regulation 2018/1046<sup>4</sup> which participate in the action with similar rights and obligations as the beneficiaries (obligation to implement action tasks and right to charge costs and claim contributions).

Associated partners (AP) — Entities which participate in the action, but without the right to charge costs or claim contributions.

Purchases — Contracts for goods, works or services needed to carry out the action (e.g. equipment, consumables and supplies) but which are not part of the action tasks (see Annex 1).

Subcontracting — Contracts for goods, works or services that are part of the action tasks (see Annex 1).

In-kind contributions — In-kind contributions within the meaning of Article 2(36) of EU Financial

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<sup>4</sup> For the definition, see Article 187 Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012 ('EU Financial Regulation') (OJ L 193, 30.7.2018, p. 1): "**affiliated entities** [are]:

- (a) entities that form a sole beneficiary [(i.e. where an entity is formed of several entities that satisfy the criteria for being awarded a grant, including where the entity is specifically established for the purpose of implementing an action to be financed by a grant)];
- (b) entities that satisfy the eligibility criteria and that do not fall within one of the situations referred to in Article 136(1) and 141(1) and that have a link with the beneficiary, in particular a legal or capital link, which is neither limited to the action nor established for the sole purpose of its implementation".

Regulation 2018/1046, i.e. non-financial resources made available free of charge by third parties.

Fraud — Fraud within the meaning of Article 3 of EU Directive 2017/1371<sup>5</sup> and Article 1 of the Convention on the protection of the European Communities' financial interests, drawn up by the Council Act of 26 July 1995<sup>6</sup>, as well as any other wrongful or criminal deception intended to result in financial or personal gain.

Irregularities — Any type of breach (regulatory or contractual) which could impact the EU financial interests, including irregularities within the meaning of Article 1(2) of EU Regulation 2988/95<sup>7</sup>.

Grave professional misconduct — Any type of unacceptable or improper behaviour in exercising one's profession, especially by employees, including grave professional misconduct within the meaning of Article 136(1)(c) of EU Financial Regulation 2018/1046.

Applicable EU, international and national law — Any legal acts or other (binding or non-binding) rules and guidance in the area concerned.

Portal — EU Funding & Tenders Portal; electronic portal and exchange system managed by the European Commission and used by itself and other EU institutions, bodies, offices or agencies for the management of their funding programmes (grants, procurements, prizes, etc.).

## **CHAPTER 2 ACTION**

### **ARTICLE 3 — ACTION**

The grant is awarded for the action **101131859 — COMUNIDAD** ('action'), as described in Annex 1.

### **ARTICLE 4 — DURATION AND STARTING DATE**

The duration and the starting date of the action are set out in the Data Sheet (see Point 1).

## **CHAPTER 3 GRANT**

### **ARTICLE 5 — GRANT**

#### **5.1 Form of grant**

The grant is an action grant<sup>8</sup> which takes the form of a budget-based mixed actual cost grant (i.e. a

<sup>5</sup> Directive (EU) 2017/1371 of the European Parliament and of the Council of 5 July 2017 on the fight against fraud to the Union's financial interests by means of criminal law (OJ L 198, 28.7.2017, p. 29).

<sup>6</sup> OJ C 316, 27.11.1995, p. 48.

<sup>7</sup> Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities financial interests (OJ L 312, 23.12.1995, p. 1).

<sup>8</sup> For the definition, see Article 180(2)(a) EU Financial Regulation 2018/1046: '**action grant**' means an EU grant to finance "an action intended to help achieve a Union policy objective".

grant based on actual costs incurred, but which may also include other forms of funding, such as unit costs or contributions, flat-rate costs or contributions, lump sum costs or contributions or financing not linked to costs).

## 5.2 Maximum grant amount

The maximum grant amount is set out in the Data Sheet (see Point 3) and in the estimated budget (Annex 2).

## 5.3 Funding rate

The funding rate for costs is 100% of the action's eligible costs.

Contributions are not subject to any funding rate.

## 5.4 Estimated budget, budget categories and forms of funding

The estimated budget for the action is set out in Annex 2.

It contains the estimated eligible costs and contributions for the action, broken down by participant and budget category.

Annex 2 also shows the types of costs and contributions (forms of funding)<sup>9</sup> to be used for each budget category.

If unit costs or contributions are used, the details on the calculation will be explained in Annex 2a.

## 5.5 Budget flexibility

The budget breakdown may be adjusted — without an amendment (see Article 39) — by transfers (between participants and budget categories), as long as this does not imply any substantive or important change to the description of the action in Annex 1.

However:

- changes to the budget category for volunteers (if used) always require an amendment
- changes to budget categories with lump sums costs or contributions (if used; including financing not linked to costs) always require an amendment
- changes to budget categories with higher funding rates or budget ceilings (if used) always require an amendment
- addition of amounts for subcontracts not provided for in Annex 1 either require an amendment or simplified approval in accordance with Article 6.2
- other changes require an amendment or simplified approval, if specifically provided for in Article 6.2
- flexibility caps: not applicable.

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<sup>9</sup> See Article 125 EU Financial Regulation 2018/1046.

## ARTICLE 6 — ELIGIBLE AND INELIGIBLE COSTS AND CONTRIBUTIONS

In order to be eligible, costs and contributions must meet the **eligibility** conditions set out in this Article.

### 6.1 General eligibility conditions

The **general eligibility conditions** are the following:

- (a) for actual costs:
  - (i) they must be actually incurred by the beneficiary
  - (ii) they must be incurred in the period set out in Article 4 (with the exception of costs relating to the submission of the final periodic report, which may be incurred afterwards; see Article 21)
  - (iii) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2
  - (iv) they must be incurred in connection with the action as described in Annex 1 and necessary for its implementation
  - (v) they must be identifiable and verifiable, in particular recorded in the beneficiary's accounts in accordance with the accounting standards applicable in the country where the beneficiary is established and with the beneficiary's usual cost accounting practices
  - (vi) they must comply with the applicable national law on taxes, labour and social security and
  - (vii) they must be reasonable, justified and must comply with the principle of sound financial management, in particular regarding economy and efficiency
- (b) for unit costs or contributions (if any):
  - (i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2
  - (ii) the units must:
    - be actually used or produced by the beneficiary in the period set out in Article 4 (with the exception of units relating to the submission of the final periodic report, which may be used or produced afterwards; see Article 21)
    - be necessary for the implementation of the action and
  - (iii) the number of units must be identifiable and verifiable, in particular supported by records and documentation (see Article 20)
- (c) for flat-rate costs or contributions (if any):
  - (i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

- (ii) the costs or contributions to which the flat-rate is applied must:
  - be eligible
  - relate to the period set out in Article 4 (with the exception of costs or contributions relating to the submission of the final periodic report, which may be incurred afterwards; see Article 21)

(d) for lump sum costs or contributions (if any):

- (i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2
- (ii) the work must be properly implemented by the beneficiary in accordance with Annex 1
- (iii) the deliverables/outputs must be achieved in the period set out in Article 4 (with the exception of deliverables/outputs relating to the submission of the final periodic report, which may be achieved afterwards; see Article 21)

(e) for unit, flat-rate or lump sum costs or contributions according to usual cost accounting practices (if any):

- (i) they must fulfil the general eligibility conditions for the type of cost concerned
- (ii) the cost accounting practices must be applied in a consistent manner, based on objective criteria, regardless of the source of funding

(f) for financing not linked to costs (if any): the results must be achieved or the conditions must be fulfilled as described in Annex 1.

In addition, for direct cost categories (e.g. personnel, travel & subsistence, subcontracting and other direct costs) only costs that are directly linked to the action implementation and can therefore be attributed to it directly are eligible. They must not include any indirect costs (i.e. costs that are only indirectly linked to the action, e.g. via cost drivers).

**In-kind contributions** provided by third parties free of charge may be declared as eligible direct costs by the beneficiaries which use them (under the same conditions as if they were their own, provided that they concern only direct costs and that the third parties and their in-kind contributions are set out in Annex 1 (or approved ex post in the periodic report, if their use does not entail changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants; ‘simplified approval procedure’).

## 6.2 Specific eligibility conditions for each budget category

For each budget category, the **specific eligibility conditions** are as follows:

### Direct costs

#### A. Personnel costs

**A.1 Costs for employees (or equivalent)** are eligible as personnel costs if they fulfil the general eligibility conditions and are related to personnel working for the beneficiary under an employment contract (or equivalent appointing act) and assigned to the action.

They must be limited to salaries (including net payments during parental leave), social security contributions, taxes and other costs linked to the remuneration, if they arise from national law or the employment contract (or equivalent appointing act) and be calculated on the basis of the costs actually incurred, in accordance with the following method:

{daily rate for the person  
multiplied by  
number of day-equivalents worked on the action (rounded up or down to the nearest half-day)}.

The daily rate must be calculated as:

{annual personnel costs for the person  
divided by  
215}.

The number of day-equivalents declared for a person must be identifiable and verifiable (see Article 20).

The actual time spent on parental leave by a person assigned to the action may be deducted from the 215 days indicated in the above formula.

The total number of day-equivalents declared in EU grants, for a person for a year, cannot be higher than 215, minus time spent on parental leave (if any).

For personnel which receives supplementary payments for work in projects (project-based remuneration), the personnel costs must be calculated at a rate which:

- corresponds to the actual remuneration costs paid by the beneficiary for the time worked by the person in the action over the reporting period
- does not exceed the remuneration costs paid by the beneficiary for work in similar projects funded by national schemes ('national projects reference')
- is defined based on objective criteria allowing to determine the amount to which the person is entitled

and

- reflects the usual practice of the beneficiary to pay consistently bonuses or supplementary payments for work in projects funded by national schemes.

The national projects reference is the remuneration defined in national law, collective labour agreement or written internal rules of the beneficiary applicable to work in projects funded by national schemes.

If there is no such national law, collective labour agreement or written internal rules or if the project-based remuneration is not based on objective criteria, the national project reference will be the average

remuneration of the person in the last full calendar year covered by the reporting period, excluding remuneration paid for work in EU actions.

If the beneficiary uses average personnel costs (unit cost according to usual cost accounting practices), the personnel costs must fulfil the general eligibility conditions for such unit costs and the daily rate must be calculated:

- using the actual personnel costs recorded in the beneficiary's accounts and excluding any costs which are ineligible or already included in other budget categories; the actual personnel costs may be adjusted on the basis of budgeted or estimated elements, if they are relevant for calculating the personnel costs, reasonable and correspond to objective and verifiable information

and

- according to usual cost accounting practices which are applied in a consistent manner, based on objective criteria, regardless of the source of funding.

**A.2 and A.3 Costs for natural persons working under a direct contract** other than an employment contract and costs for **seconded persons by a third party against payment** are also eligible as personnel costs, if they are assigned to the action, fulfil the general eligibility conditions and:

- (a) work under conditions similar to those of an employee (in particular regarding the way the work is organised, the tasks that are performed and the premises where they are performed) and
- (b) the result of the work belongs to the beneficiary (unless agreed otherwise).

They must be calculated on the basis of a rate which corresponds to the costs actually incurred for the direct contract or secondment and must not be significantly different from those for personnel performing similar tasks under an employment contract with the beneficiary.

**A.4** The work of **SME owners** for the action (i.e. owners of beneficiaries that are small and medium-sized enterprises<sup>10</sup> not receiving a salary) or **natural person beneficiaries** (i.e. beneficiaries that are natural persons not receiving a salary) may be declared as personnel costs, if they fulfil the general eligibility conditions and are calculated as unit costs in accordance with the method set out in Annex 2a.

## **B. Subcontracting costs**

**Subcontracting costs** for the action (including related duties, taxes and charges, such as non-deductible or non-refundable value added tax (VAT)) are eligible, if they are calculated on the basis of the costs actually incurred, fulfil the general eligibility conditions and are awarded using the

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<sup>10</sup> For the definition, see Commission Recommendation 2003/361/EC: micro, small or medium-sized enterprise (SME) are enterprises

- engaged in an economic activity, irrespective of their legal form (including, in particular, self-employed persons and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity) and
- employing fewer than 250 persons (expressed in 'annual working units' as defined in Article 5 of the Recommendation) and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million.

beneficiary's usual purchasing practices — provided these ensure subcontracts with best value for money (or if appropriate the lowest price) and that there is no conflict of interests (see Article 12).

Beneficiaries that are 'contracting authorities/entities' within the meaning of the EU Directives on public procurement must also comply with the applicable national law on public procurement.

Subcontracting may cover only a limited part of the action.

The tasks to be subcontracted and the estimated cost for each subcontract must be set out in Annex 1 and the total estimated costs of subcontracting per beneficiary must be set out in Annex 2 (or may be approved ex post in the periodic report, if the use of subcontracting does not entail changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants; 'simplified approval procedure').

### C. Purchase costs

**Purchase costs** for the action (including related duties, taxes and charges, such as non-deductible or non-refundable value added tax (VAT)) are eligible if they fulfil the general eligibility conditions and are bought using the beneficiary's usual purchasing practices — provided these ensure purchases with best value for money (or if appropriate the lowest price) and that there is no conflict of interests (see Article 12).

Beneficiaries that are 'contracting authorities/entities' within the meaning of the EU Directives on public procurement must also comply with the applicable national law on public procurement.

#### C.1 Travel and subsistence

Purchases for **travel, accommodation** and **subsistence** must be calculated as follows:

- travel: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel
- accommodation: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel
- subsistence: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel .

#### C.2 Equipment

Purchases of **equipment, infrastructure or other assets** used for the action must be declared as depreciation costs, calculated on the basis of the costs actually incurred and written off in accordance with international accounting standards and the beneficiary's usual accounting practices.

Only the portion of the costs that corresponds to the rate of actual use for the action during the action duration can be taken into account.

Costs for **renting or leasing** equipment, infrastructure or other assets are also eligible, if they do not exceed the depreciation costs of similar equipment, infrastructure or assets and do not include any financing fees.

#### C.3 Other goods, works and services

Purchases of **other goods, works and services** must be calculated on the basis of the costs actually incurred.

Such goods, works and services include, for instance, consumables and supplies, promotion, dissemination, protection of results, translations, publications, certificates and financial guarantees, if required under the Agreement.

## **D. Other cost categories**

### **D.1 Financial support to third parties**

**Costs for providing financial support to third parties** (in the form of **grants, prizes** or similar forms of support; if any) are eligible, if and as declared eligible in the call conditions, if they fulfil the general eligibility conditions, are calculated on the basis of the costs actually incurred and the support is implemented in accordance with the conditions set out in Annex 1.

These conditions must ensure objective and transparent selection procedures and include at least the following:

- (a) for grants (or similar):
  - (i) the maximum amount of financial support for each third party ('recipient'); this amount may not exceed the amount set out in the Data Sheet (see Point 3) or otherwise agreed with the granting authority
  - (ii) the criteria for calculating the exact amount of the financial support
  - (iii) the different types of activity that qualify for financial support, on the basis of a closed list
  - (iv) the persons or categories of persons that will be supported and
  - (v) the criteria and procedures for giving financial support
- (b) for prizes (or similar):
  - (i) the eligibility and award criteria
  - (ii) the amount of the prize and
  - (iii) the payment arrangements.

This cost will not be taken into account for the indirect cost flat-rate.

### **D.2 Internally invoiced goods and services**

**Costs for internally invoiced goods and services** directly used for the action may be declared as unit cost according to usual cost accounting practices, if and as declared eligible in the call conditions, if they fulfil the general eligibility conditions for such unit costs and the amount per unit is calculated:

- using the actual costs for the good or service recorded in the beneficiary's accounts, attributed either by direct measurement or on the basis of cost drivers, and excluding any cost which are ineligible or already included in other budget categories; the actual costs may be adjusted

on the basis of budgeted or estimated elements, if they are relevant for calculating the costs, reasonable and correspond to objective and verifiable information

and

- according to usual cost accounting practices which are applied in a consistent manner, based on objective criteria, regardless of the source of funding.

‘Internally invoiced goods and services’ means goods or services which are provided within the beneficiary’s organisation directly for the action and which the beneficiary values on the basis of its usual cost accounting practices.

This cost will not be taken into account for the indirect cost flat-rate.

### **D.3 Transnational access to research infrastructure unit costs**

**Unit costs for providing transnational access to research infrastructure** are eligible, if and as declared eligible in the call conditions, if they fulfil the general eligibility conditions, are calculated in accordance with the method set out in Annex 2a and exclude any cost which are ineligible or already included in other budget categories.

Beneficiaries that declare costs under this cost category cannot use other cost categories such as internally invoiced goods and services or equipment costs (for charging the capital costs of the infrastructure), unless explicitly allowed in the call conditions.

This cost will not be taken into account for the indirect cost flat-rate.

### **D.4 Virtual access to research infrastructure unit costs**

**Unit costs for providing virtual access to research infrastructure are eligible**, if and as declared eligible in the call conditions, if they fulfil the general eligibility conditions, are calculated in accordance with the method set out in Annex 2a and exclude any cost which are ineligible or already included in other budget categories.

Beneficiaries that declare costs under this cost category cannot use other cost categories such as internally invoiced goods and services or equipment costs (for charging the capital costs of the infrastructure), unless explicitly allowed by the call conditions.

This cost will not be taken into account for the indirect cost flat-rate.

### **Indirect costs**

#### **E. Indirect costs**

**Indirect costs** will be reimbursed at the flat-rate of 25% of the eligible direct costs (categories A-D, except volunteers costs, subcontracting costs, financial support to third parties and exempted specific cost categories, if any).

### **Contributions**

Not applicable

### **6.3 Ineligible costs and contributions**

The following costs or contributions are **ineligible**:

- (a) costs or contributions that do not comply with the conditions set out above (Article 6.1 and 6.2), in particular:
  - (i) costs related to return on capital and dividends paid by a beneficiary
  - (ii) debt and debt service charges
  - (iii) provisions for future losses or debts
  - (iv) interest owed
  - (v) currency exchange losses
  - (vi) bank costs charged by the beneficiary's bank for transfers from the granting authority
  - (vii) excessive or reckless expenditure
  - (viii) deductible or refundable VAT (including VAT paid by public bodies acting as public authority)
  - (ix) costs incurred or contributions for activities implemented during grant agreement suspension (see Article 31)
  - (x) in-kind contributions by third parties: not applicable
- (b) costs or contributions declared under other EU grants (or grants awarded by an EU Member State, non-EU country or other body implementing the EU budget), except for the following cases:
  - (i) Synergy actions: not applicable
  - (ii) if the action grant is combined with an operating grant<sup>11</sup> running during the same period and the beneficiary can demonstrate that the operating grant does not cover any (direct or indirect) costs of the action grant
- (c) costs or contributions for staff of a national (or regional/local) administration, for activities that are part of the administration's normal activities (i.e. not undertaken only because of the grant)
- (d) costs or contributions (especially travel and subsistence) for staff or representatives of EU institutions, bodies or agencies
- (e) other :
  - (i) country restrictions for eligible costs: not applicable
  - (ii) costs or contributions declared specifically ineligible in the call conditions.

#### 6.4 Consequences of non-compliance

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<sup>11</sup> For the definition, see Article 180(2)(b) of EU Financial Regulation 2018/1046: '**operating grant**' means an EU grant to finance "the functioning of a body which has an objective forming part of and supporting an EU policy".

If a beneficiary declares costs or contributions that are ineligible, they will be rejected (see Article 27).

This may also lead to other measures described in Chapter 5.

## **CHAPTER 4 GRANT IMPLEMENTATION**

### **SECTION 1 CONSORTIUM: BENEFICIARIES, AFFILIATED ENTITIES AND OTHER PARTICIPANTS**

#### **ARTICLE 7 — BENEFICIARIES**

The beneficiaries, as signatories of the Agreement, are fully responsible towards the granting authority for implementing it and for complying with all its obligations.

They must implement the Agreement to their best abilities, in good faith and in accordance with all the obligations and terms and conditions it sets out.

They must have the appropriate resources to implement the action and implement the action under their own responsibility and in accordance with Article 11. If they rely on affiliated entities or other participants (see Articles 8 and 9), they retain sole responsibility towards the granting authority and the other beneficiaries.

They are jointly responsible for the *technical* implementation of the action. If one of the beneficiaries fails to implement their part of the action, the other beneficiaries must ensure that this part is implemented by someone else (without being entitled to an increase of the maximum grant amount and subject to an amendment; see Article 39). The *financial* responsibility of each beneficiary in case of recoveries is governed by Article 22.

The beneficiaries (and their action) must remain eligible under the EU programme funding the grant for the entire duration of the action. Costs and contributions will be eligible only as long as the beneficiary and the action are eligible.

The **internal roles and responsibilities** of the beneficiaries are divided as follows:

- (a) Each beneficiary must:
  - (i) keep information stored in the Portal Participant Register up to date (see Article 19)
  - (ii) inform the granting authority (and the other beneficiaries) immediately of any events or circumstances likely to affect significantly or delay the implementation of the action (see Article 19)
  - (iii) submit to the coordinator in good time:
    - the prefinancing guarantees (if required; see Article 23)
    - the financial statements and certificates on the financial statements (CFS) (if required; see Articles 21 and 24.2 and Data Sheet, Point 4.3)
    - the contribution to the deliverables and technical reports (see Article 21)

- any other documents or information required by the granting authority under the Agreement
- (iv) submit via the Portal data and information related to the participation of their affiliated entities.
- (b) The coordinator must:
- (i) monitor that the action is implemented properly (see Article 11)
  - (ii) act as the intermediary for all communications between the consortium and the granting authority, unless the Agreement or granting authority specifies otherwise, and in particular:
    - submit the prefinancing guarantees to the granting authority (if any)
    - request and review any documents or information required and verify their quality and completeness before passing them on to the granting authority
    - submit the deliverables and reports to the granting authority
    - inform the granting authority about the payments made to the other beneficiaries (report on the distribution of payments; if required, see Articles 22 and 32)
  - (iii) distribute the payments received from the granting authority to the other beneficiaries without unjustified delay (see Article 22).

The coordinator may not delegate or subcontract the above-mentioned tasks to any other beneficiary or third party (including affiliated entities).

However, coordinators which are public bodies may delegate the tasks set out in Point (b)(ii) last indent and (iii) above to entities with ‘authorisation to administer’ which they have created or which are controlled by or affiliated to them. In this case, the coordinator retains sole responsibility for the payments and for compliance with the obligations under the Agreement.

Moreover, coordinators which are ‘sole beneficiaries’<sup>12</sup> (or similar, such as European research infrastructure consortia (ERICs)) may delegate the tasks set out in Point (b)(i) to (iii) above to one of their members. The coordinator retains sole responsibility for compliance with the obligations under the Agreement.

The beneficiaries must have **internal arrangements** regarding their operation and co-ordination, to ensure that the action is implemented properly.

If required by the granting authority (see Data Sheet, Point 1), these arrangements must be set out in a written **consortium agreement** between the beneficiaries, covering for instance:

- the internal organisation of the consortium

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<sup>12</sup> For the definition, see Article 187(2) EU Financial Regulation 2018/1046: “Where several entities satisfy the criteria for being awarded a grant and together form one entity, that entity may be treated as the **sole beneficiary**, including where it is specifically established for the purpose of implementing the action financed by the grant.”

- the management of access to the Portal
- different distribution keys for the payments and financial responsibilities in case of recoveries (if any)
- additional rules on rights and obligations related to background and results (see Article 16)
- settlement of internal disputes
- liability, indemnification and confidentiality arrangements between the beneficiaries.

The internal arrangements must not contain any provision contrary to this Agreement.

## **ARTICLE 8 — AFFILIATED ENTITIES**

Not applicable

## **ARTICLE 9 — OTHER PARTICIPANTS INVOLVED IN THE ACTION**

### **9.1 Associated partners**

Not applicable

### **9.2 Third parties giving in-kind contributions to the action**

Other third parties may give in-kind contributions to the action (i.e. personnel, equipment, other goods, works and services, etc. which are free-of-charge) if necessary for the implementation.

Third parties giving in-kind contributions do not implement any action tasks. They may not charge costs or contributions to the action, but the costs for the in-kind contributions are eligible and may be charged by the beneficiaries which use them, under the conditions set out in Article 6. The costs will be included in Annex 2 as part of the beneficiaries' costs.

The third parties and their in-kind contributions should be set out in Annex 1.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the third parties giving in-kind contributions.

### **9.3 Subcontractors**

Subcontractors may participate in the action, if necessary for the implementation.

Subcontractors must implement their action tasks in accordance with Article 11. The costs for the subcontracted tasks (invoiced price from the subcontractor) are eligible and may be charged by the beneficiaries, under the conditions set out in Article 6. The costs will be included in Annex 2 as part of the beneficiaries' costs.

The beneficiaries must ensure that their contractual obligations under Articles 11 (proper implementation), 12 (conflict of interest), 13 (confidentiality and security), 14 (ethics), 17.2 (visibility), 18 (specific rules for carrying out action), 19 (information) and 20 (record-keeping) also apply to the subcontractors.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the subcontractors.

#### **9.4 Recipients of financial support to third parties**

If the action includes providing financial support to third parties (e.g. grants, prizes or similar forms of support), the beneficiaries must ensure that their contractual obligations under Articles 12 (conflict of interest), 13 (confidentiality and security), 14 (ethics), 17.2 (visibility), 18 (specific rules for carrying out action), 19 (information) and 20 (record-keeping) also apply to the third parties receiving the support (recipients).

The beneficiaries must also ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the recipients.

### **ARTICLE 10 — PARTICIPANTS WITH SPECIAL STATUS**

#### **10.1 Non-EU participants**

Participants which are established in a non-EU country (if any) undertake to comply with their obligations under the Agreement and:

- to respect general principles (including fundamental rights, values and ethical principles, environmental and labour standards, rules on classified information, intellectual property rights, visibility of funding and protection of personal data)
- for the submission of certificates under Article 24: to use qualified external auditors which are independent and comply with comparable standards as those set out in EU Directive 2006/43/EC<sup>13</sup>
- for the controls under Article 25: to allow for checks, reviews, audits and investigations (including on-the-spot checks, visits and inspections) by the bodies mentioned in that Article (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.).

Special rules on dispute settlement apply (see Data Sheet, Point 5).

#### **10.2 Participants which are international organisations**

Participants which are international organisations (IOs; if any) undertake to comply with their obligations under the Agreement and:

- to respect general principles (including fundamental rights, values and ethical principles, environmental and labour standards, rules on classified information, intellectual property rights, visibility of funding and protection of personal data)
- for the submission of certificates under Article 24: to use either independent public officers or external auditors which comply with comparable standards as those set out in EU Directive 2006/43/EC

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<sup>13</sup> Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts or similar national regulations (OJ L 157, 9.6.2006, p. 87).

- for the controls under Article 25: to allow for the checks, reviews, audits and investigations by the bodies mentioned in that Article, taking into account the specific agreements concluded by them and the EU (if any).

For such participants, nothing in the Agreement will be interpreted as a waiver of their privileges or immunities, as accorded by their constituent documents or international law.

Special rules on applicable law and dispute settlement apply (see Article 43 and Data Sheet, Point 5).

### **10.3 Pillar-assessed participants**

Pillar-assessed participants (if any) may rely on their own systems, rules and procedures, in so far as they have been positively assessed and do not call into question the decision awarding the grant or breach the principle of equal treatment of applicants or beneficiaries.

‘Pillar-assessment’ means a review by the European Commission on the systems, rules and procedures which participants use for managing EU grants (in particular internal control system, accounting system, external audits, financing of third parties, rules on recovery and exclusion, information on recipients and protection of personal data; see Article 154 EU Financial Regulation 2018/1046).

Participants with a positive pillar assessment may rely on their own systems, rules and procedures, in particular for:

- record-keeping (Article 20): may be done in accordance with internal standards, rules and procedures
- currency conversion for financial statements (Article 21): may be done in accordance with usual accounting practices
- guarantees (Article 23): for public law bodies, prefinancing guarantees are not needed
- certificates (Article 24):
  - certificates on the financial statements (CFS): may be provided by their regular internal or external auditors and in accordance with their internal financial regulations and procedures
  - certificates on usual accounting practices (CoMUC): are not needed if those practices are covered by an ex-ante assessment

and use the following specific rules, for:

- recoveries (Article 22): in case of financial support to third parties, there will be no recovery if the participant has done everything possible to retrieve the undue amounts from the third party receiving the support (including legal proceedings) and non-recovery is not due to an error or negligence on its part
- checks, reviews, audits and investigations by the EU (Article 25): will be conducted taking into account the rules and procedures specifically agreed between them and the framework agreement (if any)

- impact evaluation (Article 26): will be conducted in accordance with the participant's internal rules and procedures and the framework agreement (if any)
- grant agreement suspension (Article 31): certain costs incurred during grant suspension are eligible (notably, minimum costs necessary for a possible resumption of the action and costs relating to contracts which were entered into before the pre-information letter was received and which could not reasonably be suspended, reallocated or terminated on legal grounds)
- grant agreement termination (Article 32): the final grant amount and final payment will be calculated taking into account also costs relating to contracts due for execution only after termination takes effect, if the contract was entered into before the pre-information letter was received and could not reasonably be terminated on legal grounds
- liability for damages (Article 33.2): the granting authority must be compensated for damage it sustains as a result of the implementation of the action or because the action was not implemented in full compliance with the Agreement only if the damage is due to an infringement of the participant's internal rules and procedures or due to a violation of third parties' rights by the participant or one of its employees or individual for whom the employees are responsible.

Participants whose pillar assessment covers procurement and granting procedures may also do purchases, subcontracting and financial support to third parties (Article 6.2) in accordance with their internal rules and procedures for purchases, subcontracting and financial support.

Participants whose pillar assessment covers data protection rules may rely on their internal standards, rules and procedures for data protection (Article 15).

The participants may however not rely on provisions which would breach the principle of equal treatment of applicants or beneficiaries or call into question the decision awarding the grant, such as in particular:

- eligibility (Article 6)
- consortium roles and set-up (Articles 7-9)
- security and ethics (Articles 13, 14)
- IPR (including background and results, access rights and rights of use), communication, dissemination and visibility (Articles 16 and 17)
- information obligation (Article 19)
- payment, reporting and amendments (Articles 21, 22 and 39)
- rejections, reductions, suspensions and terminations (Articles 27, 28, 29-32)

If the pillar assessment was subject to remedial measures, reliance on the internal systems, rules and procedures is subject to compliance with those remedial measures.

Participants whose assessment has not yet been updated to cover (the new rules on) data protection may rely on their internal systems, rules and procedures, provided that they ensure that personal data is:

- processed lawfully, fairly and in a transparent manner in relation to the data subject

- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed
- accurate and, where necessary, kept up to date
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed and
- processed in a manner that ensures appropriate security of the personal data.

Participants must inform the coordinator without delay of any changes to the systems, rules and procedures that were part of the pillar assessment. The coordinator must immediately inform the granting authority.

Pillar-assessed participants that have also concluded a framework agreement with the EU, may moreover — under the same conditions as those above (i.e. not call into question the decision awarding the grant or breach the principle of equal treatment of applicants or beneficiaries) — rely on the provisions set out in that framework agreement.

## **SECTION 2 RULES FOR CARRYING OUT THE ACTION**

### **ARTICLE 11 — PROPER IMPLEMENTATION OF THE ACTION**

#### **11.1 Obligation to properly implement the action**

The beneficiaries must implement the action as described in Annex 1 and in compliance with the provisions of the Agreement, the call conditions and all legal obligations under applicable EU, international and national law.

#### **11.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

### **ARTICLE 12 — CONFLICT OF INTERESTS**

#### **12.1 Conflict of interests**

The beneficiaries must take all measures to prevent any situation where the impartial and objective implementation of the Agreement could be compromised for reasons involving family, emotional life, political or national affinity, economic interest or any other direct or indirect interest ('conflict of interests').

They must formally notify the granting authority without delay of any situation constituting or likely to lead to a conflict of interests and immediately take all the necessary steps to rectify this situation.

The granting authority may verify that the measures taken are appropriate and may require additional measures to be taken by a specified deadline.

## **12.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28) and the grant or the beneficiary may be terminated (see Article 32).

Such breaches may also lead to other measures described in Chapter 5.

## **ARTICLE 13 — CONFIDENTIALITY AND SECURITY**

### **13.1 Sensitive information**

The parties must keep confidential any data, documents or other material (in any form) that is identified as sensitive in writing (‘sensitive information’) — during the implementation of the action and for at least until the time-limit set out in the Data Sheet (see Point 6).

If a beneficiary requests, the granting authority may agree to keep such information confidential for a longer period.

Unless otherwise agreed between the parties, they may use sensitive information only to implement the Agreement.

The beneficiaries may disclose sensitive information to their personnel or other participants involved in the action only if they:

- (a) need to know it in order to implement the Agreement and
- (b) are bound by an obligation of confidentiality.

The granting authority may disclose sensitive information to its staff and to other EU institutions and bodies.

It may moreover disclose sensitive information to third parties, if:

- (a) this is necessary to implement the Agreement or safeguard the EU financial interests and
- (b) the recipients of the information are bound by an obligation of confidentiality.

The confidentiality obligations no longer apply if:

- (a) the disclosing party agrees to release the other party
- (b) the information becomes publicly available, without breaching any confidentiality obligation
- (c) the disclosure of the sensitive information is required by EU, international or national law.

Specific confidentiality rules (if any) are set out in Annex 5.

### **13.2 Classified information**

The parties must handle classified information in accordance with the applicable EU, international or national law on classified information (in particular, Decision 2015/444<sup>14</sup> and its implementing rules).

Deliverables which contain classified information must be submitted according to special procedures agreed with the granting authority.

Action tasks involving classified information may be subcontracted only after explicit approval (in writing) from the granting authority.

Classified information may not be disclosed to any third party (including participants involved in the action implementation) without prior explicit written approval from the granting authority.

Specific security rules (if any) are set out in Annex 5.

### **13.3 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

## **ARTICLE 14 — ETHICS AND VALUES**

### **14.1 Ethics**

The action must be carried out in line with the highest ethical standards and the applicable EU, international and national law on ethical principles.

Specific ethics rules (if any) are set out in Annex 5.

### **14.2 Values**

The beneficiaries must commit to and ensure the respect of basic EU values (such as respect for human dignity, freedom, democracy, equality, the rule of law and human rights, including the rights of minorities).

Specific rules on values (if any) are set out in Annex 5.

### **14.3 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

## **ARTICLE 15 — DATA PROTECTION**

### **15.1 Data processing by the granting authority**

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<sup>14</sup> Commission Decision 2015/444/EC, Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

Any personal data under the Agreement will be processed under the responsibility of the data controller of the granting authority in accordance with and for the purposes set out in the Portal Privacy Statement.

For grants where the granting authority is the European Commission, an EU regulatory or executive agency, joint undertaking or other EU body, the processing will be subject to Regulation 2018/1725<sup>15</sup>.

## 15.2 Data processing by the beneficiaries

The beneficiaries must process personal data under the Agreement in compliance with the applicable EU, international and national law on data protection (in particular, Regulation 2016/679<sup>16</sup>).

They must ensure that personal data is:

- processed lawfully, fairly and in a transparent manner in relation to the data subjects
- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed
- accurate and, where necessary, kept up to date
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed and
- processed in a manner that ensures appropriate security of the data.

The beneficiaries may grant their personnel access to personal data only if it is strictly necessary for implementing, managing and monitoring the Agreement. The beneficiaries must ensure that the personnel is under a confidentiality obligation.

The beneficiaries must inform the persons whose data are transferred to the granting authority and provide them with the Portal Privacy Statement.

## 15.3 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

## **ARTICLE 16 — INTELLECTUAL PROPERTY RIGHTS (IPR) — BACKGROUND AND RESULTS — ACCESS RIGHTS AND RIGHTS OF USE**

<sup>15</sup> Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, p. 39).

<sup>16</sup> Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC ('GDPR') (OJ L 119, 4.5.2016, p. 1).

## 16.1 Background and access rights to background

The beneficiaries must give each other and the other participants access to the background identified as needed for implementing the action, subject to any specific rules in Annex 5.

‘Background’ means any data, know-how or information — whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights — that is:

- (a) held by the beneficiaries before they acceded to the Agreement and
- (b) needed to implement the action or exploit the results.

If background is subject to rights of a third party, the beneficiary concerned must ensure that it is able to comply with its obligations under the Agreement.

## 16.2 Ownership of results

The granting authority does not obtain ownership of the results produced under the action.

‘Results’ means any tangible or intangible effect of the action, such as data, know-how or information, whatever its form or nature, whether or not it can be protected, as well as any rights attached to it, including intellectual property rights.

## 16.3 Rights of use of the granting authority on materials, documents and information received for policy, information, communication, dissemination and publicity purposes

The granting authority has the right to use non-sensitive information relating to the action and materials and documents received from the beneficiaries (notably summaries for publication, deliverables, as well as any other material, such as pictures or audio-visual material, in paper or electronic form) for policy, information, communication, dissemination and publicity purposes — during the action or afterwards.

The right to use the beneficiaries’ materials, documents and information is granted in the form of a royalty-free, non-exclusive and irrevocable licence, which includes the following rights:

- (a) **use for its own purposes** (in particular, making them available to persons working for the granting authority or any other EU service (including institutions, bodies, offices, agencies, etc.) or EU Member State institution or body; copying or reproducing them in whole or in part, in unlimited numbers; and communication through press information services)
- (b) **distribution to the public** (in particular, publication as hard copies and in electronic or digital format, publication on the internet, as a downloadable or non-downloadable file, broadcasting by any channel, public display or presentation, communicating through press information services, or inclusion in widely accessible databases or indexes)
- (c) **editing or redrafting** (including shortening, summarising, inserting other elements (e.g. meta-data, legends, other graphic, visual, audio or text elements), extracting parts (e.g. audio or video files), dividing into parts, use in a compilation)
- (d) **translation**
- (e) **storage** in paper, electronic or other form

- (f) **archiving**, in line with applicable document-management rules
- (g) the right to authorise **third parties** to act on its behalf or sub-license to third parties the modes of use set out in Points (b), (c), (d) and (f), if needed for the information, communication and publicity activity of the granting authority
- (h) **processing**, analysing, aggregating the materials, documents and information received and **producing derivative works**.

The rights of use are granted for the whole duration of the industrial or intellectual property rights concerned.

If materials or documents are subject to moral rights or third party rights (including intellectual property rights or rights of natural persons on their image and voice), the beneficiaries must ensure that they comply with their obligations under this Agreement (in particular, by obtaining the necessary licences and authorisations from the rights holders concerned).

Where applicable, the granting authority will insert the following information:

“© – [year] – [name of the copyright owner]. All rights reserved. Licensed to the [name of granting authority] under conditions.”

#### **16.4 Specific rules on IPR, results and background**

Specific rules regarding intellectual property rights, results and background (if any) are set out in Annex 5.

#### **16.5 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such a breach may also lead to other measures described in Chapter 5.

### **ARTICLE 17 — COMMUNICATION, DISSEMINATION AND VISIBILITY**

#### **17.1 Communication — Dissemination — Promoting the action**

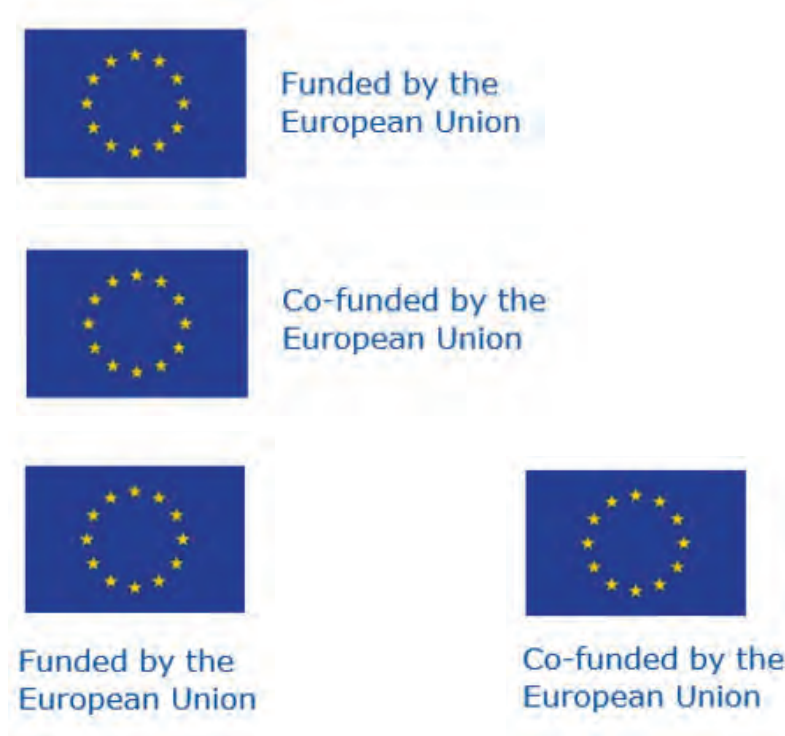
Unless otherwise agreed with the granting authority, the beneficiaries must promote the action and its results by providing targeted information to multiple audiences (including the media and the public), in accordance with Annex 1 and in a strategic, coherent and effective manner.

Before engaging in a communication or dissemination activity expected to have a major media impact, the beneficiaries must inform the granting authority.

#### **17.2 Visibility — European flag and funding statement**

Unless otherwise agreed with the granting authority, communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded

by the grant must acknowledge EU support and display the European flag (emblem) and funding statement (translated into local languages, where appropriate):



The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text.

Apart from the emblem, no other visual identity or logo may be used to highlight the EU support.

When displayed in association with other logos (e.g. of beneficiaries or sponsors), the emblem must be displayed at least as prominently and visibly as the other logos.

For the purposes of their obligations under this Article, the beneficiaries may use the emblem without first obtaining approval from the granting authority. This does not, however, give them the right to exclusive use. Moreover, they may not appropriate the emblem or any similar trademark or logo, either by registration or by any other means.

### 17.3 Quality of information — Disclaimer

Any communication or dissemination activity related to the action must use factually accurate information.

Moreover, it must indicate the following disclaimer (translated into local languages where appropriate):

“Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them.”

### 17.4 Specific communication, dissemination and visibility rules

Specific communication, dissemination and visibility rules (if any) are set out in Annex 5.

## **17.5 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

## **ARTICLE 18 — SPECIFIC RULES FOR CARRYING OUT THE ACTION**

### **18.1 Specific rules for carrying out the action**

Specific rules for implementing the action (if any) are set out in Annex 5.

### **18.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such a breach may also lead to other measures described in Chapter 5.

## **SECTION 3 GRANT ADMINISTRATION**

### **ARTICLE 19 — GENERAL INFORMATION OBLIGATIONS**

#### **19.1 Information requests**

The beneficiaries must provide — during the action or afterwards and in accordance with Article 7 — any information requested in order to verify eligibility of the costs or contributions declared, proper implementation of the action and compliance with the other obligations under the Agreement.

The information provided must be accurate, precise and complete and in the format requested, including electronic format.

#### **19.2 Participant Register data updates**

The beneficiaries must keep — at all times, during the action or afterwards — their information stored in the Portal Participant Register up to date, in particular, their name, address, legal representatives, legal form and organisation type.

#### **19.3 Information about events and circumstances which impact the action**

The beneficiaries must immediately inform the granting authority (and the other beneficiaries) of any of the following:

- (a) **events** which are likely to affect or delay the implementation of the action or affect the EU's financial interests, in particular:
  - (i) changes in their legal, financial, technical, organisational or ownership situation (including changes linked to one of the exclusion grounds listed in the declaration of honour signed before grant signature)

(ii) linked action information: not applicable

(b) **circumstances** affecting:

(i) the decision to award the grant or

(ii) compliance with requirements under the Agreement.

#### **19.4 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

### **ARTICLE 20 — RECORD-KEEPING**

#### **20.1 Keeping records and supporting documents**

The beneficiaries must — at least until the time-limit set out in the Data Sheet (see Point 6) — keep records and other supporting documents to prove the proper implementation of the action in line with the accepted standards in the respective field (if any).

In addition, the beneficiaries must — for the same period — keep the following to justify the amounts declared:

- (a) for actual costs: adequate records and supporting documents to prove the costs declared (such as contracts, subcontracts, invoices and accounting records); in addition, the beneficiaries' usual accounting and internal control procedures must enable direct reconciliation between the amounts declared, the amounts recorded in their accounts and the amounts stated in the supporting documents
- (b) for flat-rate costs and contributions (if any): adequate records and supporting documents to prove the eligibility of the costs or contributions to which the flat-rate is applied
- (c) for the following simplified costs and contributions: the beneficiaries do not need to keep specific records on the actual costs incurred, but must keep:
  - (i) for unit costs and contributions (if any): adequate records and supporting documents to prove the number of units declared
  - (ii) for lump sum costs and contributions (if any): adequate records and supporting documents to prove proper implementation of the work as described in Annex 1
  - (iii) for financing not linked to costs (if any): adequate records and supporting documents to prove the achievement of the results or the fulfilment of the conditions as described in Annex 1
- (d) for unit, flat-rate and lump sum costs and contributions according to usual cost accounting practices (if any): the beneficiaries must keep any adequate records and supporting documents to prove that their cost accounting practices have been applied in a consistent manner, based on

objective criteria, regardless of the source of funding, and that they comply with the eligibility conditions set out in Articles 6.1 and 6.2.

Moreover, the following is needed for specific budget categories:

- (e) for personnel costs: time worked for the beneficiary under the action must be supported by declarations signed monthly by the person and their supervisor, unless another reliable time-record system is in place; the granting authority may accept alternative evidence supporting the time worked for the action declared, if it considers that it offers an adequate level of assurance
- (f) additional record-keeping rules: not applicable

The records and supporting documents must be made available upon request (see Article 19) or in the context of checks, reviews, audits or investigations (see Article 25).

If there are on-going checks, reviews, audits, investigations, litigation or other pursuits of claims under the Agreement (including the extension of findings; see Article 25), the beneficiaries must keep these records and other supporting documentation until the end of these procedures.

The beneficiaries must keep the original documents. Digital and digitalised documents are considered originals if they are authorised by the applicable national law. The granting authority may accept non-original documents if they offer a comparable level of assurance.

## 20.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, costs or contributions insufficiently substantiated will be ineligible (see Article 6) and will be rejected (see Article 27), and the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

## ARTICLE 21 — REPORTING

### 21.1 Continuous reporting

The beneficiaries must continuously report on the progress of the action (e.g. **deliverables, milestones, outputs/outcomes, critical risks, indicators**, etc; if any), in the Portal Continuous Reporting tool and in accordance with the timing and conditions it sets out (as agreed with the granting authority).

Standardised deliverables (e.g. progress reports not linked to payments, reports on cumulative expenditure, special reports, etc; if any) must be submitted using the templates published on the Portal.

### 21.2 Periodic reporting: Technical reports and financial statements

In addition, the beneficiaries must provide reports to request payments, in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2):

- for additional prefinancings (if any): an **additional prefinancing report**
- for interim payments (if any) and the final payment: a **periodic report**.

The prefinancing and periodic reports include a technical and financial part.

The technical part includes an overview of the action implementation. It must be prepared using the template available in the Portal Periodic Reporting tool.

The financial part of the additional prefinancing report includes a statement on the use of the previous prefinancing payment.

The financial part of the periodic report includes:

- the financial statements (individual and consolidated; for all beneficiaries/affiliated entities)
- the explanation on the use of resources (or detailed cost reporting table, if required)
- the certificates on the financial statements (CFS) (if required; see Article 24.2 and Data Sheet, Point 4.3).

The **financial statements** must detail the eligible costs and contributions for each budget category and, for the final payment, also the revenues for the action (see Articles 6 and 22).

All eligible costs and contributions incurred should be declared, even if they exceed the amounts indicated in the estimated budget (see Annex 2). Amounts that are not declared in the individual financial statements will not be taken into account by the granting authority.

By signing the financial statements (directly in the Portal Periodic Reporting tool), the beneficiaries confirm that:

- the information provided is complete, reliable and true
- the costs and contributions declared are eligible (see Article 6)
- the costs and contributions can be substantiated by adequate records and supporting documents (see Article 20) that will be produced upon request (see Article 19) or in the context of checks, reviews, audits and investigations (see Article 25)
- for the final periodic report: all the revenues have been declared (if required; see Article 22).

Beneficiaries will have to submit also the financial statements of their affiliated entities (if any). In case of recoveries (see Article 22), beneficiaries will be held responsible also for the financial statements of their affiliated entities.

### **21.3 Currency for financial statements and conversion into euros**

The financial statements must be drafted in euro.

Beneficiaries with general accounts established in a currency other than the euro must convert the costs recorded in their accounts into euro, at the average of the daily exchange rates published in the C series of the *Official Journal of the European Union* (ECB website), calculated over the corresponding reporting period.

If no daily euro exchange rate is published in the *Official Journal* for the currency in question, they must be converted at the average of the monthly accounting exchange rates published on the European Commission website (InforEuro), calculated over the corresponding reporting period.

Beneficiaries with general accounts in euro must convert costs incurred in another currency into euro according to their usual accounting practices.

#### **21.4 Reporting language**

The reporting must be in the language of the Agreement, unless otherwise agreed with the granting authority (see Data Sheet, Point 4.2).

#### **21.5 Consequences of non-compliance**

If a report submitted does not comply with this Article, the granting authority may suspend the payment deadline (see Article 29) and apply other measures described in Chapter 5.

If the coordinator breaches its reporting obligations, the granting authority may terminate the grant or the coordinator's participation (see Article 32) or apply other measures described in Chapter 5.

### **ARTICLE 22 — PAYMENTS AND RECOVERIES — CALCULATION OF AMOUNTS DUE**

#### **22.1 Payments and payment arrangements**

Payments will be made in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2).

They will be made in euro to the bank account indicated by the coordinator (see Data Sheet, Point 4.2) and must be distributed without unjustified delay (restrictions may apply to distribution of the initial prefinancing payment; see Data Sheet, Point 4.2).

Payments to this bank account will discharge the granting authority from its payment obligation.

The cost of payment transfers will be borne as follows:

- the granting authority bears the cost of transfers charged by its bank
- the beneficiary bears the cost of transfers charged by its bank
- the party causing a repetition of a transfer bears all costs of the repeated transfer.

Payments by the granting authority will be considered to have been carried out on the date when they are debited to its account.

#### **22.2 Recoveries**

Recoveries will be made, if — at beneficiary termination, final payment or afterwards — it turns out that the granting authority has paid too much and needs to recover the amounts undue.

Each beneficiary's financial responsibility in case of recovery is in principle limited to their own debt and undue amounts of their affiliated entities.

In case of enforced recoveries (see Article 22.4), affiliated entities will be held liable for repaying debts of their beneficiaries, if required by the granting authority (see Data Sheet, Point 4.4).

## 22.3 Amounts due

### 22.3.1 Prefinancing payments

The aim of the prefinancing is to provide the beneficiaries with a float.

It remains the property of the EU until the final payment.

For **initial prefinancings** (if any), the amount due, schedule and modalities are set out in the Data Sheet (see Point 4.2).

For **additional prefinancings** (if any), the amount due, schedule and modalities are also set out in the Data Sheet (see Point 4.2). However, if the statement on the use of the previous prefinancing payment shows that less than 70% was used, the amount set out in the Data Sheet will be reduced by the difference between the 70% threshold and the amount used.

The contribution to the Mutual Insurance Mechanism will be retained from the prefinancing payments (at the rate and in accordance with the modalities set out in the Data Sheet, see Point 4.2) and transferred to the Mechanism.

Prefinancing payments (or parts of them) may be offset (without the beneficiaries' consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency, offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

### 22.3.2 Amount due at beneficiary termination — Recovery

In case of beneficiary termination, the granting authority will determine the provisional amount due for the beneficiary concerned. Payments (if any) will be made with the next interim or final payment.

The **amount due** will be calculated in the following step:

Step 1 — Calculation of the total accepted EU contribution

#### Step 1 — Calculation of the total accepted EU contribution

The granting authority will first calculate the 'accepted EU contribution' for the beneficiary for all reporting periods, by calculating the 'maximum EU contribution to costs' (applying the funding rate to the accepted costs of the beneficiary), taking into account requests for a lower contribution to costs and CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions (if any). The resulting amount is the 'total accepted EU contribution' for the beneficiary.

The **balance** is then calculated by deducting the payments received (if any; see report on the distribution of payments in Article 32), from the total accepted EU contribution:

{total accepted EU contribution for the beneficiary  
minus  
{prefinancing and interim payments received (if any)} }.

If the balance is **positive**, the amount will be included in the next interim or final payment to the consortium.

If the balance is **negative**, it will be **recovered** in accordance with the following procedure:

The granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to recover, the amount due, the amount to be recovered and the reasons why and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received), it will confirm the amount to be recovered and ask this amount to be paid to the coordinator (**confirmation letter**).

If payment is not made to the coordinator by the date specified in the confirmation letter, the granting authority may call on the Mutual Insurance Mechanism to intervene, if continuation of the action is guaranteed and the conditions set out in the rules governing the Mechanism are met.

In this case, it will send a **beneficiary recovery letter**, together with a **debit note** with the terms and date for payment.

The debit note for the beneficiary will include the amount calculated for the affiliated entities which also had to end their participation (if any).

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

The amounts will later on also be taken into account for the next interim or final payment.

### 22.3.3 Interim payments

Interim payments reimburse the eligible costs and contributions claimed for the implementation of the action during the reporting periods (if any).

Interim payments (if any) will be made in accordance with the schedule and modalities set out the Data Sheet (see Point 4.2).

Payment is subject to the approval of the periodic report. Its approval does not imply recognition of compliance, authenticity, completeness or correctness of its content.

The **interim payment** will be calculated by the granting authority in the following steps:

- Step 1 — Calculation of the total accepted EU contribution
- Step 2 — Limit to the interim payment ceiling

### Step 1 — Calculation of the total accepted EU contribution

The granting authority will calculate the ‘accepted EU contribution’ for the action for the reporting period, by first calculating the ‘maximum EU contribution to costs’ (applying the funding rate to the accepted costs of each beneficiary), taking into account requests for a lower contribution to costs, and CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions from beneficiary termination (if any). The resulting amount is the ‘total accepted EU contribution’.

### Step 2 — Limit to the interim payment ceiling

The resulting amount is then capped to ensure that the total amount of prefinancing and interim payments (if any) does not exceed the interim payment ceiling set out in the Data Sheet (see Point 4.2).

Interim payments (or parts of them) may be offset (without the beneficiaries’ consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency, offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

## **22.3.4 Final payment — Final grant amount — Revenues and Profit — Recovery**

The final payment (payment of the balance) reimburses the remaining part of the eligible costs and contributions claimed for the implementation of the action (if any).

The final payment will be made in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2).

Payment is subject to the approval of the final periodic report. Its approval does not imply recognition of compliance, authenticity, completeness or correctness of its content.

The **final grant amount for the action** will be calculated in the following steps:

Step 1 — Calculation of the total accepted EU contribution

Step 2 — Limit to the maximum grant amount

Step 3 — Reduction due to the no-profit rule

### Step 1 — Calculation of the total accepted EU contribution

The granting authority will first calculate the ‘accepted EU contribution’ for the action for all reporting periods, by calculating the ‘maximum EU contribution to costs’ (applying the funding rate to the total accepted costs of each beneficiary), taking into account requests for a lower contribution to costs, CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions (if any). The resulting amount is the ‘total accepted EU contribution’.

### Step 2 — Limit to the maximum grant amount

If the resulting amount is higher than the maximum grant amount set out in Article 5.2, it will be limited to the latter.

### Step 3 — Reduction due to the no-profit rule

If the no-profit rule is provided for in the Data Sheet (see Point 4.2), the grant must not produce a profit (i.e. surplus of the amount obtained following Step 2 plus the action’s revenues, over the eligible costs and contributions approved by the granting authority).

‘Revenue’ is all income generated by the action, during its duration (see Article 4), for beneficiaries that are profit legal entities (— with the exception of income generated by the exploitation of results, which are not considered as revenues).

If there is a profit, it will be deducted in proportion to the final rate of reimbursement of the eligible costs approved by the granting authority (as compared to the amount calculated following Steps 1 and 2 minus the contributions).

The **balance** (final payment) is then calculated by deducting the total amount of prefinancing and interim payments already made (if any), from the final grant amount:

$$\left\{ \begin{array}{l} \text{final grant amount} \\ \text{minus} \\ \text{prefinancing and interim payments made (if any)} \end{array} \right\}$$

If the balance is **positive**, it will be **paid** to the coordinator.

The amount retained for the Mutual Insurance Mechanism (see above) will be released and **paid** to the coordinator (in accordance with the rules governing the Mechanism).

The final payment (or part of it) may be offset (without the beneficiaries’ consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency, offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

If — despite the release of the Mutual Insurance Mechanism contribution — the balance is **negative**, it will be **recovered** in accordance with the following procedure:

The granting authority will send a **pre-information letter** to the coordinator:

- formally notifying the intention to recover, the final grant amount, the amount to be recovered and the reasons why

- requesting a report on the distribution of payments to the beneficiaries within 30 days of receiving notification and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received) and the coordinator has submitted the report on the distribution of payments, it will calculate the **share of the debt per beneficiary**, by:

- (a) identifying the beneficiaries for which the amount calculated as follows is negative:

$$\left\{ \left\{ \begin{array}{l} \text{\{\{total accepted EU contribution for the beneficiary} \\ \text{divided by} \\ \text{total accepted EU contribution for the action\}} \\ \text{multiplied by} \\ \text{final grant amount for the action\}}, \\ \text{minus} \\ \text{\{prefinancing and interim payments received by the beneficiary (if any)\}} \end{array} \right\} \right\}$$

and

- (b) dividing the debt:

$$\left\{ \begin{array}{l} \text{\{amount calculated according to point (a) for the beneficiary concerned} \\ \text{divided by} \\ \text{the sum of the amounts calculated according to point (a) for all the beneficiaries identified according to} \\ \text{point (a)\}} \\ \text{multiplied by} \\ \text{the amount to be recovered\}}. \end{array} \right.$$

and confirm the amount to be recovered from each beneficiary concerned (**confirmation letter**), together with **debit notes** with the terms and date for payment.

The debit notes for beneficiaries will include the amounts calculated for their affiliated entities (if any).

If the coordinator has not submitted the report on the distribution of payments, the granting authority will **recover** the full amount from the coordinator (**confirmation letter** and **debit note** with the terms and date for payment).

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

### 22.3.5 Audit implementation after final payment — Revised final grant amount — Recovery

If — after the final payment (in particular, after checks, reviews, audits or investigations; see Article 25) — the granting authority rejects costs or contributions (see Article 27) or reduces the grant (see Article 28), it will calculate the **revised final grant amount** for the beneficiary concerned.

The **beneficiary revised final grant amount** will be calculated in the following step:

Step 1 — Calculation of the revised total accepted EU contribution

#### Step 1 — Calculation of the revised total accepted EU contribution

The granting authority will first calculate the ‘revised accepted EU contribution’ for the beneficiary, by calculating the ‘revised accepted costs’ and ‘revised accepted contributions’.

After that, it will take into account grant reductions (if any). The resulting ‘revised total accepted EU contribution’ is the beneficiary revised final grant amount.

If the revised final grant amount is lower than the beneficiary’s final grant amount (i.e. its share in the final grant amount for the action), it will be **recovered** in accordance with the following procedure:

The **beneficiary final grant amount** (i.e. share in the final grant amount for the action) is calculated as follows:

$$\left\{ \begin{array}{l} \text{total accepted EU contribution for the beneficiary} \\ \text{divided by} \\ \text{total accepted EU contribution for the action} \end{array} \right\} \times \left\{ \begin{array}{l} \text{final grant amount for the action} \end{array} \right\}.$$

The granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to recover, the amount to be recovered and the reasons why and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received), it will confirm the amount to be recovered (**confirmation letter**), together with a **debit note** with the terms and the date for payment.

Recoveries against affiliated entities (if any) will be handled through their beneficiaries.

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

## 22.4 Enforced recovery

If payment is not made by the date specified in the debit note, the amount due will be recovered:

- (a) by offsetting the amount — without the coordinator or beneficiary’s consent — against any amounts owed to the coordinator or beneficiary by the granting authority.

In exceptional circumstances, to safeguard the EU financial interests, the amount may be offset before the payment date specified in the debit note.

For grants where the granting authority is the European Commission or an EU executive

agency, debts may also be offset against amounts owed by other Commission services or executive agencies.

- (b) financial guarantee(s): not applicable
- (c) joint and several liability of beneficiaries: not applicable
- (d) by holding affiliated entities jointly and severally liable (if any, see Data Sheet, Point 4.4)
- (e) by taking legal action (see Article 43) or, provided that the granting authority is the European Commission or an EU executive agency, by adopting an enforceable decision under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 100(2) of EU Financial Regulation 2018/1046.

If the Mutual Insurance Mechanism was called on by the granting authority to intervene, recovery will be continued in the name of the Mutual Insurance Mechanism. If two debit notes were sent, the second one (in the name of the Mutual Insurance Mechanism) will be considered to replace the first one (in the name of the granting authority). Where the MIM intervened, offsetting, enforceable decisions or any other of the above-mentioned forms of enforced recovery may be used *mutatis mutandis*.

The amount to be recovered will be increased by **late-payment interest** at the rate set out in Article 22.5, from the day following the payment date in the debit note, up to and including the date the full payment is received.

Partial payments will be first credited against expenses, charges and late-payment interest and then against the principal.

Bank charges incurred in the recovery process will be borne by the beneficiary, unless Directive 2015/2366<sup>17</sup> applies.

For grants where the granting authority is an EU executive agency, enforced recovery by offsetting or enforceable decision will be done by the services of the European Commission (see also Article 43).

## 22.5 Consequences of non-compliance

**22.5.1** If the granting authority does not pay within the payment deadlines (see above), the beneficiaries are entitled to **late-payment interest** at the rate applied by the European Central Bank (ECB) for its main refinancing operations in euros ('reference rate'), plus the rate specified in the Data Sheet (Point 4.2). The reference rate is the rate in force on the first day of the month in which the payment deadline expires, as published in the C series of the *Official Journal of the European Union*.

If the late-payment interest is lower than or equal to EUR 200, it will be paid to the coordinator only on request submitted within two months of receiving the late payment.

Late-payment interest is not due if all beneficiaries are EU Member States (including regional and local government authorities or other public bodies acting on behalf of a Member State for the purpose of this Agreement).

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<sup>17</sup> Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (OJ L 337, 23.12.2015, p. 35).

If payments or the payment deadline are suspended (see Articles 29 and 30), payment will not be considered as late.

Late-payment interest covers the period running from the day following the due date for payment (see above), up to and including the date of payment.

Late-payment interest is not considered for the purposes of calculating the final grant amount.

**22.5.2** If the coordinator breaches any of its obligations under this Article, the grant may be reduced (see Article 28) and the grant or the coordinator may be terminated (see Article 32).

Such breaches may also lead to other measures described in Chapter 5.

## **ARTICLE 23 — GUARANTEES**

Not applicable

## **ARTICLE 24 — CERTIFICATES**

### **24.1 Operational verification report (OVR)**

Not applicable

### **24.2 Certificate on the financial statements (CFS)**

If required by the granting authority (see Data Sheet, Point 4.3), the beneficiaries must provide certificates on their financial statements (CFS), in accordance with the schedule, threshold and conditions set out in the Data Sheet.

The coordinator must submit them as part of the periodic report (see Article 21).

The certificates must be drawn up using the template published on the Portal, cover the costs declared on the basis of actual costs and costs according to usual cost accounting practices (if any), and fulfil the following conditions:

- (a) be provided by a qualified approved external auditor which is independent and complies with Directive 2006/43/EC<sup>18</sup> (or for public bodies: by a competent independent public officer)
- (b) the verification must be carried out according to the highest professional standards to ensure that the financial statements comply with the provisions under the Agreement and that the costs declared are eligible.

The certificates will not affect the granting authority's right to carry out its own checks, reviews or audits, nor preclude the European Court of Auditors (ECA), the European Public Prosecutor's Office (EPPO) or the European Anti-Fraud Office (OLAF) from using their prerogatives for audits and investigations under the Agreement (see Article 25).

If the costs (or a part of them) were already audited by the granting authority, these costs do not need to be covered by the certificate and will not be counted for calculating the threshold (if any).

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<sup>18</sup> Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts or similar national regulations (OJ L 157, 9.6.2006, p. 87).

### 24.3 Certificate on the compliance of usual cost accounting practices (CoMUC)

Not applicable

### 24.4 Systems and process audit (SPA)

Beneficiaries which:

- use unit, flat rate or lump sum costs or contributions according to documented (i.e. formally approved and in writing) usual costs accounting practices (if any) or
- have formalised documentation on the systems and processes for calculating their costs and contributions (i.e. formally approved and in writing), have participated in at least 150 actions under Horizon 2020 or the Euratom Research and Training Programme (2014-2018 or 2019-2020) and participate in at least 3 ongoing actions under Horizon Europe or the Euratom Research and Training Programme (2021-2025 or 2026-2027)

may apply to the granting authority for a systems and process audit (SPA).

This audit will be carried out as follows:

Step 1 – Application by the beneficiary.

Step 2 – If the application is accepted, the granting authority will carry out the systems and process audit, complemented by an audit of transactions (on a sample of the beneficiary's Horizon Europe or the Euratom Research and Training Programme financial statements).

Step 3 – The audit result will take the form of a risk assessment classification for the beneficiary: low, medium or high.

Low-risk beneficiaries will benefit from less (or less in-depth) ex-post audits (see Article 25) and a higher threshold for submitting certificates on the financial statements (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3).

### 24.5 Consequences of non-compliance

If a beneficiary does not submit a certificate on the financial statements (CFS) or the certificate is rejected, the accepted EU contribution to costs will be capped to reflect the CFS threshold.

If a beneficiary breaches any of its other obligations under this Article, the granting authority may apply the measures described in Chapter 5.

## ARTICLE 25 — CHECKS, REVIEWS, AUDITS AND INVESTIGATIONS — EXTENSION OF FINDINGS

### 25.1 Granting authority checks, reviews and audits

#### 25.1.1 Internal checks

The granting authority may — during the action or afterwards — check the proper implementation of the action and compliance with the obligations under the Agreement, including assessing costs and contributions, deliverables and reports.

### 25.1.2 Project reviews

The granting authority may carry out reviews on the proper implementation of the action and compliance with the obligations under the Agreement (general project reviews or specific issues reviews).

Such project reviews may be started during the implementation of the action and until the time-limit set out in the Data Sheet (see Point 6). They will be formally notified to the coordinator or beneficiary concerned and will be considered to start on the date of the notification.

If needed, the granting authority may be assisted by independent, outside experts. If it uses outside experts, the coordinator or beneficiary concerned will be informed and have the right to object on grounds of commercial confidentiality or conflict of interest.

The coordinator or beneficiary concerned must cooperate diligently and provide — within the deadline requested — any information and data in addition to deliverables and reports already submitted (including information on the use of resources). The granting authority may request beneficiaries to provide such information to it directly. Sensitive information and documents will be treated in accordance with Article 13.

The coordinator or beneficiary concerned may be requested to participate in meetings, including with the outside experts.

For **on-the-spot visits**, the beneficiary concerned must allow access to sites and premises (including to the outside experts) and must ensure that information requested is readily available.

Information provided must be accurate, precise and complete and in the format requested, including electronic format.

On the basis of the review findings, a **project review report** will be drawn up.

The granting authority will formally notify the project review report to the coordinator or beneficiary concerned, which has 30 days from receiving notification to make observations.

Project reviews (including project review reports) will be in the language of the Agreement, unless otherwise agreed with the granting authority (see Data Sheet, Point 4.2).

### 25.1.3 Audits

The granting authority may carry out audits on the proper implementation of the action and compliance with the obligations under the Agreement.

Such audits may be started during the implementation of the action and until the time-limit set out in the Data Sheet (see Point 6). They will be formally notified to the beneficiary concerned and will be considered to start on the date of the notification.

The granting authority may use its own audit service, delegate audits to a centralised service or use external audit firms. If it uses an external firm, the beneficiary concerned will be informed and have the right to object on grounds of commercial confidentiality or conflict of interest.

The beneficiary concerned must cooperate diligently and provide — within the deadline requested — any information (including complete accounts, individual salary statements or other personal data)

to verify compliance with the Agreement. Sensitive information and documents will be treated in accordance with Article 13.

For **on-the-spot** visits, the beneficiary concerned must allow access to sites and premises (including for the external audit firm) and must ensure that information requested is readily available.

Information provided must be accurate, precise and complete and in the format requested, including electronic format.

On the basis of the audit findings, a **draft audit report** will be drawn up.

The auditors will formally notify the draft audit report to the beneficiary concerned, which has 30 days from receiving notification to make observations (contradictory audit procedure).

The **final audit report** will take into account observations by the beneficiary concerned and will be formally notified to them.

Audits (including audit reports) will be in the language of the Agreement, unless otherwise agreed with the granting authority (see Data Sheet, Point 4.2).

## **25.2 European Commission checks, reviews and audits in grants of other granting authorities**

Where the granting authority is not the European Commission, the latter has the same rights of checks, reviews and audits as the granting authority.

## **25.3 Access to records for assessing simplified forms of funding**

The beneficiaries must give the European Commission access to their statutory records for the periodic assessment of simplified forms of funding which are used in EU programmes.

## **25.4 OLAF, EPPO and ECA audits and investigations**

The following bodies may also carry out checks, reviews, audits and investigations — during the action or afterwards:

- the European Anti-Fraud Office (OLAF) under Regulations No 883/2013<sup>19</sup> and No 2185/96<sup>20</sup>
- the European Public Prosecutor's Office (EPPO) under Regulation 2017/1939
- the European Court of Auditors (ECA) under Article 287 of the Treaty on the Functioning of the EU (TFEU) and Article 257 of EU Financial Regulation 2018/1046.

If requested by these bodies, the beneficiary concerned must provide full, accurate and complete information in the format requested (including complete accounts, individual salary statements or

<sup>19</sup> Regulation (EU, Euratom) No 883/2013 of the European Parliament and of the Council of 11 September 2013 concerning investigations conducted by the European Anti-Fraud Office (OLAF) and repealing Regulation (EC) No 1073/1999 of the European Parliament and of the Council and Council Regulation (Euratom) No 1074/1999 (OJ L 248, 18/09/2013, p. 1).

<sup>20</sup> Council Regulation (Euratom, EC) No 2185/96 of 11 November 1996 concerning on-the-spot checks and inspections carried out by the Commission in order to protect the European Communities' financial interests against fraud and other irregularities (OJ L 292, 15/11/1996, p. 2).

other personal data, including in electronic format) and allow access to sites and premises for on-the-spot visits or inspections — as provided for under these Regulations.

To this end, the beneficiary concerned must keep all relevant information relating to the action, at least until the time-limit set out in the Data Sheet (Point 6) and, in any case, until any ongoing checks, reviews, audits, investigations, litigation or other pursuits of claims have been concluded.

## **25.5 Consequences of checks, reviews, audits and investigations — Extension of results of reviews, audits or investigations**

### **25.5.1 Consequences of checks, reviews, audits and investigations in this grant**

Findings in checks, reviews, audits or investigations carried out in the context of this grant may lead to rejections (see Article 27), grant reduction (see Article 28) or other measures described in Chapter 5.

Rejections or grant reductions after the final payment will lead to a revised final grant amount (see Article 22).

Findings in checks, reviews, audits or investigations during the action implementation may lead to a request for amendment (see Article 39), to change the description of the action set out in Annex 1.

Checks, reviews, audits or investigations that find systemic or recurrent errors, irregularities, fraud or breach of obligations in any EU grant may also lead to consequences in other EU grants awarded under similar conditions ('extension to other grants').

Moreover, findings arising from an OLAF or EPPO investigation may lead to criminal prosecution under national law.

### **25.5.2 Extension from other grants**

Results of checks, reviews, audits or investigations in other grants may be extended to this grant, if:

- (a) the beneficiary concerned is found, in other EU grants awarded under similar conditions, to have committed systemic or recurrent errors, irregularities, fraud or breach of obligations that have a material impact on this grant and
- (b) those findings are formally notified to the beneficiary concerned — together with the list of grants affected by the findings — within the time-limit for audits set out in the Data Sheet (see Point 6).

The granting authority will formally notify the beneficiary concerned of the intention to extend the findings and the list of grants affected.

If the extension concerns **rejections of costs or contributions**: the notification will include:

- (a) an invitation to submit observations on the list of grants affected by the findings
- (b) the request to submit revised financial statements for all grants affected
- (c) the correction rate for extrapolation, established on the basis of the systemic or recurrent errors, to calculate the amounts to be rejected, if the beneficiary concerned:

- (i) considers that the submission of revised financial statements is not possible or practicable or
- (ii) does not submit revised financial statements.

If the extension concerns **grant reductions**: the notification will include:

- (a) an invitation to submit observations on the list of grants affected by the findings and
- (b) the **correction rate for extrapolation**, established on the basis of the systemic or recurrent errors and the principle of proportionality.

The beneficiary concerned has **60 days** from receiving notification to submit observations, revised financial statements or to propose a duly substantiated **alternative correction method/rate**.

On the basis of this, the granting authority will analyse the impact and decide on the implementation (i.e. start rejection or grant reduction procedures, either on the basis of the revised financial statements or the announced/alternative method/rate or a mix of those; see Articles 27 and 28).

## 25.6 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, costs or contributions insufficiently substantiated will be ineligible (see Article 6) and will be rejected (see Article 27), and the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

## ARTICLE 26 — IMPACT EVALUATIONS

### 26.1 Impact evaluation

The granting authority may carry out impact evaluations of the action, measured against the objectives and indicators of the EU programme funding the grant.

Such evaluations may be started during implementation of the action and until the time-limit set out in the Data Sheet (see Point 6). They will be formally notified to the coordinator or beneficiaries and will be considered to start on the date of the notification.

If needed, the granting authority may be assisted by independent outside experts.

The coordinator or beneficiaries must provide any information relevant to evaluate the impact of the action, including information in electronic format.

### 26.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the granting authority may apply the measures described in Chapter 5.

## CHAPTER 5 CONSEQUENCES OF NON-COMPLIANCE

## **SECTION 1 REJECTIONS AND GRANT REDUCTION**

### **ARTICLE 27 — REJECTION OF COSTS AND CONTRIBUTIONS**

#### **27.1 Conditions**

The granting authority will — at beneficiary termination, interim payment, final payment or afterwards — reject any costs or contributions which are ineligible (see Article 6), in particular following checks, reviews, audits or investigations (see Article 25).

The rejection may also be based on the extension of findings from other grants to this grant (see Article 25).

Ineligible costs or contributions will be rejected.

#### **27.2 Procedure**

If the rejection does not lead to a recovery, the granting authority will formally notify the coordinator or beneficiary concerned of the rejection, the amounts and the reasons why. The coordinator or beneficiary concerned may — within 30 days of receiving notification — submit observations if it disagrees with the rejection (payment review procedure).

If the rejection leads to a recovery, the granting authority will follow the contradictory procedure with pre-information letter set out in Article 22.

#### **27.3 Effects**

If the granting authority rejects costs or contributions, it will deduct them from the costs or contributions declared and then calculate the amount due (and, if needed, make a recovery; see Article 22).

### **ARTICLE 28 — GRANT REDUCTION**

#### **28.1 Conditions**

The granting authority may — at beneficiary termination, final payment or afterwards — reduce the grant for a beneficiary, if:

- (a) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:
  - (i) substantial errors, irregularities or fraud or
  - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or
- (b) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants

awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (see Article 25).

The amount of the reduction will be calculated for each beneficiary concerned and proportionate to the seriousness and the duration of the errors, irregularities or fraud or breach of obligations, by applying an individual reduction rate to their accepted EU contribution.

## 28.2 Procedure

If the grant reduction does not lead to a recovery, the granting authority will formally notify the coordinator or beneficiary concerned of the reduction, the amount to be reduced and the reasons why. The coordinator or beneficiary concerned may — within 30 days of receiving notification — submit observations if it disagrees with the reduction (payment review procedure).

If the grant reduction leads to a recovery, the granting authority will follow the contradictory procedure with pre-information letter set out in Article 22.

## 28.3 Effects

If the granting authority reduces the grant, it will deduct the reduction and then calculate the amount due (and, if needed, make a recovery; see Article 22).

## SECTION 2 SUSPENSION AND TERMINATION

### ARTICLE 29 — PAYMENT DEADLINE SUSPENSION

#### 29.1 Conditions

The granting authority may — at any moment — suspend the payment deadline if a payment cannot be processed because:

- (a) the required report (see Article 21) has not been submitted or is not complete or additional information is needed
- (b) there are doubts about the amount to be paid (e.g. ongoing audit extension procedure, queries about eligibility, need for a grant reduction, etc.) and additional checks, reviews, audits or investigations are necessary, or
- (c) there are other issues affecting the EU financial interests.

#### 29.2 Procedure

The granting authority will formally notify the coordinator of the suspension and the reasons why.

The suspension will **take effect** the day the notification is sent.

If the conditions for suspending the payment deadline are no longer met, the suspension will be **lifted** — and the remaining time to pay (see Data Sheet, Point 4.2) will resume.

If the suspension exceeds two months, the coordinator may request the granting authority to confirm if the suspension will continue.

If the payment deadline has been suspended due to the non-compliance of the report and the revised report is not submitted (or was submitted but is also rejected), the granting authority may also terminate the grant or the participation of the coordinator (see Article 32).

## ARTICLE 30 — PAYMENT SUSPENSION

### 30.1 Conditions

The granting authority may — at any moment — suspend payments, in whole or in part for one or more beneficiaries, if:

- (a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:
  - (i) substantial errors, irregularities or fraud or
  - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or
- (b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant.

If payments are suspended for one or more beneficiaries, the granting authority will make partial payment(s) for the part(s) not suspended. If suspension concerns the final payment, the payment (or recovery) of the remaining amount after suspension is lifted will be considered to be the payment that closes the action.

### 30.2 Procedure

Before suspending payments, the granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to suspend payments and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the suspension (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

At the end of the suspension procedure, the granting authority will also inform the coordinator.

The suspension will **take effect** the day after the confirmation notification is sent.

If the conditions for resuming payments are met, the suspension will be **lifted**. The granting authority will formally notify the beneficiary concerned (and the coordinator) and set the suspension end date.

During the suspension, no prefinancing will be paid to the beneficiaries concerned. For interim payments, the periodic reports for all reporting periods except the last one (see Article 21) must not contain any financial statements from the beneficiary concerned (or its affiliated entities). The coordinator must include them in the next periodic report after the suspension is lifted or — if suspension is not lifted before the end of the action — in the last periodic report.

## ARTICLE 31 — GRANT AGREEMENT SUSPENSION

### 31.1 Consortium-requested GA suspension

#### 31.1.1 Conditions and procedure

The beneficiaries may request the suspension of the grant or any part of it, if exceptional circumstances — in particular *force majeure* (see Article 35) — make implementation impossible or excessively difficult.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the date the suspension takes effect; this date may be before the date of the submission of the amendment request and
- the expected date of resumption.

The suspension will **take effect** on the day specified in the amendment.

Once circumstances allow for implementation to resume, the coordinator must immediately request another **amendment** of the Agreement to set the suspension end date, the resumption date (one day after suspension end date), extend the duration and make other changes necessary to adapt the action to the new situation (see Article 39) — unless the grant has been terminated (see Article 32). The suspension will be **lifted** with effect from the suspension end date set out in the amendment. This date may be before the date of the submission of the amendment request.

During the suspension, no prefinancing will be paid. Costs incurred or contributions for activities implemented during grant suspension are not eligible (see Article 6.3).

### 31.2 EU-initiated GA suspension

#### 31.2.1 Conditions

The granting authority may suspend the grant or any part of it, if:

- (a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:
  - (i) substantial errors, irregularities or fraud or
  - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions,

submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or

- (b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant
- (c) other:
  - (i) linked action issues: not applicable
  - (ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

### 31.2.2 Procedure

Before suspending the grant, the granting authority will send a **pre-information letter** to the coordinator:

- formally notifying the intention to suspend the grant and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the suspension (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

The suspension will **take effect** the day after the confirmation notification is sent (or on a later date specified in the notification).

Once the conditions for resuming implementation of the action are met, the granting authority will formally notify the coordinator a **lifting of suspension letter**, in which it will set the suspension end date and invite the coordinator to request an amendment of the Agreement to set the resumption date (one day after suspension end date), extend the duration and make other changes necessary to adapt the action to the new situation (see Article 39) — unless the grant has been terminated (see Article 32). The suspension will be **lifted** with effect from the suspension end date set out in the lifting of suspension letter. This date may be before the date on which the letter is sent.

During the suspension, no prefinancing will be paid. Costs incurred or contributions for activities implemented during suspension are not eligible (see Article 6.3).

The beneficiaries may not claim damages due to suspension by the granting authority (see Article 33).

Grant suspension does not affect the granting authority's right to terminate the grant or a beneficiary (see Article 32) or reduce the grant (see Article 28).

## ARTICLE 32 — GRANT AGREEMENT OR BENEFICIARY TERMINATION

### 32.1 Consortium-requested GA termination

### 32.1.1 Conditions and procedure

The beneficiaries may request the termination of the grant.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the date the consortium ends work on the action ('end of work date') and
- the date the termination takes effect ('termination date'); this date must be after the date of the submission of the amendment request.

The termination will **take effect** on the termination date specified in the amendment.

If no reasons are given or if the granting authority considers the reasons do not justify termination, it may consider the grant terminated improperly.

### 32.1.2 Effects

The coordinator must — within 60 days from when termination takes effect — submit a **periodic report** (for the open reporting period until termination).

The granting authority will calculate the final grant amount and final payment on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before the end of work date (see Article 22). Costs relating to contracts due for execution only after the end of work are not eligible.

If the granting authority does not receive the report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

Improper termination may lead to a grant reduction (see Article 28).

After termination, the beneficiaries' obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

## 32.2 Consortium-requested beneficiary termination

### 32.2.1 Conditions and procedure

The coordinator may request the termination of the participation of one or more beneficiaries, on request of the beneficiary concerned or on behalf of the other beneficiaries.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the opinion of the beneficiary concerned (or proof that this opinion has been requested in writing)

- the date the beneficiary ends work on the action ('end of work date')
- the date the termination takes effect ('termination date'); this date must be after the date of the submission of the amendment request.

If the termination concerns the coordinator and is done without its agreement, the amendment request must be submitted by another beneficiary (acting on behalf of the consortium).

The termination will **take effect** on the termination date specified in the amendment.

If no information is given or if the granting authority considers that the reasons do not justify termination, it may consider the beneficiary to have been terminated improperly.

### 32.2.2 Effects

The coordinator must — within 60 days from when termination takes effect — submit:

- (i) a **report on the distribution of payments** to the beneficiary concerned
- (ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)
- (iii) a second **request for amendment** (see Article 39) with other amendments needed (e.g. reallocation of the tasks and the estimated budget of the terminated beneficiary; addition of a new beneficiary to replace the terminated beneficiary; change of coordinator, etc.).

The granting authority will calculate the amount due to the beneficiary on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before the end of work date (see Article 22). Costs relating to contracts due for execution only after the end of work are not eligible.

The information in the termination report must also be included in the periodic report for the next reporting period (see Article 21).

If the granting authority does not receive the termination report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

If the granting authority does not receive the report on the distribution of payments within the deadline, it will consider that:

- the coordinator did not distribute any payment to the beneficiary concerned and that
- the beneficiary concerned must not repay any amount to the coordinator.

If the second request for amendment is accepted by the granting authority, the Agreement is **amended** to introduce the necessary changes (see Article 39).

If the second request for amendment is rejected by the granting authority (because it calls into question the decision awarding the grant or breaches the principle of equal treatment of applicants), the grant may be terminated (see Article 32).

Improper termination may lead to a reduction of the grant (see Article 31) or grant termination (see Article 32).

After termination, the concerned beneficiary's obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

### **32.3 EU-initiated GA or beneficiary termination**

#### **32.3.1 Conditions**

The granting authority may terminate the grant or the participation of one or more beneficiaries, if:

- (a) one or more beneficiaries do not accede to the Agreement (see Article 40)
- (b) a change to the action or the legal, financial, technical, organisational or ownership situation of a beneficiary is likely to substantially affect the implementation of the action or calls into question the decision to award the grant (including changes linked to one of the exclusion grounds listed in the declaration of honour)
- (c) following termination of one or more beneficiaries, the necessary changes to the Agreement (and their impact on the action) would call into question the decision awarding the grant or breach the principle of equal treatment of applicants
- (d) implementation of the action has become impossible or the changes necessary for its continuation would call into question the decision awarding the grant or breach the principle of equal treatment of applicants
- (e) a beneficiary (or person with unlimited liability for its debts) is subject to bankruptcy proceedings or similar (including insolvency, winding-up, administration by a liquidator or court, arrangement with creditors, suspension of business activities, etc.)
- (f) a beneficiary (or person with unlimited liability for its debts) is in breach of social security or tax obligations
- (g) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has been found guilty of grave professional misconduct
- (h) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed fraud, corruption, or is involved in a criminal organisation, money laundering, terrorism-related crimes (including terrorism financing), child labour or human trafficking
- (i) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) was created under a different jurisdiction with the intent to circumvent fiscal, social or other legal obligations in the country of origin (or created another entity with this purpose)
- (j) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:

- (i) substantial errors, irregularities or fraud or
- (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.)
- (k) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (extension of findings from other grants to this grant; see Article 25)
- (l) despite a specific request by the granting authority, a beneficiary does not request — through the coordinator — an amendment to the Agreement to end the participation of one of its affiliated entities or associated partners that is in one of the situations under points (d), (f), (e), (g), (h), (i) or (j) and to reallocate its tasks, or
- (m) other:
  - (i) linked action issues: not applicable
  - (ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

### 32.3.2 Procedure

Before terminating the grant or participation of one or more beneficiaries, the granting authority will send a **pre-information letter** to the coordinator or beneficiary concerned:

- formally notifying the intention to terminate and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the termination and the date it will take effect (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

For beneficiary terminations, the granting authority will — at the end of the procedure — also inform the coordinator.

The termination will **take effect** the day after the confirmation notification is sent (or on a later date specified in the notification; ‘termination date’).

### 32.3.3 Effects

- (a) for **GA termination**:

The coordinator must — within 60 days from when termination takes effect — submit a **periodic report** (for the last open reporting period until termination).

The granting authority will calculate the final grant amount and final payment on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before termination takes effect (see Article 22). Costs relating to contracts due for execution only after termination are not eligible.

If the grant is terminated for breach of the obligation to submit reports, the coordinator may not submit any report after termination.

If the granting authority does not receive the report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

Termination does not affect the granting authority's right to reduce the grant (see Article 28) or to impose administrative sanctions (see Article 34).

The beneficiaries may not claim damages due to termination by the granting authority (see Article 33).

After termination, the beneficiaries' obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

**(b) for beneficiary termination:**

The coordinator must — within 60 days from when termination takes effect — submit:

- (i) a **report on the distribution of payments** to the beneficiary concerned
- (ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)
- (iii) a **request for amendment** (see Article 39) with any amendments needed (e.g. reallocation of the tasks and the estimated budget of the terminated beneficiary; addition of a new beneficiary to replace the terminated beneficiary; change of coordinator, etc.).

The granting authority will calculate the amount due to the beneficiary on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before termination takes effect (see Article 22). Costs relating to contracts due for execution only after termination are not eligible.

The information in the termination report must also be included in the periodic report for the next reporting period (see Article 21).

If the granting authority does not receive the termination report within the deadline, only costs and contributions included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

If the granting authority does not receive the report on the distribution of payments within the deadline, it will consider that:

- the coordinator did not distribute any payment to the beneficiary concerned and that
- the beneficiary concerned must not repay any amount to the coordinator.

If the request for amendment is accepted by the granting authority, the Agreement is **amended** to introduce the necessary changes (see Article 39).

If the request for amendment is rejected by the granting authority (because it calls into question the decision awarding the grant or breaches the principle of equal treatment of applicants), the grant may be terminated (see Article 32).

After termination, the concerned beneficiary's obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

### **SECTION 3 OTHER CONSEQUENCES: DAMAGES AND ADMINISTRATIVE SANCTIONS**

#### **ARTICLE 33 — DAMAGES**

##### **33.1 Liability of the granting authority**

The granting authority cannot be held liable for any damage caused to the beneficiaries or to third parties as a consequence of the implementation of the Agreement, including for gross negligence.

The granting authority cannot be held liable for any damage caused by any of the beneficiaries or other participants involved in the action, as a consequence of the implementation of the Agreement.

##### **33.2 Liability of the beneficiaries**

The beneficiaries must compensate the granting authority for any damage it sustains as a result of the implementation of the action or because the action was not implemented in full compliance with the Agreement, provided that it was caused by gross negligence or wilful act.

The liability does not extend to indirect or consequential losses or similar damage (such as loss of profit, loss of revenue or loss of contracts), provided such damage was not caused by wilful act or by a breach of confidentiality.

#### **ARTICLE 34 — ADMINISTRATIVE SANCTIONS AND OTHER MEASURES**

Nothing in this Agreement may be construed as preventing the adoption of administrative sanctions (i.e. exclusion from EU award procedures and/or financial penalties) or other public law measures, in addition or as an alternative to the contractual measures provided under this Agreement (see,

for instance, Articles 135 to 145 EU Financial Regulation 2018/1046 and Articles 4 and 7 of Regulation 2988/95<sup>21</sup>).

## **SECTION 4 FORCE MAJEURE**

### **ARTICLE 35 — FORCE MAJEURE**

A party prevented by force majeure from fulfilling its obligations under the Agreement cannot be considered in breach of them.

‘Force majeure’ means any situation or event that:

- prevents either party from fulfilling their obligations under the Agreement,
- was unforeseeable, exceptional situation and beyond the parties’ control,
- was not due to error or negligence on their part (or on the part of other participants involved in the action), and
- proves to be inevitable in spite of exercising all due diligence.

Any situation constituting force majeure must be formally notified to the other party without delay, stating the nature, likely duration and foreseeable effects.

The parties must immediately take all the necessary steps to limit any damage due to force majeure and do their best to resume implementation of the action as soon as possible.

## **CHAPTER 6 FINAL PROVISIONS**

### **ARTICLE 36 — COMMUNICATION BETWEEN THE PARTIES**

#### **36.1 Forms and means of communication — Electronic management**

EU grants are managed fully electronically through the EU Funding & Tenders Portal (‘Portal’).

All communications must be made electronically through the Portal, in accordance with the Portal Terms and Conditions and using the forms and templates provided there (except if explicitly instructed otherwise by the granting authority).

Communications must be made in writing and clearly identify the grant agreement (project number and acronym).

Communications must be made by persons authorised according to the Portal Terms and Conditions. For naming the authorised persons, each beneficiary must have designated — before the signature of this Agreement — a ‘legal entity appointed representative (LEAR)’. The role and tasks of the LEAR are stipulated in their appointment letter (see Portal Terms and Conditions).

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<sup>21</sup> Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities financial interests (OJ L 312, 23.12.1995, p. 1).

If the electronic exchange system is temporarily unavailable, instructions will be given on the Portal.

### **36.2 Date of communication**

The sending date for communications made through the Portal will be the date and time of sending, as indicated by the time logs.

The receiving date for communications made through the Portal will be the date and time the communication is accessed, as indicated by the time logs. Formal notifications that have not been accessed within 10 days after sending, will be considered to have been accessed (see Portal Terms and Conditions).

If a communication is exceptionally made on paper (by e-mail or postal service), general principles apply (i.e. date of sending/receipt). Formal notifications by registered post with proof of delivery will be considered to have been received either on the delivery date registered by the postal service or the deadline for collection at the post office.

If the electronic exchange system is temporarily unavailable, the sending party cannot be considered in breach of its obligation to send a communication within a specified deadline.

### **36.3 Addresses for communication**

The Portal can be accessed via the Europa website.

The address for paper communications to the granting authority (if exceptionally allowed) is the official mailing address indicated on its website.

For beneficiaries, it is the legal address specified in the Portal Participant Register.

## **ARTICLE 37 — INTERPRETATION OF THE AGREEMENT**

The provisions in the Data Sheet take precedence over the rest of the Terms and Conditions of the Agreement.

Annex 5 takes precedence over the Terms and Conditions; the Terms and Conditions take precedence over the Annexes other than Annex 5.

Annex 2 takes precedence over Annex 1.

## **ARTICLE 38 — CALCULATION OF PERIODS AND DEADLINES**

In accordance with Regulation No 1182/71<sup>22</sup>, periods expressed in days, months or years are calculated from the moment the triggering event occurs.

The day during which that event occurs is not considered as falling within the period.

‘Days’ means calendar days, not working days.

## **ARTICLE 39 — AMENDMENTS**

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<sup>22</sup> Regulation (EEC, Euratom) No 1182/71 of the Council of 3 June 1971 determining the rules applicable to periods, dates and time-limits (OJ L 124, 8/6/1971, p. 1).

### 39.1 Conditions

The Agreement may be amended, unless the amendment entails changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants.

Amendments may be requested by any of the parties.

### 39.2 Procedure

The party requesting an amendment must submit a request for amendment signed directly in the Portal Amendment tool.

The coordinator submits and receives requests for amendment on behalf of the beneficiaries (see Annex 3). If a change of coordinator is requested without its agreement, the submission must be done by another beneficiary (acting on behalf of the other beneficiaries).

The request for amendment must include:

- the reasons why
- the appropriate supporting documents and
- for a change of coordinator without its agreement: the opinion of the coordinator (or proof that this opinion has been requested in writing).

The granting authority may request additional information.

If the party receiving the request agrees, it must sign the amendment in the tool within 45 days of receiving notification (or any additional information the granting authority has requested). If it does not agree, it must formally notify its disagreement within the same deadline. The deadline may be extended, if necessary for the assessment of the request. If no notification is received within the deadline, the request is considered to have been rejected.

An amendment **enters into force** on the day of the signature of the receiving party.

An amendment **takes effect** on the date of entry into force or other date specified in the amendment.

## ARTICLE 40 — ACCESSION AND ADDITION OF NEW BENEFICIARIES

### 40.1 Accession of the beneficiaries mentioned in the Preamble

The beneficiaries which are not coordinator must accede to the grant by signing the accession form (see Annex 3) directly in the Portal Grant Preparation tool, within 30 days after the entry into force of the Agreement (see Article 44).

They will assume the rights and obligations under the Agreement with effect from the date of its entry into force (see Article 44).

If a beneficiary does not accede to the grant within the above deadline, the coordinator must — within 30 days — request an amendment (see Article 39) to terminate the beneficiary and make any changes

necessary to ensure proper implementation of the action. This does not affect the granting authority's right to terminate the grant (see Article 32).

#### **40.2 Addition of new beneficiaries**

In justified cases, the beneficiaries may request the addition of a new beneficiary.

For this purpose, the coordinator must submit a request for amendment in accordance with Article 39. It must include an accession form (see Annex 3) signed by the new beneficiary directly in the Portal Amendment tool.

New beneficiaries will assume the rights and obligations under the Agreement with effect from the date of their accession specified in the accession form (see Annex 3).

Additions are also possible in mono-beneficiary grants.

### **ARTICLE 41 — TRANSFER OF THE AGREEMENT**

In justified cases, the beneficiary of a mono-beneficiary grant may request the transfer of the grant to a new beneficiary, provided that this would not call into question the decision awarding the grant or breach the principle of equal treatment of applicants.

The beneficiary must submit a request for **amendment** (see Article 39), with

- the reasons why
- the accession form (see Annex 3) signed by the new beneficiary directly in the Portal Amendment tool and
- additional supporting documents (if required by the granting authority).

The new beneficiary will assume the rights and obligations under the Agreement with effect from the date of accession specified in the accession form (see Annex 3).

### **ARTICLE 42 — ASSIGNMENTS OF CLAIMS FOR PAYMENT AGAINST THE GRANTING AUTHORITY**

The beneficiaries may not assign any of their claims for payment against the granting authority to any third party, except if expressly approved in writing by the granting authority on the basis of a reasoned, written request by the coordinator (on behalf of the beneficiary concerned).

If the granting authority has not accepted the assignment or if the terms of it are not observed, the assignment will have no effect on it.

In no circumstances will an assignment release the beneficiaries from their obligations towards the granting authority.

### **ARTICLE 43 — APPLICABLE LAW AND SETTLEMENT OF DISPUTES**

#### **43.1 Applicable law**

The Agreement is governed by the applicable EU law, supplemented if necessary by the law of Belgium.

Special rules may apply for beneficiaries which are international organisations (if any; see Data Sheet, Point 5).

### **43.2 Dispute settlement**

If a dispute concerns the interpretation, application or validity of the Agreement, the parties must bring action before the EU General Court — or, on appeal, the EU Court of Justice — under Article 272 of the Treaty on the Functioning of the EU (TFEU).

For non-EU beneficiaries (if any), such disputes must be brought before the courts of Brussels, Belgium — unless an international agreement provides for the enforceability of EU court judgements.

For beneficiaries with arbitration as special dispute settlement forum (if any; see Data Sheet, Point 5), the dispute will — in the absence of an amicable settlement — be settled in accordance with the Rules for Arbitration published on the Portal.

If a dispute concerns administrative sanctions, offsetting or an enforceable decision under Article 299 TFEU (see Articles 22 and 34), the beneficiaries must bring action before the General Court — or, on appeal, the Court of Justice — under Article 263 TFEU.

For grants where the granting authority is an EU executive agency (see Preamble), actions against offsetting and enforceable decisions must be brought against the European Commission (not against the granting authority; see also Article 22).

## **ARTICLE 44 — ENTRY INTO FORCE**

The Agreement will enter into force on the day of signature by the granting authority or the coordinator, depending on which is later.

### **SIGNATURES**

For the coordinator

For the granting authority



**ANNEX 1**



**Horizon Europe (HORIZON)**

**Description of the action (DoA)**

**Part A**

**Part B**

## DESCRIPTION OF THE ACTION (PART A)

### COVER PAGE

*Part A of the Description of the Action (DoA) must be completed directly on the Portal Grant Preparation screens.*

| <b>PROJECT</b>  |   |
|---|---|
| <i>Grant Preparation (General Information screen) — Enter the info.</i> |   |
| <b>Project number:</b>  | 101131859   |
| <b>Project name:</b>  | Combined Use of EGNSS and Copernicus Data to Develop Innovative Downstream Services for the Users from Chile and Colombia |
| <b>Project acronym:</b>   | COMUNIDAD   |
| <b>Call:</b>  | HORIZON-EUSPA-2022-SPACE  |
| <b>Topic:</b>   | HORIZON-EUSPA-2022-SPACE-02-56  |
| <b>Type of action:</b>  | HORIZON-RIA   |
| <b>Service:</b>   | EUSPA/MKD   |
| <b>Project starting date:</b>   | fixed date: 1 March 2024  |
| <b>Project duration:</b>  | 24 months   |

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## PROJECT SUMMARY

### Project summary

*Grant Preparation (General Information screen) — Provide an overall description of your project (including context and overall objectives, planned activities and main achievements, and expected results and impacts (on target groups, change procedures, capacities, innovation etc)). This summary should give readers a clear idea of what your project is about.*

*Use the project summary from your proposal.*

COMUNIDAD aims at developing, testing, and implementing a framework that will make use of Copernicus data from agriculture, forestry and rural development in Chile and Colombia. It will develop solutions integrated on the COMUNIDAD platform with different sources of data. The COMUNIDAD Platform will be important base for the use of EGNSS and sharing of expertise with public and private entities from the target countries to introduce EU-space based applications and to use of Copernicus data, to develop jointly algorithms, services and products, which serve local user needs. The interaction with each Pilot Application in Chile and Colombia will feed to long-term policy strategy development, aiming at bringing about the transition into the new paradigm of sustainable agriculture and forestry growth. The combined use of EGNSS and Copernicus to develop innovative downstream applications combining positioning navigation and timing with Earth observation services will be an essential part of the COMUNIDAD development through pilot applications in Chile and Colombia with the direct involvement of regional end users, decision makers and support organisations. This approach is not only demonstrating the possibilities of potential transfer of the results and addressing the potential barriers, but as well introducing the added value for developing new markets, information sharing, open access and transparency. The platform is combining existing components and services for new target regions where potential for utilization is expected.

The COMUNIDAD will address 4 main Scientific Objectives via 6 WPs. The cooperation of 9 partners is envisaged, from them 5 are from Chile and Colombia and 4 from EU.

## LIST OF PARTICIPANTS

### PARTICIPANTS

*Grant Preparation (Beneficiaries screen) — Enter the info.*

| Number | Role | Short name     | Legal name                                   | Country | PIC       |
|--------|------|----------------|--|---------|-----------|
| 1      | COO  | LES PRO        | LES PROJEKT SLUZBY SRO                       | CZ      | 997832890 |
| 2      | BEN  | BOSC           | BALTIC OPEN SOLUTIONS CENTER SIA             | LV      | 997636465 |
| 3      | BEN  | CZU            | CESKA ZEMEDELSKA UNIVERZITA V PRAZE          | CZ      | 999912570 |
| 4      | BEN  | UAYSEN         | UNIVERSIDAD DE AYSEN                         | CL      | 922580387 |
| 5      | BEN  | SOCIALINNOLABS | FUNDACION SOCIALINNOLABS                     | ES      | 926255523 |
| 6      | BEN  | UAM            | UNIVERSIDAD AUTONOMA DE MANIZALES            | CO      | 972974409 |
| 7      | BEN  | FNC            | FEDERACION NACIONAL DE CAFETEROS DE COLOMBIA | CO      | 920885312 |
| 8      | BEN  | FIA            | FUNDACION PARA LA INNOVACION AGRARIA         | CL      | 910607774 |

## LIST OF WORK PACKAGES

| <b>Work packages</b><br><i>Grant Preparation (Work Packages screen) — Enter the info.</i> |  |                    |                        |             |           |   |
|---|--|--------------------|------------------------|-------------|-----------|---|
| Work Package No   | Work Package name                                  | Lead Beneficiary   | Effort (Person-Months) | Start Month | End Month | Deliverables  |
| WP1   | Project management                                 | 1 - LESPRO         | 26.00                  | 1           | 24        | D1.1 – Project management plan<br>D1.2 – Ethical procedures report<br>D1.3 – Data management plan<br>D1.4 – Risk management plan  |
| WP2   | System architecture design and development         | 2 - BOSCO          | 20.00                  | 1           | 12        | D2.1 – Requirements for infrastructure<br>D2.2 – Infrastructure design document<br>D2.3 – Infrastructure release  |
| WP3   | Training and workshops in Chile and Colombia       | 5 - SOCIALINNOLABS | 17.00                  | 4           | 24        | D3.1 – Copernicus programme services and datasets<br>D3.2 – Materials and documentations for components<br>D3.3 – Training materials<br>D3.4 – Hackathons report<br>D3.5 – Workshops and trainings report<br>D3.6 – Evaluation and feedback report                        |
| WP4   | Applications and services for forestry/agriculture | 4 - UAYSEN         | 35.00                  | 4           | 24        | D4.1 – Colombian applications requirements<br>D4.2 – Advanced algorithm for snow coverage<br>D4.3 – Snow coverage map<br>D4.4 – Computational network model<br>D4.5 – Colombian pilot applications<br>D4.6 – Remote APP<br>D4.7 – Colombian pilot applications validation |

| <b>Work packages</b>  |                                |                         |                               |                    |                  |   |
|---|--------------------------------|-------------------------|-------------------------------|--------------------|------------------|---|
| <i>Grant Preparation (Work Packages screen) — Enter the info.</i> |                                |                         |                               |                    |                  |   |
| <b>Work Package No</b>  | <b>Work Package name</b>       | <b>Lead Beneficiary</b> | <b>Effort (Person-Months)</b> | <b>Start Month</b> | <b>End Month</b> | <b>Deliverables</b>   |
| WP5   | COMUNIDAD Platform             | 3 - CZU                 | 32.00                         | 7                  | 24               | D5.1 – Definition of architecture for COMUNIDAD platform<br>D5.2 – Testing results v1<br>D5.3 – COMUNIDAD platform release<br>D5.4 – Testing results v2<br>D5.5 – Operational status report                                       |
| WP6   | Dissemination and exploitation | 3 - CZU                 | 37.00                         | 3                  | 24               | D6.1 – Communication & Dissemination plan v1<br>D6.2 – Advisory Board<br>D6.3 – Exploitation plan v1<br>D6.4 – Communication & Dissemination plan v2<br>D6.5 – Exploitation plan v2<br>D6.6 – COMUNIDAD platform promotion report |

## Work package WP1 – Project management

|                            |                    |                         |            |
|----------------------------|--------------------|-------------------------|------------|
| <b>Work Package Number</b> | WP1                | <b>Lead Beneficiary</b> | 1 - LESPRO |
| <b>Work Package Name</b>   | Project management |                         |            |
| <b>Start Month</b>         | 1                  | <b>End Month</b>        | 24         |

### Objectives

To coordinate project activities, ensure quality and timely project execution and deliverables, and to carry out the scientific, financial, and administrative management of the project.

### Description

Task 1.1 Financial and Administrative Management, (M1-M24), Lead: LESP; Participant: All

- Fulfill obligations and reporting according to the grant agreement.
- Obtain technical and financial reports from WP leaders and partners on partner and WP progress.
- Maintain a consortium agreement.
- Organise and chair quarterly Project Management Team meetings (comprising all partners), through which WPs, project actions, risks, etc. are managed.
- Implement amendments to the contract where necessary.

Task 1.2 Technical Management, (M1-M24), Lead: BOSC; Participants: All

Technical management will coordinate from the top level the design and development of infrastructure and COMUNIDAD platform by effort in individual WPs and tasks. The technical coordinator will ensure consistency between requirements defined by pilots (WP4) and development steps in technical tasks (WP2, WP5). Technical management will coordinate the development of the platform and its documentation for utilisation in training materials (WP3). Other actions in the tasks:

- Facilitate the development of detailed WP implementation plans (WIPs) from the outset, helping to ensure clear and integrated actions across all work packages.
- Hold monthly team technical “catch-up” calls to track progress and identify issues.
- Preparation of the Data Management Plan

Task 1.3 Compliance with Ethics, Data and Risk Management, (M1-M24), Lead BOSC; Participants: All

Develop and implement ethics, data, and risk management plans to support effective and compliant project implementation.

- Draft and implement ethical procedures report (Lead: BOSC)
- Draft and implement data management plan (Lead: BOSC)
- Draft and implement risk management plan (Lead: BOSC)

## Work package WP2 – System architecture design and development

|                            |  |                         |          |
|----------------------------|--|-------------------------|----------|
| <b>Work Package Number</b> | WP2  | <b>Lead Beneficiary</b> | 2 - BOSC |
| <b>Work Package Name</b>   | System architecture design and development |                         |          |
| <b>Start Month</b>         | 1  | <b>End Month</b>        | 12       |

### Objectives

1. Collecting and definition of requirements from pilots for services and applications
2. Design the main architecture components of the platform, define integration of existing components and services.
3. Design the platform infrastructure

### Description

T2.1 Definition of requirements for infrastructure and for pilots (M1-M5), Lead BOSC; Participants: LESP, CZU, UAYSEN, UAM, CENICAFE, FIA

The main goal of one to integrate T2.1 is to collect and define requirements for the infrastructure based on the overall expected functionality of the infrastructure and based on needs and requirements for pilot applications in Chile and Columbia. Participants will prepare a Requirements document with all collected information that will define the main design of the infrastructure and future COMUNIDAD platform. A mapping of existing components will be done among partners to select appropriate to the infrastructure. Deliverable “D2.1 Requirements for infrastructure” will define all requirements for the design.

T2.2 Design of the infrastructure (M4-M8), Lead: BOSC; Part.: LESP, CZU, UAYSEN, UAM

The task will completely design the infrastructure based on Requirements collected by T2.1. Infrastructure will be designed with the incorporation of Copernicus services and datasets and existing components provided by technical partners. The design will reflect the transfer of technologies to CELAC countries with expected domains of utilization. T2.2 will cooperate with WP3 to provide inputs for training materials and with WP5 to define crucial parts of the COMUNIDAD platform. At the end of this task, a Milestone MS2 will be completed. Deliverable D2.2 “Infrastructure design document” describes the completed design of the infrastructure with all components and planned development phases.

Task 2.3 Implementation of infrastructure (M7-M12), Lead: LESP; Participants: BOSC

The task will implement the infrastructure based on the design prepared by T2.2 and reflect all requirements defined by pilots. Implementation will integrate services and data sets provided by the Copernicus programme with additional functionalities provided by partners and a defined level of parametrization for CELAC countries. It is expected to integrate local datasets and services of different levels of heterogeneity thus infrastructure will put emphasis on interoperability. The result of the task is the deliverable D2.3 "Infrastructure release," that is the release of the infrastructure with complete functionality as well as an initial user guide.

### Work package WP3 – Training and workshops in Chile and Colombia

|                            |  |                         |                    |
|----------------------------|--|-------------------------|--------------------|
| <b>Work Package Number</b> | WP3  | <b>Lead Beneficiary</b> | 5 - SOCIALINNOLABS |
| <b>Work Package Name</b>   | Training and workshops in Chile and Colombia |                         |                    |
| <b>Start Month</b>         | 4  | <b>End Month</b>        | 24                 |

#### Objectives

1. Definition of training materials content with definition of target audience
2. Development of training materials and scenarios for workshops
3. Organising of training events, workshops, and hackathons for defined target participants.

#### Description

T3.1 Introduction to Copernicus datasets and services (M04-M07), Lead: LESP; Participants: CZU

The aim of this task is to prepare an initial overview of Copernicus programme datasets and services that are available in Europe and to define a subset that is ready-to-use in CELAC countries without any additional development. This defined subset will be directly integrated in the platform defined in WP2 and can be directly propagated by initial workshops. List of services and datasets of Copernicus programme and their selection for CELAC countries will be described in D3.1 "Copernicus programme services and datasets" deliverable.

T3.2 Preparation and collection of materials (M04-M08), Lead: SINNO; Participants: CZU

The aim of the task is to collect available documentations and tutorials for datasets and services identified by T3.1 as well as components planned to be implemented in infrastructure (WP2) and COMUNIDAD platform (WP5). Task will collect all materials for components provided by project partners, where a complex set of documentations and user guides will be compiled. List of available materials and prepared documentations will be listed in D3.2 "Materials and documentations for components".

T3.3 Development of training supporting materials (M07-M13), Lead: SINNO; Participants: CZU

This is the main task for development of training materials and tutorials for workshops. It will compile supporting materials for existing components of the COMUNIDAD platform and prepare brand new materials for components that will be modified for CELAC countries local environments. Supporting materials will be in the form of tutorials, user guides and commented examples of use cases. Supporting materials will be prepared for training in presence and well

as distant training (e-learning). The outcome of the task will be training materials that will be used during regional workshops as well as hackathons. This task will cooperate with WP2 as well as WP4 and WP5.

**T3.4 Trainings and workshop organisation (M6-M7, M12-M13, M19-M20, M23-M24), Lead: BOSC**

The aim of this task is to organise the first introduction workshop and then regional training events and workshops in pilot CELAC countries every 6 months. Regional workshops will be organised in both pilot countries on consecutive dates. Where the main goal of each regional workshop will be to train to use the COMUNIDAD platform based on the current released version and for future final state. The outcome of the task will be a report deliverable D3.4 "Workshops and trainings report" about organised workshops and results.

**T3.5 Evaluation and feedback of trainings and materials (M14-M16, M21-M23), Lead: UAYSEN; Participants: UAM**

The task will evaluate results of regional workshops and feedback on training materials that will be used during training events. Based on feedback from regional users, training materials will be updated or modified to reflect users' needs and knowledge. The outcome of the task will be the set of updated materials and summarised feedback in D3.5 "Evaluation and feedback report" deliverable.

**T3.6 Hackathons (M12-M13, M19-M20, M22) Lead: BOSC**

The task will organise 2 series of hackathons in the first half and at the end of the project. Hackathons will be organised in both pilot countries on consecutive dates. Hackathons will be focused on utilisation of COMUNIDAD platform and on development of applications using the services and functions of the platform. Hackathons will be focused mainly on experienced users of GIS technologies and datasets and developers of applications utilising GIS. The outcome of hackathons is mainly expected in the form of building a community of users and developers using the COMUNIDAD platform in their daily tasks. The execution of hackathons will be reported by D3.6 "Hackathons report".

## Work package WP4 – Applications and services for forestry/agriculture

|                            |  |                         |            |
|----------------------------|--|-------------------------|------------|
| <b>Work Package Number</b> | WP4  | <b>Lead Beneficiary</b> | 4 - UAYSEN |
| <b>Work Package Name</b>   | Applications and services for forestry/agriculture |                         |            |
| <b>Start Month</b>         | 4  | <b>End Month</b>        | 24         |

### Objectives

The overall aim of the WP4 is to develop and provide COPERNICUS downstream services and related APPS that will be used directly from the pilot users or indirectly by supporting the operation of the smart decision tools that will be developed for pilots and operated via COMUNIDAD Platform. The tools will be organised and tested in collaboration with project partners and local stakeholders (on both pilots: in Chile and Colombia).

- To produce operationally downstream services at high spatial and temporal resolution, that will be used to drive all the EO data, IoT, VGI and climate services.
- To develop and provide services for planning the everyday farm activities (Colombia) and forest management (Chile)
- To develop and provide agro-climatic indicators that will be used for climate risk mitigation and policy recommendations.
- To assess the impact of conventional and smart farming practices and sustainable forestry.

As well, the data products will be validated in terms of data completeness as well as precision (random errors) and accuracy (systematic biases) with respect to the spatio-temporal target scale of the climate services and the smart decision tools.

### Description

**T4.1 Colombian applications requirements definition (M04-M07), Lead: UAM, Participants: CENICAFE, FIA**

This task aims at defining the necessary requirements to implement an appropriate methodology for each proposed tool of the Colombian pilot. This is carried out by means of literature review of successful study cases that achieved a real implementation using GNSS system data. Main topics for this task will be focused on Mapping site-level using microtopography with Real Time Kinematic Global Navigation Satellite Systems (RTK GNSS), Tracking by GNSS, Landslide - fires tracking (CEMS), Hydrological balance (Copernicus Global Land Services), Environmental footprint (Copernicus Land monitoring services), Vegetation Index (Copernicus Global Land Services). Furthermore, this activity includes selecting coffee farms in different ecotopes of the coffee region in Caldas-Colombia. Requirements will be summarised in the deliverable D4.1 "Colombian applications requirements".

#### T4.2 Development of Colombian pilot applications (M08-M20) Lead: UAM, Participants: CZU, CENICAFE, FIA

For the development of the applications, the following activities are defined.

- A digital method will be implemented to map microtopography techniques, including ground-based data collection with remote sensors (GNSS). The resulting information will be processed into digital surface models that reproduce coffee crop topography in common CAD formats. To plan the planting of coffee crops, this information will be integrated into tools.
- Tracking harvesting labour tool allows tracking logistics involved in coffee cultivation (planting, fertilising, harvesting, etc.) and mapping them on the farm's topography using remote sensors (GNSS). Using this information, deterministic and forecast models will be developed to correlate several parameters of farm productivity.
- The information from remote sensors (GNSS) of the Copernicus Emergency Management Service (CEMS) will be validated in the field to establish risk management models with the aim to identify potential threats such as landslides and fires.
- Copernicus data (to monitor weather and climate conditions, such as rainfall, water availability, temperature, solar radiation) will be used together with the information from local climate stations for the analysis of the water balance to establish the effects of climate variability as well as long-term trends due to climate change. Physically based conceptual models, climatic scenarios and planning models, will be implemented to select adaptation measures and risk management in coffee production.
- By using remote sensing data, environmental problems will be identified and environmental impacts on water, soil, forests, and biodiversity will be monitored. The carbon and environmental footprint will be calculated, identifying critical environmental points along the value chain in the selected coffee farms.
- Copernicus Global Land Services will be used for determining the Vegetation Indices, which include observation day for biophysical variables such as: Plant Phenology Index (PPI), Normalised Difference Vegetation Index (NDVI), Fraction of Absorbed Photosynthetically Active Radiation (FAPAR) and Leaf Area Index (LAI). The integration of the analysis of these vegetation indices will provide new elements to coffee producers for the planning of activities and decision-making in crops.
- Results of development of applications for the Colombian pilot will be in form of demonstrations and documentations in deliverable D4.2 "Colombian pilot applications".

#### T4.3 Validation of Colombian pilot applications (M12-M24) Lead: CENICAFE, Participants: FIA

This task will evaluate the impact generated by the pilot applications through workshops, field days and forums for farmers where feedback from the pilot applications will be collected. Also, the continuous cooperation with the farmers will be needed for future activities and measurements, therefore, it is important to perform a set of trainings where the gathered feedback will be shared with the farmers and with those involved in both the assembly and deployment phases. The obtained data from the pilot applications and the feedback obtained can be then compared with locally gathered data in order to generate a database of information for further tracking of the relevant variables. The outcome of this task will be the updated feedback report, and short communications where the pilot application's development can be compared in time. Validation of pilot applications will be summarised by deliverable D4.3 "Colombian pilot applications validation".

#### T4.4 Chilean applications requirements definition (M04-M07) Lead UAYSEN; Participants: FIA

Through Copernicus and Sentinel data and the snow / non-snow Normalised Difference Snow Index (NDSI), the areas of the Aysén region that require an advanced computational algorithm based on stochastic processes will be established for the precise and total coverage of the areas of study. Calibration and validation will be done in the Ñirehuau and El Fraile with the help of the DGA weather stations. The results of the task are the deliverables D4.4 "Advanced algorithm for snow coverage," and D4.5 "Snow coverage map," containing the algorithm code for obtaining the full snow coverage map for the region.

#### T4.5 Development of Chilean pilot applications (M08-M20) Lead UAYSEN; Participants: FIA

A mathematical-computational model will be produced based on System Dynamics, DMP, and complex networks that take snow / non-snow coverage as the driving force. The model will be calibrated with the data from the previous task. The local models will be extended to small towns through a distributed and complex model of a multi-scale type in the study area. A two-layer approach will be considered (controlled dynamics and uncontrolled dynamics). It will lead to a snow/land/forests/water-covered climatology based on Copernicus and the whole EGNSS system. The initiative's results should contribute to a better understanding of how the economy and society depend on healthy, resilient ecosystems, both those responsible for public decision-making (FIA) and its compliance, as well as private sector actors and productivity. The result of the task is the deliverable D4.6 "Computational network model," including the local mathematical models and the integrated full regional model.

#### T4.6 Validation of Chilean pilot applications (M12-M24) Lead: FIA; Participants: UAYSEN

An integrated decision-making support system will be built through the COMUNIDAD platform (WP2 and WP5) that offers a large-scale visualization to the governance entities and the rest of the stakeholders. A website that includes a

series of explanatory videos, TED-type talks, and other elements of exploitation of the platform linked to the results of WP6 will also be permanently enabled at the University of Aysén. The system will impact decisions on risk management for landslides, GLOFs (Glacial Lake Outburst Flood), and fire tracking. A portable APP for local end-users will be delivered through deliverable D4.7 "Remote APP."

## Work package WP5 – COMUNIDAD Platform

|                            |                    |                         |         |
|----------------------------|--------------------|-------------------------|---------|
| <b>Work Package Number</b> | WP5                | <b>Lead Beneficiary</b> | 3 - CZU |
| <b>Work Package Name</b>   | COMUNIDAD Platform |                         |         |
| <b>Start Month</b>         | 7                  | <b>End Month</b>        | 24      |

### Objectives

1. Initial development of COMUNIDAD platform based on requirements collected in WP2 and utilisation of components defined by WP2.
2. Internal testing of the COMUNIDAD platform and preparation of initial release for workshops and hackathons
3. Final development of the COMUNIDAD platform based on pilot testing and workshops feedback.

### Description

Task 5.1 Definition of infrastructure for COMUNIDAD platform (M07-M10) Lead: BOSC; Participants: LESP, CZU, UAYSEN, SINNO, UAM

Task 5.1 will define the infrastructure for the COMUNIDAD platform based on requirements defined in T2.1 and the basic infrastructure designed and developed by WP2. This task is defining the infrastructure for the functionality of services as well as for user applications and target users. Infrastructure will be defined without limitations to the pilots in WP4 but for wider usage. The definition of the infrastructure will be described by deliverable D5.1 "Definition of infrastructure for COMUNIDAD platform".

Task 5.2 Integration of components to the COMUNIDAD platform M10-M19) Lead: LESP; Participants: BOSC, CZU, UAM, UAYSEN

Task 5.2 is the main development task that will develop the COMUNIDAD platform with all components defined by T5.1 and infrastructure definition in WP2. The COMUNIDAD platform will be developed to cover defined requirements and integrate datasets necessary for pilots. However, the platform will be developed as extensible for further utilization in other domains. The development and integration process will be managed by the task leader in closer cooperation with the technical coordinator of the project to cooperate with WP2, WP3 and WP4. The development process will be managed by regular technical meetings with the participation of all technical partners. The task will incorporate feedback from testing of the platform delivered by T5.2 as well as planned hackathons (T3.6).

The results of the T5.2 will be the release of the COMUNIDAD platform available for full operational state in pilots. The release will be described by the D5.2 "COMUNIDAD platform release," which will be utilized for training materials in WP3 as documentation and a basic user guide.

Task 5.3 Testing of the COMUNIDAD platform (M12-M13, M19-M20) Lead: CZU; Participants: UAYSEN, SINNO, UAM, CENICAFE, FIA

The aim of this task is to test the status and development level of the COMUNIDAD platform during the integration and development process. Testing will be based on a predefined list of functionalities that will be implemented in a defined part of the project. Testing will be organized in cooperation with Hackathons (T3.6). Results of the testing process will be evaluation documents (D5.3.1 "Testing results v1", D5.3.2 "Testing results v2"), and the feedback will be reflected in the development process by T5.2.

Task 5.4 Support of the operational status of the COMUNIDAD platform (M19-M24), Lead: LESP, Participants: BOSC

The aim of this task is to support the COMUNIDAD platform during the operational status after the final release. The work will mainly consist of incorporating updates of services and newer versions of datasets. Any unexpected bugs and malfunctions of the platform will be processed. A report of the operational status will be delivered by deliverable D5.4 "Operational status report," and will consist of a general report as well as specific reports from pilot countries, resp. from tasks T5.5 and T5.6.

Task 5.5 COMUNIDAD platform operational status - Colombia (M12-M13, M19-M24), Lead: UAM, Participants: CENICAFE, CZU

The aim of this task is very similar to the previous T5.4, but it will be focused mainly on local datasets and services from Colombia that will be integrated in the local instance of the COMUNIDAD platform.

Task 5.6 COMUNIDAD platform operational status - Chile (M12-M13, M19-M24), Lead: UAYSEN, Participants: FIA

The aim of this task is very similar to the previous T5.4, but it will be focused mainly on local datasets and services from Chile that will be integrated in the local instance of the COMUNIDAD platform.

## Work package WP6 – Dissemination and exploitation

|                            |                                |                         |         |
|----------------------------|--------------------------------|-------------------------|---------|
| <b>Work Package Number</b> | WP6                            | <b>Lead Beneficiary</b> | 3 - CZU |
| <b>Work Package Name</b>   | Dissemination and exploitation |                         |         |
| <b>Start Month</b>         | 3                              | <b>End Month</b>        | 24      |

### Objectives

1. Enhance the awareness among various groups by engagement and knowledge sharing.
2. Guarantee interoperability with the Climate-ADAPT platform in EU, Copernicus data from the related thematic area, other related projects, and the CELAC programmes and projects (as for example the Joint Initiative for Research and Innovation JIRI, the EurosociAL programme, the S&T EU-CELAC Senior Officials Meetings, the EU-LAC Dialogue, Chile-European Union STI Initiative) and other initiatives, ensuring clustering and coordination with other related EU/ National/ International projects and CELAC initiatives.
3. Introduce exploitation strategy focusing on stakeholders, community scientific and decision-makers engagement.

### Description

T6.1 Communication and Dissemination plan and Execution of C&D Activities (M03-M24), Lead: CZU, Participants: all partners

Setting up the project communication pillars: Development of communication Plan, design of the COMUNIDAD project's visual identity and branding, website development, social media channels, and offline materials (templates, leaflets, flyers, infographics, factsheets, and presentations). This task will also coordinate and monitor all project's C&D activities with the inputs and feedback from all project partners about event activities like social media channels and campaigns to maximize impact.

Project events: This task will support all project events, provide proper communication in regard to stakeholder management, provide one project video, and deliver micro pages in national languages will be provided to support stakeholder engagement.

Awareness campaigns: This task will focus on elaboration and carrying out specific awareness-raising campaigns targeted to the society at large, with an impact-oriented approach looking for the improvement of citizen's literacy. This plan will be used as a basis for the promotional and advertising activities planned. The results of the awareness-raising campaigns will be collected, further explored, and used via the Hub4Everybody and COMUNIDAD Platform. The C&D plan will be updated by the M18 based on the collaboration and clustering feedback.

T6.2 Planning of activities with the Advisory Board actors (M03-M07), Lead: SINNO, Participants: CZU, UAYSEN, UAM

Coordination of COMUNIDAD project activities via various regional and regional meetings involving the Advisory Board members (3 for Chile and 3 for Colombia), both strategic and technical, in order to assure interoperability and cooperation of COMUNIDAD Platform with the CELAC strategies of Copernicus data implementation, as well as with solutions in other projects. This task will enhance cooperation with other projects in HE / different programs (as well as national in Colombia and Chile); the relevant projects will be mapped, systemic communication with the coordinators will be organized, and - if relevant - events will be planned jointly in order to exchange knowledge, develop and adopt best practices, and pursue joint communication activities.

T6.3 Exploitation strategy (M03-M24) Lead: CZU, Participants: BOSC, LESP, SINNO, CENICAFE, FIA

Under this Task, the "Hub4Everybody" COMUNIDAD platform will be developed for different stakeholders, identified by the Stakeholders management plan, that will provide pathways to adapting transformative approaches and strategies to maximize and spread the benefits of space-based applications and solutions enabled by EGNSS and Copernicus in the

pilot regions. The platform will be available for the users as an easily replicable solution, which is based on Open Sources and using virtual servers. It can also be translated into different languages or can be easily used by local communities. The task will identify relevant local actors to establish successful and sustainable Copernicus / EGNSS applications and will define strategies and methods for stakeholders' engagement, co-creation, and potential replication. In this task, we will (1) identify and map the main effects of climate change impacts on agriculture and forestry in Chile and Colombia (2) analyse the stakeholders on the different pilot sites and their roles; the questionnaire related to the engagement of diverse stakeholders, to understand the most suitable Copernicus / EGNSS approach to be applied to the different pilots will be organised (semi-structured interviews) and evaluated for the WP 3 and WP4 and (3) Identification and contacting communities (schools, students, teachers, farmers, communities, forestry,..., etc.) who might be interested in Copernicus and EGNSS and use of the COMUNIDAD Platform. Invitation of them to the regional events.

T6.4 The promotion of COMUNIDAD Platform in CELAC countries (M12-M24), Lead: SINNO, Participants: CZU, UAYSEN, UAM, CENICAFE, FIA

In the framework of the exploitation strategy, a project exploitation plan will be developed for sustaining key results so they can provide guidance for the reapplication on the other sites. COMUNIDAD Platform will integrate existing Data Management Tools, Collaborative Tools, and Data Modelling tools connected to pilots in Chile and Colombia; this integration will help to transfer methods and knowledge to stakeholders and policymakers. The exploitation strategy will include close cooperation with the stakeholders at regional, national, and the European level using Open Science practices. In line with a balanced IP framework to be elaborated for the consortium partners, market analysis and business models are considered for the exploitation of the results (new or existing technologies, services, infrastructures, knowledge bases, standards, advisory services) to ensure the project innovations are brought to the market, with a special focus on policymakers, and the legal and historical circumstances on the Chilean and Colombian pilot regions. The exploitation strategy will be drafted by M10 and updated by M20 based on the running collaboration and frameworks.

## STAFF EFFORT

| Staff effort per participant   |       |       |       |       |       |       |                     |                     |
|--|-------|-------|-------|-------|-------|-------|---------------------|---------------------|
| <i>Grant Preparation (Work packages - Effort screen) — Enter the info.</i> |       |       |       |       |       |       |                     |                     |
| Participant  | WP1   | WP2   | WP3   | WP4   | WP5   | WP6   | Total Person-Months | Total Person-Months |
| 1 - LESPRO   | 9.50  | 6.00  | 2.00  |       | 7.00  | 2.00  | 26.50               |                     |
| 2 - BOSCO  | 4.50  | 7.00  | 4.00  |       | 5.00  | 2.00  | 22.50               |                     |
| 3 - CZU  | 2.00  | 1.00  | 3.00  | 1.00  | 4.00  | 8.00  | 19.00               |                     |
| 4 - UAYSEN   | 2.00  | 2.00  | 1.00  | 10.00 | 5.00  | 5.00  | 25.00               |                     |
| 5 - SOCIALINNOVLABS  | 2.00  |       | 6.00  |       | 2.00  | 10.00 | 20.00               |                     |
| 6 - UAM  | 2.00  | 2.00  | 1.00  | 6.00  | 5.00  | 3.00  | 19.00               |                     |
| 7 - FNC  | 2.00  | 1.00  |       | 6.00  | 1.00  | 3.00  | 13.00               |                     |
| 8 - FIA  | 2.00  | 1.00  |       | 12.00 | 3.00  | 4.00  | 22.00               |                     |
| <b>Total Person-Months</b>   | 26.00 | 20.00 | 17.00 | 35.00 | 32.00 | 37.00 | 167.00              |                     |

## LIST OF DELIVERABLES

| <b>Deliverables</b><br><i>Grant Preparation (Deliverables screen) — Enter the info.</i><br><i>The labels used mean:</i><br><i>Public — fully open (🚩 automatically posted online)</i><br><i>Sensitive — limited under the conditions of the Grant Agreement</i><br><i>EU classified —RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision <a href="#">2015/444</a></i> |   |                 |                     |                                      |                     |                  |
|---|---|-----------------|---------------------|--------------------------------------|---------------------|------------------|
| Deliverable No  | Deliverable Name                            | Work Package No | Lead Beneficiary    | Type                                 | Dissemination Level | Due Date (month) |
| D1.1  | Project management plan                     | WP1             | 1 - LESPRO          | R — Document, report                 | PU - Public         | 1                |
| D1.2  | Ethical procedures report                   | WP1             | 2 - BOSC            | OTHER                                | PU - Public         | 1                |
| D1.3  | Data management plan                        | WP1             | 2 - BOSC            | DMP — Data Management Plan           | PU - Public         | 2                |
| D1.4  | Risk management plan                        | WP1             | 2 - BOSC            | R — Document, report                 | PU - Public         | 3                |
| D2.1  | Requirements for infrastructure             | WP2             | 2 - BOSC            | R — Document, report                 | PU - Public         | 5                |
| D2.2  | Infrastructure design document              | WP2             | 2 - BOSC            | R — Document, report                 | PU - Public         | 8                |
| D2.3  | Infrastructure release                      | WP2             | 1 - LESPRO          | DEM — Demonstrator, pilot, prototype | PU - Public         | 12               |
| D3.1  | Copernicus programme services and datasets  | WP3             | 1 - LESPRO          | R — Document, report                 | PU - Public         | 7                |
| D3.2  | Materials and documentations for components | WP3             | 5 - SOCIALINNO LABS | R — Document, report                 | PU - Public         | 8                |
| D3.3  | Training materials                          | WP3             | 5 - SOCIALINNO LABS | DEM — Demonstrator, pilot, prototype | PU - Public         | 13               |
| D3.4  | Hackathons report                           | WP3             | 2 - BOSC            | R — Document, report                 | PU - Public         | 22               |
| D3.5  | Workshops and trainings report              | WP3             | 2 - BOSC            | R — Document, report                 | PU - Public         | 24               |

| <b>Deliverables</b>   |   |                        |                         |                                      |                            |                         |  |
|---|---|------------------------|-------------------------|--------------------------------------|----------------------------|-------------------------|--|
| <i>Grant Preparation (Deliverables screen) — Enter the info.</i>  |   |                        |                         |                                      |                            |                         |  |
| <i>The labels used mean:</i>  |   |                        |                         |                                      |                            |                         |  |
| <i>Public — fully open (📢 automatically posted online)</i>  |   |                        |                         |                                      |                            |                         |  |
| <i>Sensitive — limited under the conditions of the Grant Agreement</i>  |   |                        |                         |                                      |                            |                         |  |
| <i>EU classified — RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision <a href="#">2015/444</a></i> |   |                        |                         |                                      |                            |                         |  |
| <b>Deliverable No</b>   | <b>Deliverable Name</b>                           | <b>Work Package No</b> | <b>Lead Beneficiary</b> | <b>Type</b>                          | <b>Dissemination Level</b> | <b>Due Date (month)</b> |  |
| D3.6  | Evaluation and feedback report                    | WP3                    | 4 - UAYSEN              | R — Document, report                 | PU - Public                | 23                      |  |
| D4.1  | Colombian applications requirements               | WP4                    | 6 - UAM                 | R — Document, report                 | PU - Public                | 7                       |  |
| D4.2  | Advanced algorithm for snow coverage              | WP4                    | 4 - UAYSEN              | DEM — Demonstrator, pilot, prototype | PU - Public                | 7                       |  |
| D4.3  | Snow coverage map                                 | WP4                    | 4 - UAYSEN              | DEM — Demonstrator, pilot, prototype | PU - Public                | 7                       |  |
| D4.4  | Computational network model                       | WP4                    | 4 - UAYSEN              | DEM — Demonstrator, pilot, prototype | PU - Public                | 20                      |  |
| D4.5  | Colombian pilot applications                      | WP4                    | 6 - UAM                 | DEM — Demonstrator, pilot, prototype | PU - Public                | 20                      |  |
| D4.6  | Remote APP  | WP4                    | 4 - UAYSEN              | DEM — Demonstrator, pilot, prototype | PU - Public                | 24                      |  |
| D4.7  | Colombian pilot applications validation           | WP4                    | 7 - FNC                 | R — Document, report                 | PU - Public                | 22                      |  |
| D5.1  | Definition of architecture for COMUNIDAD platform | WP5                    | 2 - BOSC                | R — Document, report                 | PU - Public                | 10                      |  |
| D5.2  | Testing results v1                                | WP5                    | 3 - CZU                 | R — Document, report                 | PU - Public                | 13                      |  |
| D5.3  | COMUNIDAD platform release                        | WP5                    | 1 - LESPRO              | DEM — Demonstrator, pilot, prototype | PU - Public                | 19                      |  |
| D5.4  | Testing results v2                                | WP5                    | 3 - CZU                 | R — Document, report                 | PU - Public                | 20                      |  |

**Deliverables**

Grant Preparation (Deliverables screen) — Enter the info.

The labels used mean:

Public — fully open  automatically posted online)

Sensitive — limited under the conditions of the Grant Agreement

EU classified — RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision [2015/444](#)

| Deliverable No | Deliverable Name                      | Work Package No | Lead Beneficiary   | Type                 | Dissemination Level | Due Date (month) |
|----------------|---------------------------------------|-----------------|--------------------|----------------------|---------------------|------------------|
| D5.5           | Operational status report             | WP5             | 1 - LESPRO         | R — Document, report | PU - Public         | 24               |
| D6.1           | Communication & Dissemination plan v1 | WP6             | 3 - CZU            | R — Document, report | PU - Public         | 6                |
| D6.2           | Advisory Board                        | WP6             | 5 - SOCIALINNOLABS | R — Document, report | PU - Public         | 7                |
| D6.3           | Exploitation plan v1                  | WP6             | 3 - CZU            | R — Document, report | PU - Public         | 10               |
| D6.4           | Communication & Dissemination plan v2 | WP6             | 3 - CZU            | R — Document, report | PU - Public         | 18               |
| D6.5           | Exploitation plan v2                  | WP6             | 3 - CZU            | R — Document, report | PU - Public         | 20               |
| D6.6           | COMUNIDAD platform promotion report   | WP6             | 5 - SOCIALINNOLABS | R — Document, report | PU - Public         | 24               |

**Deliverable D1.1 – Project management plan**

|                           |                         |                            |             |
|---------------------------|-------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D1.1                    | <b>Lead Beneficiary</b>    | 1 - LESPRO  |
| <b>Deliverable Name</b>   | Project management plan |                            |             |
| <b>Type</b>               | R — Document, report    | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 1                       | <b>Work Package No</b>     | WP1         |

|   |
|---|
| <b>Description</b>                        |
| Plan to manage and coordinate the project |

**Deliverable D1.2 – Ethical procedures report**

|                           |                           |                            |             |
|---------------------------|---------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D1.2                      | <b>Lead Beneficiary</b>    | 2 - BOSC    |
| <b>Deliverable Name</b>   | Ethical procedures report |                            |             |
| <b>Type</b>               | OTHER                     | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 1                         | <b>Work Package No</b>     | WP1         |

|  |
|--|
| <b>Description</b>                     |
| Setting the ethics for the cooperation |

**Deliverable D1.3 – Data management plan**

|                           |                            |                            |             |
|---------------------------|----------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D1.3                       | <b>Lead Beneficiary</b>    | 2 - BOSC    |
| <b>Deliverable Name</b>   | Data management plan       |                            |             |
| <b>Type</b>               | DMP — Data Management Plan | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 2                          | <b>Work Package No</b>     | WP1         |

|                                 |
|---------------------------------|
| <b>Description</b>              |
| Plan to manage the project data |

**Deliverable D1.4 – Risk management plan**

|                           |                      |                            |             |
|---------------------------|----------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D1.4                 | <b>Lead Beneficiary</b>    | 2 - BOSC    |
| <b>Deliverable Name</b>   | Risk management plan |                            |             |
| <b>Type</b>               | R — Document, report | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 3                    | <b>Work Package No</b>     | WP1         |

|  |
|--|
| <b>Description</b>   |
| Plan to manage the risks and identify the additional risks |

### Deliverable D2.1 – Requirements for infrastructure

|                           |                                 |                            |             |
|---------------------------|---------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D2.1                            | <b>Lead Beneficiary</b>    | 2 - BOSC    |
| <b>Deliverable Name</b>   | Requirements for infrastructure |                            |             |
| <b>Type</b>               | R — Document, report            | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 5                               | <b>Work Package No</b>     | WP2         |

|  |
|--|
| <b>Description</b>                                   |
| Requirements document for the infrastructure design. |

### Deliverable D2.2 – Infrastructure design document

|                           |                                |                            |             |
|---------------------------|--------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D2.2                           | <b>Lead Beneficiary</b>    | 2 - BOSC    |
| <b>Deliverable Name</b>   | Infrastructure design document |                            |             |
| <b>Type</b>               | R — Document, report           | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 8                              | <b>Work Package No</b>     | WP2         |

|  |
|--|
| <b>Description</b>                                       |
| Document contains completed design of the infrastructure |

### Deliverable D2.3 – Infrastructure release

|                           |                                      |                            |             |
|---------------------------|--------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D2.3                                 | <b>Lead Beneficiary</b>    | 1 - LESPRO  |
| <b>Deliverable Name</b>   | Infrastructure release               |                            |             |
| <b>Type</b>               | DEM — Demonstrator, pilot, prototype | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 12                                   | <b>Work Package No</b>     | WP2         |

|  |
|--|
| <b>Description</b>   |
| Implemented infrastructure with all components and functionality |

### Deliverable D3.1 – Copernicus programme services and datasets

|                           |  |                            |             |
|---------------------------|--|----------------------------|-------------|
| <b>Deliverable Number</b> | D3.1                                       | <b>Lead Beneficiary</b>    | 1 - LESPRO  |
| <b>Deliverable Name</b>   | Copernicus programme services and datasets |                            |             |
| <b>Type</b>               | R — Document, report                       | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 7  | <b>Work Package No</b>     | WP3         |

|  |
|--|
| <b>Description</b>   |
| Comprehensive overview of services and datasets provided by Copernicus programme |

### Deliverable D3.2 – Materials and documentations for components

|                           |   |                            |                    |
|---------------------------|---|----------------------------|--------------------|
| <b>Deliverable Number</b> | D3.2  | <b>Lead Beneficiary</b>    | 5 - SOCIALINNOLABS |
| <b>Deliverable Name</b>   | Materials and documentations for components |                            |                    |
| <b>Type</b>               | R — Document, report                        | <b>Dissemination Level</b> | PU - Public        |
| <b>Due Date (month)</b>   | 8   | <b>Work Package No</b>     | WP3                |

|   |
|---|
| <b>Description</b>  |
| Index of available documentations and user guides for components provided by project partners |

### Deliverable D3.3 – Training materials

|                           |                                      |                            |                    |
|---------------------------|--------------------------------------|----------------------------|--------------------|
| <b>Deliverable Number</b> | D3.3                                 | <b>Lead Beneficiary</b>    | 5 - SOCIALINNOLABS |
| <b>Deliverable Name</b>   | Training materials                   |                            |                    |
| <b>Type</b>               | DEM — Demonstrator, pilot, prototype | <b>Dissemination Level</b> | PU - Public        |
| <b>Due Date (month)</b>   | 13                                   | <b>Work Package No</b>     | WP3                |

|   |
|---|
| <b>Description</b>  |
| Complex training materials for learning of COMUNIDAD platform utilisation |

### Deliverable D3.4 – Hackathons report

|                           |                      |                            |             |
|---------------------------|----------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D3.4                 | <b>Lead Beneficiary</b>    | 2 - BOSC    |
| <b>Deliverable Name</b>   | Hackathons report    |                            |             |
| <b>Type</b>               | R — Document, report | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 22                   | <b>Work Package No</b>     | WP3         |

|   |
|---|
| <b>Description</b>                        |
| Report summarising results of hackathons. |

### Deliverable D3.5 – Workshops and trainings report

|                           |                                |                            |             |
|---------------------------|--------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D3.5                           | <b>Lead Beneficiary</b>    | 2 - BOSC    |
| <b>Deliverable Name</b>   | Workshops and trainings report |                            |             |
| <b>Type</b>               | R — Document, report           | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 24                             | <b>Work Package No</b>     | WP3         |

|  |
|--|
| <b>Description</b>   |
| Report summarising results of workshops and training organisation. |

### Deliverable D3.6 – Evaluation and feedback report

|                           |                                |                            |             |
|---------------------------|--------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D3.6                           | <b>Lead Beneficiary</b>    | 4 - UAYSEN  |
| <b>Deliverable Name</b>   | Evaluation and feedback report |                            |             |
| <b>Type</b>               | R — Document, report           | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 23                             | <b>Work Package No</b>     | WP3         |

|  |
|--|
| <b>Description</b>   |
| Report summarising evaluation results and feedback on training materials |

### Deliverable D4.1 – Colombian applications requirements

|                           |                                     |                            |             |
|---------------------------|-------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D4.1                                | <b>Lead Beneficiary</b>    | 6 - UAM     |
| <b>Deliverable Name</b>   | Colombian applications requirements |                            |             |
| <b>Type</b>               | R — Document, report                | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 7                                   | <b>Work Package No</b>     | WP4         |

|  |
|--|
| <b>Description</b>                                   |
| Requirements document for the Colombian applications |

### Deliverable D4.2 – Advanced algorithm for snow coverage

|                           |                                      |                            |             |
|---------------------------|--------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D4.2                                 | <b>Lead Beneficiary</b>    | 4 - UAYSEN  |
| <b>Deliverable Name</b>   | Advanced algorithm for snow coverage |                            |             |
| <b>Type</b>               | DEM — Demonstrator, pilot, prototype | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 7                                    | <b>Work Package No</b>     | WP4         |

|  |
|--|
| <b>Description</b>                                       |
| Advanced algorithm code for total snow/non-snow coverage |

### Deliverable D4.3 – Snow coverage map

|                           |                                      |                            |             |
|---------------------------|--------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D4.3                                 | <b>Lead Beneficiary</b>    | 4 - UAYSEN  |
| <b>Deliverable Name</b>   | Snow coverage map                    |                            |             |
| <b>Type</b>               | DEM — Demonstrator, pilot, prototype | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 7                                    | <b>Work Package No</b>     | WP4         |

|  |
|--|
| <b>Description</b>                                     |
| Snow / nonsnow coverage map of the entire Aysén region |

### Deliverable D4.4 – Computational network model

|                           |                                      |                            |             |
|---------------------------|--------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D4.4                                 | <b>Lead Beneficiary</b>    | 4 - UAYSEN  |
| <b>Deliverable Name</b>   | Computational network model          |                            |             |
| <b>Type</b>               | DEM — Demonstrator, pilot, prototype | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 20                                   | <b>Work Package No</b>     | WP4         |

|   |
|---|
| <b>Description</b>  |
| Complete integrated network model and bank of numerical simulations |

### Deliverable D4.5 – Colombian pilot applications

|                           |                                      |                            |             |
|---------------------------|--------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D4.5                                 | <b>Lead Beneficiary</b>    | 6 - UAM     |
| <b>Deliverable Name</b>   | Colombian pilot applications         |                            |             |
| <b>Type</b>               | DEM — Demonstrator, pilot, prototype | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 20                                   | <b>Work Package No</b>     | WP4         |

|  |
|--|
| <b>Description</b>   |
| Set of applications and their documentations developed in pilot. |

### Deliverable D4.6 – Remote APP

|                           |                                      |                            |             |
|---------------------------|--------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D4.6                                 | <b>Lead Beneficiary</b>    | 4 - UAYSEN  |
| <b>Deliverable Name</b>   | Remote APP                           |                            |             |
| <b>Type</b>               | DEM — Demonstrator, pilot, prototype | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 24                                   | <b>Work Package No</b>     | WP4         |

|  |
|--|
| <b>Description</b>   |
| APP that interacts with the computational model and shows the results remotely to the end user |

### Deliverable D4.7 – Colombian pilot applications validation

|                           |   |                            |             |
|---------------------------|---|----------------------------|-------------|
| <b>Deliverable Number</b> | D4.7                                    | <b>Lead Beneficiary</b>    | 7 - FNC     |
| <b>Deliverable Name</b>   | Colombian pilot applications validation |                            |             |
| <b>Type</b>               | R — Document, report                    | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 22                                      | <b>Work Package No</b>     | WP4         |

|  |
|--|
| <b>Description</b>                           |
| Report from validation of pilot applications |

### Deliverable D5.1 – Definition of architecture for COMUNIDAD platform

|                           |   |                            |             |
|---------------------------|---|----------------------------|-------------|
| <b>Deliverable Number</b> | D5.1  | <b>Lead Beneficiary</b>    | 2 - BOSC    |
| <b>Deliverable Name</b>   | Definition of architecture for COMUNIDAD platform |                            |             |
| <b>Type</b>               | R — Document, report                              | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 10  | <b>Work Package No</b>     | WP5         |

|  |
|--|
| <b>Description</b>   |
| Detailed description of the architecture for COMUNIDAD platform for services, datasets and end-users' applications |

### Deliverable D5.2 – Testing results v1

|                           |                      |                            |             |
|---------------------------|----------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D5.2                 | <b>Lead Beneficiary</b>    | 3 - CZU     |
| <b>Deliverable Name</b>   | Testing results v1   |                            |             |
| <b>Type</b>               | R — Document, report | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 13                   | <b>Work Package No</b>     | WP5         |

|   |
|---|
| <b>Description</b>  |
| Report of testing of the current version of the COMUNIDAD platform. |

### Deliverable D5.3 – COMUNIDAD platform release

|                           |                                      |                            |             |
|---------------------------|--------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D5.3                                 | <b>Lead Beneficiary</b>    | 1 - LESPRO  |
| <b>Deliverable Name</b>   | COMUNIDAD platform release           |                            |             |
| <b>Type</b>               | DEM — Demonstrator, pilot, prototype | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 19                                   | <b>Work Package No</b>     | WP5         |

|  |
|--|
| <b>Description</b>   |
| Release of the COMUNIDAD platform ready for the operational state to be utilised in pilots. Basic documentation as user guide. |

### Deliverable D5.4 – Testing results v2

|                           |                      |                            |             |
|---------------------------|----------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D5.4                 | <b>Lead Beneficiary</b>    | 3 - CZU     |
| <b>Deliverable Name</b>   | Testing results v2   |                            |             |
| <b>Type</b>               | R — Document, report | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 20                   | <b>Work Package No</b>     | WP5         |

|   |
|---|
| <b>Description</b>  |
| Report of testing of the final version of the COMUNIDAD platform. |

**Deliverable D5.5 – Operational status report**

|                           |                           |                            |             |
|---------------------------|---------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D5.5                      | <b>Lead Beneficiary</b>    | 1 - LESPRO  |
| <b>Deliverable Name</b>   | Operational status report |                            |             |
| <b>Type</b>               | R — Document, report      | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 24                        | <b>Work Package No</b>     | WP5         |

|  |
|--|
| <b>Description</b>   |
| Report summarising status of operational state of the COMUNIDAD Platform |

**Deliverable D6.1 – Communication & Dissemination plan v1**

|                           |                                       |                            |             |
|---------------------------|---------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D6.1                                  | <b>Lead Beneficiary</b>    | 3 - CZU     |
| <b>Deliverable Name</b>   | Communication & Dissemination plan v1 |                            |             |
| <b>Type</b>               | R — Document, report                  | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 6                                     | <b>Work Package No</b>     | WP6         |

|   |
|---|
| <b>Description</b>  |
| Communication and Dissemination plan for the communication and dissemination management |

**Deliverable D6.2 – Advisory Board**

|                           |                      |                            |                    |
|---------------------------|----------------------|----------------------------|--------------------|
| <b>Deliverable Number</b> | D6.2                 | <b>Lead Beneficiary</b>    | 5 - SOCIALINNOLABS |
| <b>Deliverable Name</b>   | Advisory Board       |                            |                    |
| <b>Type</b>               | R — Document, report | <b>Dissemination Level</b> | PU - Public        |
| <b>Due Date (month)</b>   | 7                    | <b>Work Package No</b>     | WP6                |

|   |
|---|
| <b>Description</b>  |
| Definition of the AB formed by the experts in EO, agriculture, forestry and land management from Chile and Colombia |

**Deliverable D6.3 – Exploitation plan v1**

|                           |                      |                            |             |
|---------------------------|----------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D6.3                 | <b>Lead Beneficiary</b>    | 3 - CZU     |
| <b>Deliverable Name</b>   | Exploitation plan v1 |                            |             |
| <b>Type</b>               | R — Document, report | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 10                   | <b>Work Package No</b>     | WP6         |

|   |
|---|
| <b>Description</b>  |
| First version of exploitation plan to support an implementation of the key results so they can provide guidance for the reapplication on the other sites and different end users. |

### Deliverable D6.4 – Communication & Dissemination plan v2

|                           |                                       |                            |             |
|---------------------------|---------------------------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D6.4                                  | <b>Lead Beneficiary</b>    | 3 - CZU     |
| <b>Deliverable Name</b>   | Communication & Dissemination plan v2 |                            |             |
| <b>Type</b>               | R — Document, report                  | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 18                                    | <b>Work Package No</b>     | WP6         |

|   |
|---|
| <b>Description</b>  |
| Communication and Dissemination plan for the communication and dissemination management |

### Deliverable D6.5 – Exploitation plan v2

|                           |                      |                            |             |
|---------------------------|----------------------|----------------------------|-------------|
| <b>Deliverable Number</b> | D6.5                 | <b>Lead Beneficiary</b>    | 3 - CZU     |
| <b>Deliverable Name</b>   | Exploitation plan v2 |                            |             |
| <b>Type</b>               | R — Document, report | <b>Dissemination Level</b> | PU - Public |
| <b>Due Date (month)</b>   | 20                   | <b>Work Package No</b>     | WP6         |

|  |
|--|
| <b>Description</b>   |
| Exploitation plan to support an implementation of the key results so they can provide guidance for the reapplication on the other sites and different end users. |

### Deliverable D6.6 – COMUNIDAD platform promotion report

|                           |                                     |                            |                    |
|---------------------------|-------------------------------------|----------------------------|--------------------|
| <b>Deliverable Number</b> | D6.6                                | <b>Lead Beneficiary</b>    | 5 - SOCIALINNOLABS |
| <b>Deliverable Name</b>   | COMUNIDAD platform promotion report |                            |                    |
| <b>Type</b>               | R — Document, report                | <b>Dissemination Level</b> | PU - Public        |
| <b>Due Date (month)</b>   | 24                                  | <b>Work Package No</b>     | WP6                |

|   |
|---|
| <b>Description</b>  |
| Overall report of methods and results of promotion of the COMUNIDAD platform in CELAC countries |

## LIST OF MILESTONES

| <b>Milestones</b>  |  |                        |                         |   |                         |
|--|--|------------------------|-------------------------|---|-------------------------|
| <i>Grant Preparation (Milestones screen) — Enter the info.</i> |  |                        |                         |   |                         |
| <b>Milestone No</b>  | <b>Milestone Name</b>                                  | <b>Work Package No</b> | <b>Lead Beneficiary</b> | <b>Means of Verification</b>  | <b>Due Date (month)</b> |
| 1  | Project start review                                   | WP1                    | 2 - BOSC                | Project started and all communication and responsibilities were set up. | 3                       |
| 2  | Review of architecture design requirements definitions | WP2                    | 1 - LESPRO              | Initial design document for infrastructure is ready.                    | 8                       |
| 3  | Review of initial infrastructure deployment            | WP5                    | 3 - CZU                 | First release of the infrastructure is ready, suitable for hackathons.  | 13                      |
| 4  | Review of forestry and agriculture pilots status       | WP4                    | 8 - FIA                 | Pilot applications are developed and ready for validation.              | 20                      |
| 5  | Review of finalised training materials                 | WP3                    | 5 - SOCIALINNOLABS      | Training materials are ready and tested by workshops.                   | 22                      |

## LIST OF CRITICAL RISKS

| <b>Critical risks &amp; risk management strategy</b>               |   |                              |  |
|--|---|------------------------------|--|
| <i>Grant Preparation (Critical Risks screen) — Enter the info.</i> |   |                              |  |
| <b>Risk number</b>   | <b>Description</b>  | <b>Work Package No(s)</b>    | <b>Proposed Mitigation Measures</b>  |
| 1  | Travel restriction  | WP4, WP3, WP2, WP6, WP1, WP5 | The workshops and training will be organised on-line.                                    |
| 2  | Lack of communication between partners, partners do not fulfil tasks. | WP4, WP3, WP2, WP6, WP1, WP5 | The partners have past records of working together in the projects or bilateral research |

| <b>Critical risks &amp; risk management strategy</b>               |  |                              |   |
|--|--|------------------------------|---|
| <i>Grant Preparation (Critical Risks screen) — Enter the info.</i> |  |                              |   |
| <b>Risk number</b>   | <b>Description</b>   | <b>Work Package No(s)</b>    | <b>Proposed Mitigation Measures</b>   |
|  |  |                              | activities. The regular project meetings will track progress and the coordination team will monitor the project and identify any challenges at time.  |
| 3  | Critical datasets, data from previous projects needed in several WPs are IP protected or in a format that is costly to digitise.         | WP4, WP2, WP1                | The partners made the literature search and overview of the data that will be needed under WP2, and they are not expecting such a problem. If key data sets are too difficult to work with, such as those needed in WP4, work will be shifted to other datasets with more accessible data.  |
| 4  | Interference with interests and priorities of various key players, such as policy, industry, water providers, intensive agriculture, ... | WP3, WP6                     | The stakeholders will participate actively in WP3 and 6 and on the different focus groups meetings. The Pilot partners will monitor any conflicts related to interests and priorities closely and together with the WP1; the coordinator will act to resolve any potential conflicts before serious development with the cooperation with the AB (D6.2)   |
| 5  | Not adequate level of quality or delays in deliverables/milestones achieving.  | WP4, WP3, WP2, WP6, WP1, WP5 | Constant monitoring under WP1. Follow-up strategies established within periodic Team meetings, interim internal reports to monitor the evolution of the project. A peer-review process applied to all deliverables before submission. The WP leader will request a new improved version, if necessary. In case of delays, the WP leader will assess the reasons for it and negotiate a new deadline if necessary. All problems will be discussed on the level of the WP leaders |
| 6  | GDPR and Data Management problems  | WP4, WP3, WP2, WP6, WP1, WP5 | All the possible precautions for data management (such as encryption, authentication, authorization) will be described and constantly updated in the DMP to guarantee protection requirements (confidentiality, integrity, and availability). All data will be managed in line with the FAIR principles.  |
| 7  | The COMUNIDAD Platform is not satisfying end user needs.   | WP6, WP5                     | The end users will be involved from the beginning to the Platform development and testing in a line with D6.3.  |

## PROJECT REVIEWS

| <b>Project Reviews</b><br><i>Grant Preparation (Reviews screen) — Enter the info.</i> |                       |                 |                 |
|---|-----------------------|-----------------|-----------------|
| <b>Review No</b>  | <b>Timing (month)</b> | <b>Location</b> | <b>Comments</b> |
| RV1   | 13                    |                 | Mid-Term Review |
| RV2   | 24                    |                 | Final Review    |

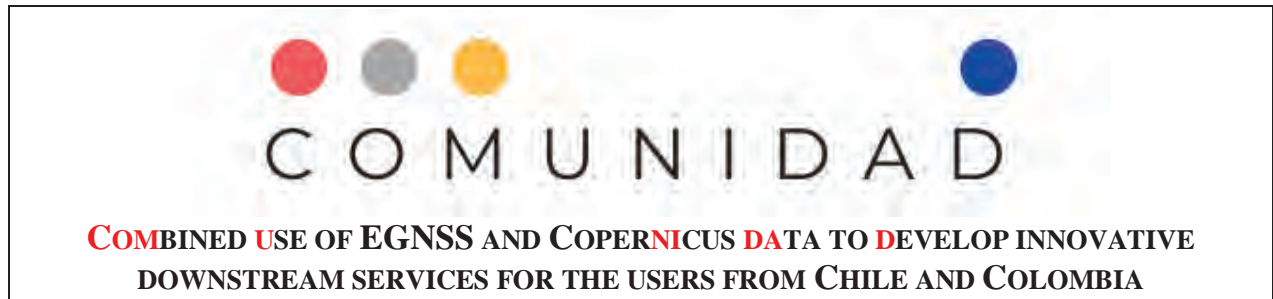
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| HISTORY OF CHANGES |                  |  |
|--------------------|------------------|--|
| VERSION            | PUBLICATION DATE | CHANGE   |
| 1.0                | 11.08.2023       | Initial version of the DoA.  |
| 1.1                | 14.08.2023       | Check and update of chapter numbers  |
| 1.2                | 16.08.2023       | Cross-check of the corresponding PMs in Work packages and WP leaders, fixed typos based on the Gantt chart   |
| 1.3                | 18.08.2023       | Cross-check the timing of Deliverables according to the Gantt chart, fix typos based on the Gantt chart.   |
| 1.4                | 21.08.2023       | The final version of DoA   |
| 1.5                | 02.09.2023       | Updated chapter 4 after revision   |
| 1.6                | 10.09.2023       | Added business plan and final version of DoA   |
| 1.7                | 20.09.2023       | Removed business plan, updated list of Milestones, deliverables  |
| 1.8                | 11.10.2023       | Requested modification of project start to 1 <sup>st</sup> March 2024.   |
| 1.9                | 25.10.2023       | Withdraw of the Beneficiary CONAF. Effort divided between UAYSEN and FIA, T4.6 will lead FIA, MS4 will be led by UAYSEN.   |
| 2.0                | 30.10.2023       | Explanation of Hackathon prize in Ch1.4, added description of stakeholders in Ch3.2, correction table of 3.1h section BOSC.  |
| 2.1                | 14.11.2023       | Change of the project coordinator<br>Added definition of the “internal manager of the international collaboration” in chapter 1.1.3<br>Updated justification in table 3.1h based on updated travelling persons |

|  |  |  |
|--|--|--|
|  |  | <p>Changed deliverables:</p> <ul style="list-style-type: none"><li>• D1 “Project management plan” responsibility to LESP</li><li>• D12 “Infrastructure design document” responsibility to BOSC</li><li>• D14 name changed to “Definition of architecture for COMUNIDAD platform” for clarification between design of infrastructure in WP2 and platform in WP5</li></ul> <p>Change of Gantt schema and Travel overview</p> |
|--|--|--|

## Proposal template Part B: technical description



#@APP-FORM-HERIAIA@#

# 1 Excellence

#@REL-EVA-RE@#

## Why COMUNIDAD should be funded?

**COMUNIDAD aims to advance the Consortium’s European experiences in developing Copernicus-based services and combining the use of EGNSS and Copernicus for supporting more sustainable agriculture, forestry, and land management in Latin America, with the main focus on Chile and Colombia.**

**COMUNIDAD will be a facilitator of new business opportunities in Chile and Colombia for the European industry of Earth Observation services.**

**The COMUNIDAD services for forestry and land monitoring will be demonstrated in the Patagonia – Aysén (Chile) and the coffee axis – Manizales, Caldas (Colombia) which are very different pilot areas from geographical, hydrological, land management, and policy points of view and both have important social, economic, and environmental values and benefits to Latin America and the world.**

## 1.1 Objectives and ambition

#@PRJ-OBJ-PO@#

COMUNIDAD project is to shape a **stakeholder community that will actively use the Copernicus data and services**, to develop jointly algorithms, services, and/or products that serve local user needs and/or enhance the Copernicus global product quality and establish **combined use of EGNSS and COPERNICUS related Platform in Chile and Colombia** with the potential to transfer the experiences to all relevant CELAC countries. To do so a framework that will make use of Copernicus data from agriculture, forestry, and management will be established. The framework will particularly focus on usage, development, testing, and evaluation of both already existing (CELAC customised) and even completely new COPERNICUS downstream services in the downstream area, where the focus on forestry will be supported in Chile and focus on rural development in Colombia. We expect that such a framework will consequently drive market development in this business field in CELAC countries when combined with the involvement of local end users and support organisations, including SMEs. To turn the framework and organise the COMUNIDAD Platform, fundamental pilot applications will be developed in Chile and Colombia till TRL4 and validated for each pilot. These apps will then serve as a best practice example for further development in the existing framework for promoting the uptake of satellite navigation, position, and timing to enable Chile and Colombia to promote the uptake of Copernicus globally, exploiting possibilities for integrating in-situ, space data and information technologies and benefit from the advanced features offered by EGNOS and Galileo.

Organising the **COMUNIDAD Platform**, the project will facilitate access to Copernicus data and information for interested partners from Chile and Colombia and open the development of an “EU-CELAC Knowledge Area” through improving cooperation in research and innovation by boosting the usage of new technologies and technology transfer underpinning sustainable socio-economic development, by fostering cooperation between both regions with respect to the digital economy and by the reduction of the digital divide for improving competitiveness while making social inclusion a cross-cutting issue, accepting the Copernicus full, free and open data policy.

To achieve the main aim of COMUNIDAD, the following Scientific Objectives (SO) are addressed:

|   |   |
|---|---|
| <b>SO1:</b> Design and development of a complex platform providing services and methods utilising Copernicus and GEOSS data and services for final users in Chile and Colombia in different domains (example of the domains: agriculture, forestry, and rural development pilot sites).   |   |
| COMUNIDAD will primarily use ESA Open Access Hub as the main data source, Copernicus Data, and Information Access Services (DIAS) can also be used for some specific cases, should there be a need for the regional approach context and transfer, as well as other existing data access solutions. The third-party data (including in-situ data) will be integrated into models and products made available on the Copernicus platform of the Copernicus services. The first task for the SO1 successful development will be an organisation of a stakeholder community and establishment of the COPERNICUS collaboration. Next, the data storage for original satellite images from ESA services will be defined. This storage will contain methods for atmospheric corrections, calculations, and processing. Corrected images will be processed for different products (vegetation and other indices, unsupervised/supervised classifications, etc.). All images will be provided by a system of web services for further processing. |   |
| <b>Outputs</b>  | <b>Means of verification (KPI):</b>   |
| Identify and engage the stakeholders' community in the utilisation of COPERNICUS downstream services for smart/sustainable agriculture and forestry in Chile and Colombia, including farmers, agronomists, climate scientists, innovative SMEs, policymakers, NGOs, and researchers.<br>Build the data storage for original satellite images from ESA services.   | <ul style="list-style-type: none"> <li>Community of min. 50 stakeholders in Chile and 50 stakeholders in Colombia.</li> <li>Data storage framework established in Spanish and English.</li> <li>Requirements of smart/sustainable agriculture for Copernicus services in Chile and Colombia; 1 document per country.</li> </ul> |
| <b>SO2:</b> Increase awareness of the capability of Copernicus services and GEOSS data and tools by training events and workshops in Chile, Colombia, and Spain   |   |
| The framework and requirement analysis for the utilisation of Copernicus downstream services in Chile and Colombia will be prepared to understand the links between current farming practices, rural policies, and the concept of smart/sustainable agriculture/forestry to be incorporated into the COMUNIDAD Platform. The vulnerabilities of current systems due to climate change will be identified, and a set of downstream services for CELAC countries (with a focus on Chile and Colombia) will be defined based on DIAS or other existing platforms. Participation of partners involved in international GEO initiatives will be ensured by organising the <b>Advisory Board</b> (Task 6.2). The participation of industry, in particular SMEs, will be facilitated thanks to well-known partners of COMUNIDAD in the respective domain. Training events will be organised to support different target groups (see the WP3).  |   |
| <b>Outputs</b>  | <b>Means of verification (KPI):</b>   |
| Workshops and training events organised for the large regional data providers, regional public authorities, national ministry, commercial subjects, NGOs, individual interested parties related to the selected domains (farmers, water utilities, rural communities), scientists and young researchers, post-graduate scientists, and engineers.   | <ul style="list-style-type: none"> <li>Regional workshops (4x pilot Chile, 4x pilot Colombia)</li> <li>Hackathons (2 x Chile, 2 x Colombia)</li> <li>International event in Europe (Spain) - 1 event.</li> </ul>  |
| <b>SO3:</b> Define possibilities for wider promotion and utilisation of the platform in further countries in Chile and Colombia. Define workflow for extending the platform for different target regions and domains.   |   |
| Under SO3, we will implement collected requirements to extend the platform for utilisation in a wider spectrum of use cases and domains. COMUNIDAD will adapt and evolve, as required, data processing tools already available on DIAS. These main changes will be focused on the capabilities to exploit HPC capabilities with the new data management tools, the improvement of the users' portal, and the adaptation of resources management.  |   |
| <b>Outputs</b>  | <b>Means of verification (KPI):</b>   |
| Modification of existing solutions – FIE20, HUB4Everybody for target users from CELAC countries (with a focus on Chile and Colombia) in the context of local needs and requirements.  | Get at least 2 executable applications targeting large-scale datasets and derived from existing tools for target countries (Chile and Colombia).  |
| <b>SO4:</b> Enhancement of the combined use of EGNSS and Copernicus data to serve local user needs and provide opportunities for business-oriented partnerships and or sustainable development  |   |

| Operational production and provision of COPERNICUS-related information for different spatial and temporal scales that will be used to help farmers/foresters to make smart decisions and policymakers to assess the effect of different land uses and farming practices on mitigating climate change impacts. To develop methodologies based on big data analytics and AI algorithms. To develop the COMUNIDAD Platform based on COPERNICUS services to support farmers and foresters to manage the everyday activities in the field and forests and combine these data with EGNSS. |  |
|---|--|
| Outputs   | Means of verification (KPI):   |
| Data storage/platform will be dedicated to defined resorts/organisations or target regions. A Set of services will be developed on top of the data storage to provide data or processed results for further processing in applications.<br>Commercialization of the platform to large regional data providers - regional authorities, national ministry, commercial subjects, awareness about project activities, and the dissemination of results.   | <ul style="list-style-type: none"> <li>• Detail smart/sustainable farming module and patterns map for 1 region in Chile and 1 region in Colombia.</li> <li>• Dissemination and Communication plan, Exploitation Plan</li> <li>• 10 publications (expected: 2 in journals with impact, 3 in Scopus/WoS, 5 conference papers),</li> <li>• Web page, community on social media of 300 members.</li> </ul> |

### 1.1.2 Ambition

COMUNIDAD know-how of the consortium will bring:

- Access to Copernicus data and global services.
- Processing of raw data to get derivatives focused on selected countries.
- Analytical functions.
- End-users’ applications.

As the Copernicus products and derivatives are mainly focused on pan-European areas it is necessary to implement the full pipeline to process Copernicus products to local market needs. **Copernicus** is a European asset for space-based monitoring of the Earth, consisting of a complex set of systems, which collect data from multiple sources: Earth observation (EO) satellites and in-situ sensors such as ground stations, airborne and sea-borne sensors. It processes these data and provides users with reliable and up-to-date information through a set of services related to environmental and security issues. As it became clear, the key to unleashing the huge potential of Copernicus is easy access to its data and information products. In this regard, the European Commission (EC) created the baseplate for establishing an Integrated Ground System (IGS) for Copernicus that will empower the user communities to have the maximum benefits from EO data and information. To facilitate and standardise access to data, the EC has funded the deployment of five cloud-based platforms providing centralised access to Copernicus data and information, as well as processing tools. These platforms are known as the **Data and Information Access Services (DIAS)**. The five DIAS online platforms allow users to discover, manipulate, process, and download Copernicus data and information. All DIAS platforms provide access to Copernicus Sentinel data, as well as to the information products from Copernicus’ six operational services, together with cloud-based tools (open source and/or on a pay-per-use basis). Copernicus services provide standardised multi-purpose information common to a broad range of application areas relevant to EU policies, many of which are implemented at national or regional levels aiming at sustainability. Development of products and services downstream of these Copernicus services is expected to serve specific national (or transnational), regional, or local information needs, as well as the needs of niche European and global markets. The evolution of these services, from research to being operational, is continuing steadily. In each of the service areas, the range of products designed to meet the needs of identifiable groups of users is growing.

An essential part of COMUNIDAD development through pilot applications in Chile and Colombia is the direct involvement of regional end-users, decision-makers, and support organisations with experience in different downstream areas. CZU will also provide a direct link into the EU-CELAC SOM framework with the associated working groups, specifically that on Food Security, Biodiversity, and Climate Change, to facilitate the broader cooperation in Latin America and transfer of experiences not only to different regions in Chile and Colombia (and different downstream areas) but as well to the other CELAC countries. This framework links directly with relevant government offices and national networks in countries across the CELAC region, providing nodes for effective communication and feedback on actions of interest and value such as this.

On a policy level, the COMUNIDAD will analyse relevant policies to identify synergies, conflicts, and feedback loops between sectoral policies and in the “Copernicus for agriculture and rural development” based approach. We will also draw upon the multi-actor participatory platform to develop recommendations for innovative policy instruments with the input of relevant actors, with a particular focus on incentive-based voluntary approaches

(linking for instance with CAP agri-environmental measures, WFD, etc.). The interaction with each **Pilot Application Team in Chile and Colombia** will feed our analysis framework. This will lead in principle to a long-term policy strategy, aiming at bringing about the transition into the new paradigm of sustainable agriculture growth. Considering the high vulnerability of many sectors in CELAC to climate change, our objective in COMUNIDAD is to combine public and private partners (including SMEs) with experience in different agricultural sectors including market experience in both Europe and CELAC and facilitate the collaboration of the project partners with the respective communities and users in Chile and Colombia. This approach is not only demonstrating the possibilities of potential transfer of the results and addressing the potential barriers but as well demonstrating the added value for developing new markets, information sharing, open access, and transparency. Enhancement of the combined use of EGNSS and Copernicus data to serve local user needs will be defined, thanks to the frameworks that will develop thanks to the COMUNIDAD Platform organisation.

Considering that COMUNIDAD will involve end-users from the start of the project, we will pay specific attention to dissemination of the importance of gender equity and representation in both Pilot Applications (Chile and Colombia Pilot Applications) and among local stakeholders, scientists (incl. young PhD students) and policymakers. Agriculture has a significant gender dimension, namely in CELAC. Often, the industrial farms are owned by men. Our work will address the needs of both female and male actors and will consider gender-specific ways to deal with technological tools, knowledge, and information products in the development of these. The vision of COMUNIDAD is that the growth of Copernicus and national agricultural centres and institutions will make available – on a free and open access basis – information, data products, and model results, with the close collaboration of business developers capable of providing customised and specialised high added-value services to a growing landscape of users. The growth of this market will create new demand and demand for higher service quality and will bring dynamics to market development and new job creation. Our project will strengthen the synergies between public and private operators in both the EU and CELAC regions. On the other side, COMUNIDAD will be used for sustainable agriculture as, for example, the Aysén Pilot does not have strong (or even medium-level) industries in forestry/agriculture, and the trend of ‘ecological agriculture’ and ‘conservationist and sustainable management’ of the forests is here dominant, also the interested local SMEs are conservationist-oriented regarding the forests, and ecological-oriented in regards of the agriculture. This vision is there due to 12-year continued droughts in Chile and, recently, the wildfires that affected some regions of the country and damaged the local environment.

COMUNIDAD will use the DIAS platform and mainly reuse existing platforms and projects’ results, mainly from FATIMA, STARGATE, FOODIE, SDI4Apps, and DataBio projects, and it will develop in close cooperation between CELAC and European scientists, developers, public organisations, NGOs and users- solutions to address regional agriculture/forestry of great economic, environmental, societal and political relevance and will make appropriate efforts to organise the COMUNIDAD Platform that will integrate the existing data and use the experiences of the consortium in HUB4Everybody (H4E) development, MapWhiteboard, FIE20 application and in situ measurements based on AgroNode telemetry units.

The planned action for dissemination and raising awareness will allow the participants to use the project results through concrete actions to manage knowledge and intellectual property and exploit the results in the identified market sectors.

### 1.1.3 COMUNIDAD Challenge for Chile and Colombia

COMUNIDAD aims at developing, testing, and implementing a framework that will make use of Copernicus data from agriculture, forestry and rural development in Chile and Colombia. It will develop solutions integrated on the COMUNIDAD platform with different sources of data. To achieve this, we will need to build a strong stakeholders’ community around both pilots and guarantee their real involvement. This approach will help to solve needs coming from different groups of stakeholders from farming and foresters, decision and policy makers and other related stakeholders, like NGOs, banks, insurance companies, etc. To speed up the process, we started with the first round of user needs assessment that will result in goal alignment. During the testing and validation process, the additional requirements will be collected. Not to enter the danger of reinventing the wheel, we will use/apply results from the previous studies, analysis, and models of the TRL from 4 to 6. Thus, we will analyse the existing policies that may influence the pilot interventions. This will result in creating a knowledge foundation, and later, we will observe the impact these policies have on the mitigation of microclimatic changes. Subsequently, based on our results, we will make recommendations for policymakers.

To facilitate the cooperation with Latin America in general and particularly with the end users and stakeholders from Chile and Colombia, the bilateral collaboration between the EU and LAC in the COMUNIDAD project will be

organised by the internal manager of the international collaboration, Zuzana Boukalova, who has extensive experiences from working with LAC under different Projects (EULAC Focus, ENSOCIO\_LAC, AgriClima and others). She was as well responsible for the EC Framework Programme visualisation and popularising in Brazil and Argentina, like the member of the Sounding Board of Janez Potocnik and the consultant of the INCO ALCUE NET project in Argentina.

**First Pilot is in Chile:** Patagonia – Aysén; it is one of the Chilean regions with a wide snow cover area over pastures, forests, mountains, and ice fields and poorly instrumented to evaluate the impacts of global change. In the framework of the current global change and the accelerated impact on subantarctic climates, the use of dynamical systems approaches based on remote sensing and in-situ data can generate a suitable snow/no-snow cover maps for monitoring the water footprint in Patagonia and their changes and future global scenarios and as well land use management. In COMUNIDAD, we will estimate a snow/land/forests/water-covered climatology based on Copernicus and the whole EGNSS system. Next, we will use these results to produce several computational models that link the previous covers with its effects on several economic activities, such as cattle, agriculture (how can spin new approaches), salmon harvest, forestry, tourism in general, fishing tourism, rural settlements, and urban cities. And to numerically simulate them under different scenarios and control and viability objectives, showing the simulation results through a friendly visualisation framework.

**The second Pilot is in Colombia: coffee axis – Manizales, Caldas.** In Colombia organic agriculture is a growing sector, driven by increasing demand for sustainably produced crops and government policies that support organic farming practices. Copernicus data (to monitor weather and climate conditions, such as rainfall, water availability, temperature, soil moisture, fertility and humidity, to identify land use patterns in coffee-growing regions, such as the distribution of coffee crops and other vegetation, to assess the suitability of different areas for coffee cultivation, to forecast the harvest through the flowering process, by product waste management and the spread of pests and diseases that can impact coffee crops, such as coffee rust) can be used to support coffee production by providing information and insights on environmental conditions that affect coffee crops. By analysing trends over time, it is possible to evaluate the impact of climate change on coffee production and develop strategies to mitigate its effects. Caldas is a region in Colombia with many thermal conditions, which allows agricultural variety; dominant are plantations of coffee (78,900 ha), banana and sugarcane, to a lesser extent, avocado, cocoa, rubber, citrus and general fruits, and vegetable production. The effect of climate change can displace certain crops, as has already happened in coffee plantations. Agricultural technification and knowledge of climate variability can significantly improve production conditions and even make them more sustainable.

The overall concept of COMUNIDAD is to reuse existing data and infrastructure for adopting these solutions for purposes of smart agriculture, precision agriculture, forestry, and rural development via the COMUNIDAD Platform. We aim to scale existing applications to address and respond to new challenges. As an example, today, we dispose of efficient image-processing algorithms that serve many domains, from agriculture to climate. The services possible today focus on applying these algorithms to images and data of certain size in acceptable time frames, limiting the accuracy of analyses and the capability to fuse data from several sources. The project provides innovative components for the discovery, analysis, and visualisation of Copernicus data and services. The use of this data poses many technical and practical challenges in terms of understanding the value it can create for farmers, foresters, and rural development, the effort this requires, and the ease of integrating the use of EO into their method of work. Due to the current lack of availability of technification and lack of good vehicular connection in remote sites of Chile and Colombia, the EO data systems would be an excellent solution to define the optimum zones of the different crops and fruit trees.

#### 1.1.4 State of the art

- **Copernicus data and services**

European Union Earth observation program Copernicus is focused on gathering information describing the status of the Earth's surface using remote sensing methods. The main application areas are land, marine, atmosphere, climate change, emergency management, and security. Data coverage is worldwide with a focus on Europe, access to data is free of charge. The European Union, together with the European Space Agency, are the bodies responsible for running the Copernicus program, which consists of a constellation of their own Sentinel satellites, ground segment installations and IT infrastructure used for data storage and processing.

However, not only data is available, but there are also several emergency services provided by Copernicus Emergency Management Service (CEMS) for the area of Europe that are focused on rapid on-demand data

provisioning and processing to support emergency management in the early phase of an emergency (typically floods, forest fires, etc.). CEMS can also access data of other commercial satellite systems that have been contracted to improve coverage of the area of interest - not only much more imagery is available for a single place, but also a higher variety of on-board satellite sensors provide additional data that can help with better surface mapping.

For application in Latin America, no Copernicus emergency services are provided, and six thematic services are available only at a small (i.e., overview) scale, however, the source satellite imagery from Sentinel 1 and Sentinel 2 is available for free, and it is up to the user to process the data and get the requested detailed scale products. This is what the Remote Sensing Data Processing System is proposed for as an independent and standalone solution for satellite data storage and processing pipeline.

● **Lesprojekt Cloud**

Internal cloud solution is run on own managed and dedicated servers in a location of Prague, Czech Republic and as such is under full control of Lesprojekt company. It is built on OpenStack software, based on Linux operating systems and other open-source technologies. OpenStack enables optimal usage of hardware resources joining standalone servers in a seamless cloud under a single management. It provides a vast number of services including virtualization, block device sharing, distributed computing, support to various docking technologies, etc. A very strong network stack allows for low level network isolation including VLAN support, NAT, and integrated firewall. Fine grained user management enables logical segmentation of OpenStack infrastructure into standalone independent instances as if they were run on separate physical servers. Administrator has a very good overview of the current use of hardware resources due to strong reporting capabilities and a web dashboard. Backup is done at least weekly, for critical infrastructure even more frequently. Own backup infrastructure is managed by Lesprojekt company. New virtual servers are rapidly deployed within minutes, as requested by our users. Various operating systems are prepared as snapshots for instant use.

● **Pipeline for satellite imagery download and processing**

Remote Sensing Data Processing System (RSDPS) is a processing line for satellite imagery download, processing, storage, and publication. It consists of several processing steps, starting with downloading raw Sentinel 1 and Sentinel 2 satellite scenes from the ESA Open Access Hub API. In the next step, each image is parsed for metadata (date, scene nomenclature, cloud coverage, etc.), which is stored in the metadata catalogue and processing of the scene starts. Based on the type of image (optical vs. radar), they need to go through pre-processing steps, turning raw images into corrected scenes where the influence of sensor bias and the current status of the atmosphere are minimised. This step is crucial for the comparability of different scenes displaying the same area on different dates. Basic schema of the pipeline is shown in following Figure 1.

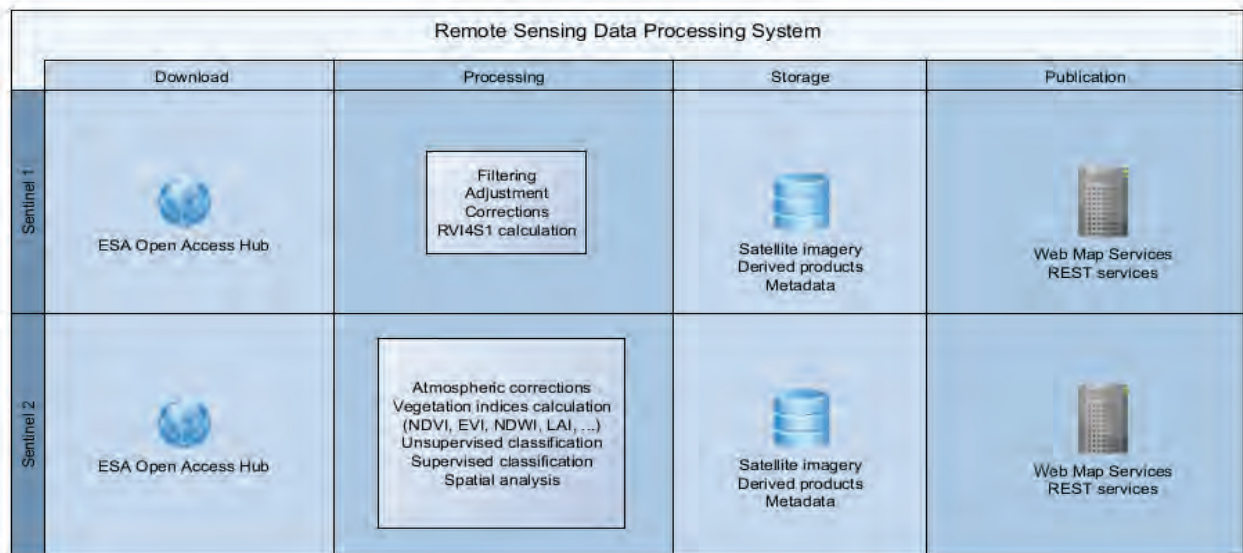


Figure 1 – Schema of the Data processing system for remote sensing data

Once the data have undergone pre-processing, further processing can start to get the requested information from the satellite images. There are different types of products that require different input data and their processing steps. These are mainly vegetation indices calculation, supervised classifications including use of machine learning based artificial neural networks algorithms providing information on state of vegetation, forests health, soil humidity, deforestation, and many more. Exact products will be defined after gathering the concrete requirements from pilot

areas. All products created as well as source satellite imagery are searchable and downloadable using RSDPS web interface. For concrete applications are the images or their parts published via web services for either further processing in a third-party system or for displaying in a map window.

- **In situ measurements – AgroNode, SensLog**

AgroNode is a radio-based data logger device primarily intended to be used in agriculture scenarios (but not limited to) as a device for online measuring of agro technical phenomena directly on the field. Device interoperates with a wide spectrum of sensors for agriculture and industry. It can permanently save sensor measurement data and/or make them accessible online. Due to solar power, life span is from device point of view unlimited.

SensLog is an open sensor data management solution for receiving, storing, management, analysis, and publication of sensor data. This solution is suitable for static in-situ sensors, sensors on mobile carriers, as well as for Volunteered Geographic Information (VGI) gathered by smart devices. SensLog stores data in a relational data model and uses mainly PostgreSQL with the spatial extension PostGIS. The SensLog data model is based on the ISO 19156 Observations & Measurements standard but contains additional extensions mainly for user management and hierarchy and for a hierarchy of the sensor network. SensLog is a modular solution where every module is designed as a separate component. Thus, the scalability of the solution is ensured.

SensLog provides REST API with JSON data encoding in a proprietary format, mainly covering the whole functionality of the solution. Sensor data publication is possible by services according to the OGC SOS v1.0 services, OGC SensorThingsAPI 1.0, and VGI can be exported in RDF format as well. A system of “Connectors” improves the interoperability of the solution. “Connector” is a component that translates one REST API to a different one; every instance of the Connector is using different instances of APIs. A Connector can be used on the receiver side to pull data from different data providers to SensLog REST API. However, it can be used on the publication side to provide data from SensLog in different interfaces.

- **FIE20 application**

FIE20 application is an expert system developed under the SmartAgriHubs project as one of the Flagship Innovation Experiments. The FIE20 application supports farmers in the decision-making process and planning process of field interventions. This FIE20 solution integrates various data sources and different analytical processes in a complete system and provides users with an easy-to-use web map application as a common user interface. The FIE20 solution integrates different types of data - local sensor data and online analysis based on this data, Earth Observation and remote sensing data, farm and regional thematic spatial data, weather model and forecast data - to be visualised in web application and used in implemented analytical functions. Available analytical functions provide decision-support results oriented on field status and conditions, support based on long-term data from EO observations, weather models and measurements. The web map application provides an overview of the locality by visualising different thematic spatial data on a local or regional level, Earth Observation data and various indices. The web map application provides weather forecasts for the locality of the farm and different analyses based on the weather forecast and the forecast model data. Various analytical functions based on spatial and EO data are available in the web map application; these analyses provide information oriented on fields and crops on fields in different stages. Data layers providing – yield productivity zones delimitation from the long time period data, fertilisers variable application maps, and NDVI index daily average trend from short time period data represent products of EO data and analytical functions.

- **MapWhiteboard**

Map Whiteboard solution is a collaborative platform that permits farmers and agricultural advisers to work together in a shared map interface, much as people can collaborate on the same document in Google Docs. In this manner, the two parties can collaboratively arrive at the best treatment options and analysis parameters for the respective farm and plot - and increase the trust in precision farming. Map Whiteboard aims to bring those parties together and help them decide together much faster, using one system and seeing the same as all the others in real-time, sharing their maps and their knowledge. The core of the MapWhiteboard application lies in the content manager, which allows anyone to create, upload, edit or share maps. Each of the maps created has a unique URL that you can take and share with anyone and is subject to access control, like who is able to get to the map, who can only read, and who can edit.

- **Hub4Everybody**

Hub4Everybody is a complex solution for publishing geodata in the form of standardised services, for creating composite maps and for sharing all of that data with others. It allows users to upload and edit data within the hub and adjust parameters for sharing over various targeting stakeholders. It is wrapped by content management system Wagtail, which is responsible for content integration via widgets and user’s account management. Users can use web or desktop applications to publish spatial data in the form of web map services. Those services are standardised by the Open Geospatial Consortium and described as WMS, WFS or time-aware WMS. When dealing with spatial data, we sure need to produce metadata as well. Users can combine published data with other map services, e.g., satellite

images, as a base layer of map composition. Or services provided by national providers, like cadastral service of parcels, etc., can be integrated. Hub4Everybody contains a so-called Data catalogue, where all datasets and maps are available. Depends on the users to whom they make it accessible.

### 1.1.5 Outcomes

- Build the data storage for original satellite images from ESA services, storage will contain methods for corrections calculations and rectification. Rectified images will be processed in different derivatives (indices, unsupervised / supervised classifications etc.). All images will be provided by system of web services for further processing.
- Data storage / platform will be dedicated for defined resorts/organisations or target regions.
- Set of services will be developed on top of the data storage to provide data or processed results for further processing in applications.
- Modification of existing solutions - FIE20, HUB4Everybody for target users from CELAC region in context of local needs and requirements
- Commercialization of the platform to large regional data providers - regional authorities, national ministry, commercial subjects

The Copernicus data usage and potential benefits of the COMUNIDAD Platform is planned to be introduced by the COMUNIDAD CELAC partners on the three EU-LAC Fora (on the Summit of Heads of State and Government, in July 2025), with the aim of facilitating exchange and joint work between Latin American, Caribbean, and European representatives of civil society networks and organisations, international organisations, the academic sector, and experts specialised in the subject.

#\$PRJ-OBJ-PO\$#

## 1.2 Methodology

#@CON-MET-CM@# #@COM-PL-CP@#

The project methodology is divided in 2 main branches. The first branch is focused on transfer of technological components to the pilot region and development of the COMUNIDAD platform. The second branch is focused on transfer of knowledge and experiences by training, workshops, and hackathons in pilot regions.

We can summarize the technical branch in following points:

- Inventory of available datasets in pilot regions from local providers.
- Inventory of available services and data sets from Copernicus programme and EGNSS for the pilots' regions.
- Collection of requirements from pilots and definition of pilot needs.
- Design of the COMUNIDAD platform and existing components to be modified for pilot regions.
- Development of the COMUNIDAD platform and the infrastructure with pipelines for data processing from Copernicus datasets and services.
- Modification And development of end-users' applications to reflect needs of pilot regions and pilot use cases.

The training and education branch can be summarized in following points:

- Definition of methods for knowledge transfer, audience definition and start of community building.
- Collection of materials about know-how, technologies.
- Development of materials for trainings and workshops with focus on universal utilization of the COMUNIDAD platform.
- Organising of trainings, workshops, and hackathons in pilot regions in different stages of platform development.
- Evaluation of training results and processing user feedback for update of the training materials.

### 1.2.2 Chile pilot overview

**The methodology to estimate the snow/no-snow climatology based on remote sensing optical and radar synergy:** to cover the study area (see Figure 2), Copernicus data will be used to generate a seasonal snow composite at multiscale spatial resolution. The Normalised Difference Snow Index (NDSI) will be estimated to generate snow cover area. The methodology proposed by [Perez et al., 2018] will be implemented to develop a multiscale snow cover analysis. As a surrogate data and because of the cloud cover, Sentinel-1 SAR data will be used throughout the Ratio Polarisation index increasing the seasonal snow detection under cloudy season. Remote Sensing data will be calibrated and validated over the Nirehuao super site derived snow albedo, snow depth and snow water equivalent. Other validations were carried out over El Fraile mountain using the DGA station and further analysis about snowfall

duration will also correlate the snow stage using a disdrometer.

Usually, the images obtained do not give information about the entire territory, leaving some gaps without data. To do this, we will use an algorithm based on stochastic processes that allow us to accurately estimate the regions hidden by cloud cover [Banerjee et al., 2004; Diggle & Ribeiro, 2007; Gelfand et al., 2010; Wickle, 2003]. The algorithm requires computing capabilities, which will be partially remedied by project financing. Thus, based on the literature, we will enhance and implement a novel algorithm for snow and no-snow cover data. This fact will give the final product an extraordinary technological impact.

**The methodology to produce a mathematical model that links the covers with its effects on several economic activities**, such as agriculture and forestry: there we link first, through a System Dynamics approach [Sterman, 2000; Ghaffarzadegan & Richardson, 2011], where the snow cover is taken as a driving forcing factor with each economic activity considered. Also, we determine possible links among the economic activities to consider feedback loops. Since one of our goals is also to suggest policies, we use Dynamic Performance Management (DPM) for evaluation. It has been shown in the literature that DPM is a very useful framework for assessment [Bianchi, 2016]. Once the SD-DPM model is obtained for each economic activity, we will perform estimation of initial conditions and parameters, and sensitivity analysis since some values of the parameters will be unknown or uncertain. After the SD-DPM model is calibrated and validated with the local available data, we will transform it to a system of differential equations which typically also will include some unknown parameters. The transformation will be according to [Aracil, 1999]. For each activity, we will perform a bifurcation analysis. Mainly, to detect Hopf and Saddle-Node points which are tipping points for the system analysis [Kuznetsov et al., 2003].

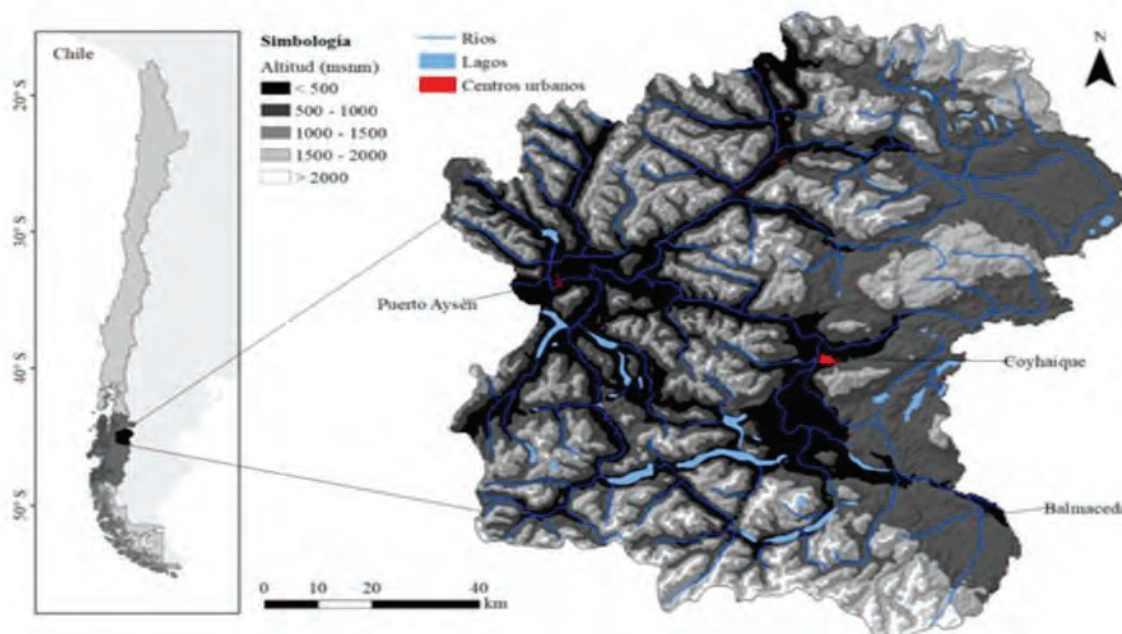


Figure 2 – Part of the Aysen region

Our experience [Angulo et al., 2014] in the modelling phase shows that we will have in the model several state variables linked to the ecosystemic, economic and social sustainability dimensions. This model will be replicated for each small village. Since there is population and economic mobility through the roads, we will have a network: the nodes correspond to the villages and the links to the mobility facilities among the villages. Thus, the modelling effort up to now will lead us to a two-layer complex network [Boccaletti et al., 2006; Boccaletti et al., 2014]. The first (uncontrolled) layer corresponds to the Snow-Land-Water (SLW) dynamic patchy landscape, which depends on the weather characteristics. The second (controlled) layer corresponds to the Land Use defined by the main economic activities in the region (Cattle, Agriculture, Salmon harvest, Forestry, Adventure Tourism, Fish tourism), and will be modelled with the network of villages and mobility described above. At each node, corresponding to a patch (A/G/F/T/P/R/U/S/Z) in the geographic representation of the land, we have a dynamical system given by a system of differential equations. We will consider 9 types of patches (A/G/F/T/P/R/U/S/Z), according to soil use, where A = agricultural patches; G = livestock; F = forestry; T = tourism (not fishing); P = tourism (fishing); R = rural inhabited area; U = urban inhabited area; S = salmon farm or fish farming company; Z = no-use zone. Thus, we have in each patch of the second layer, depending on the type of land use (9 types), a system of 4-dimensional Ordinary Differential

Equations (ODEs), which is linked to the first layer of cover snow (SLW). That is, the value of snow on the territory is an agent that influences the system of ODEs of the corresponding patch. The methodology for this specific objective, with application to snow cover and how it affects the economic sectors, is new and has an immense potential both for scientific purposes as for the impact in the region.

For regional authorities, to implement local or national policies, it is necessary to translate the research results into localised, actionable strategies that mitigate challenges and exploit opportunities that can be predicted from climate change scenarios. The snow cover modelling and monitoring project seeks to provide both the organisational and technical measures required to achieve this. At the centre of the initiative, sits a methodology relying on a set of supporting tools as shown in Figure 3.

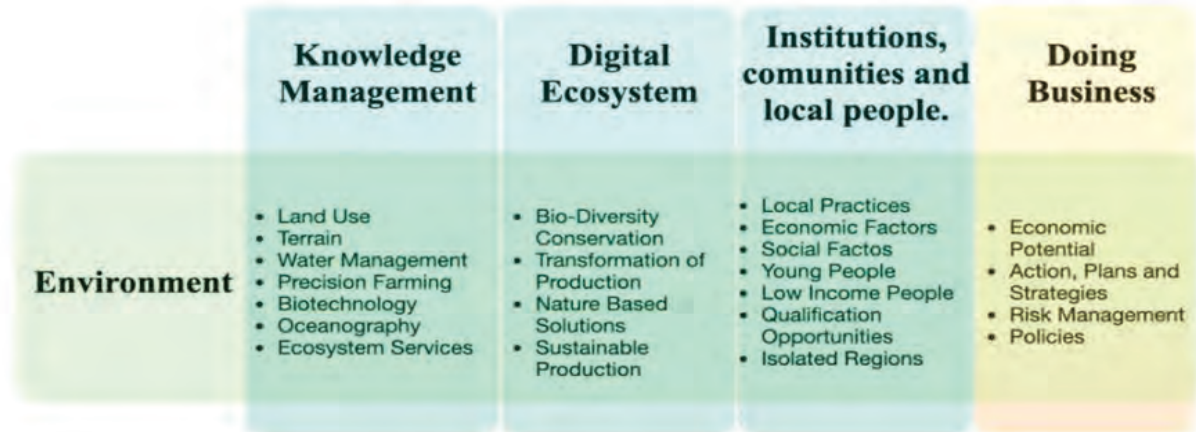


Figure 3 – High-level view of the initiative, global and local analysis methodology to study climate change and snow cover interactions and identify mitigation or adaptation measures as well as the potential for economic activity.

A de-facto virtual spatial scale of similar areas will be established that can be used to simulate the impact of an increase in temperature or a lower frequency of rainfall, snowing, etc. The high resolution of data now available makes it possible to automatically assess the performance of several provisioning services, including but not limited to crop production, lumber/forestry, and land use. We will consider different scenarios for global warming, related to a rise in temperature and other weather conditions. Then we will perform a huge number of numerical simulations to test which are the outcomes we get from the model. After this phase, we will state some possible optimal control actions and viability objectives, according also to different economic and sustainable goals.

Having established a monitoring and simulation system that allows us to make experiments on user-defined areas, the next step is to provide decision support and information systems that aid regional governments and actors on individual farm levels in accessing, interpreting, visualising, and translating data into knowledge and actions. This will be done through the establishment of a set of spatial enabled dashboards and analytics tools that are personalised to roles. These will aid in determining specific steps to mitigate the impact of climate change on the snow cover and ways to limit or eliminate human factors that contribute to climate change.

The types of steps that will be proposed by the analysis and decision support tool will be specific to local conditions and will consist of actionable items including but not limited to measures for

1. land use;
2. negative effects of pollutants transportation due to the snow quality;
3. safeguard and preserve specific elements of soil moisture;
4. make the economy and social aspects resilient or adaptive to global warming;
5. to transform agricultural practices to minimise the negative impact and maximise the potential for sustainable production;
6. foster new economic activity;
7. support community building and collective scientific and practical efforts.

At this point, friendly visualisation of the whole network model and diffusion of the results, including a dedicated website explaining short videos and some partial public functionality in the simulator (basically for educational purposes), will be created. We will use the SCRUM methodology for software development. Also, a series of talks to the local stakeholders, and a local/regional Workshops will be considered.

### 1.2.3 Pilot is in Colombia: coffee region - Manizales, Caldas

Small Colombian coffee producers are facing new challenges in integrating information systems into their production processes because small farmers and peasant communities are more susceptible to economic losses. However, multiple problems restrict the implementation of technological and technical solutions, putting sustainability and competitiveness at risk (OECD, 2015). Furthermore, the volatility of international coffee prices and consumer preferences influences the Colombian coffee industry, affecting the sector directly (Bermeo et al., 2020). Therefore, the knowledge of the production system and its properties is essential for successful development and innovation in the coffee industry. The most important design challenges include the heterogeneous characteristics of coffee fruits, plants architecture, crop distributions, topography, and production system configurations (Moreira et al., 2016). Managing risks associated with Colombian coffee farming requires local studies due to the vulnerability it faces to climate change and variability. We must understand how extreme events triggered by rainfall contribute to disasters to design and implement effective adaptation and disaster risk management strategies. The establishment of climate models is extremely difficult without accurate climate input information. Colombia, for example, has relatively few stations, a high amount of missing data, and a low rate of reliability for some data. Spatially explicit rainfall estimates can be extracted from remotely sensed meteorological data sets to determine the return period of events. They can be used to support data generation for disaster risk modelling since they can collect data on a large spatial extent at several spatial resolutions continuously at relatively short intervals.

#### 1. Mapping site-level in Coffee crops using microtopography with RealTime Kinematic Global Navigation Satellite Systems (RTK GNSS):

A variety of digital methods have been used to map microtopography, including ground-based data collection with stations of various types, Geographic Navigation Satellite Systems (GNSS), and Terrestrial Laser Scanners (TLS). The resulting 'point clouds' are commonly processed into digital surface models that cast shadows over low-relief features. To dimension and plan planting lines for coffee plantations, cartographic data is needed.

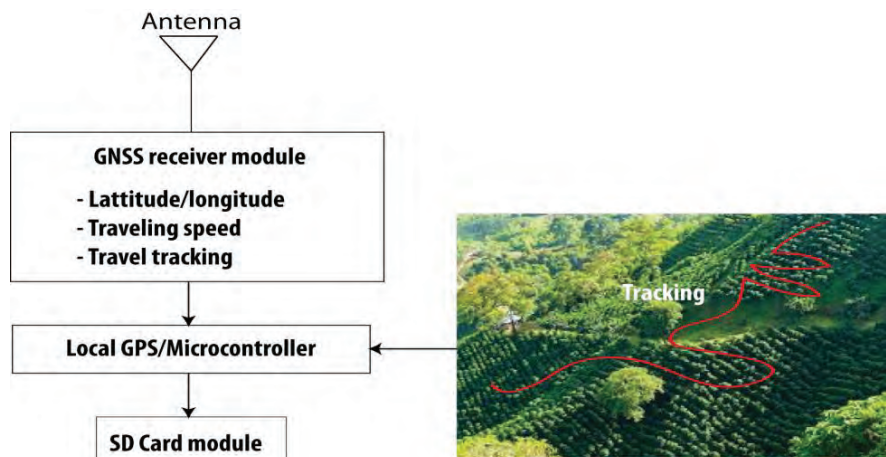


Figure 4 – Global architecture for tracking the harvester

Topography information can be collected efficiently using GNSS data, which makes precision coffee projects very useful. To achieve this, efficient data collection, data processing, photogrammetric products, and image processing are employed. Colombia's coffee crop is mostly grown in mountainous regions, which contributes to increased errors during planting. For this reason, planning before planting has become indispensable in coffee regions. A sudden change in terrain slope can limit machinery use and reduce operational performance. It is possible to mitigate these limitations by performing efficient topographic planning and addressing costs and mapping accuracy.

**2. Tracking harvesting labourers:** Harvesting labourers play a significant role in the coffee production industry as it is a manual process. Coffee farm workers are usually replaced each harvesting season due to the social problems in rural areas where coffee crops are grown. Consequently, harvesting planning procedures have become problematic due to labour shortages and time constraints. This pilot project aims to track harvesting labour during coffee harvesting and map them on the terrain to correlate productivity parameters and factors that affect field efficiency. Coffee bean harvesters should be equipped with GNSS systems to record their positions using the infrastructure described in the Figure 4. A GNSS-derived field dimension and other working parameters such as working time and the number of turns can be correlated with crop yield per field. Models can be developed to predict field capacity.

**3. Risk management, landslide - fires tracking:** Copernicus data will be used to identify land use patterns in coffee regions, such as the distribution of coffee crops and other vegetation, to assess the suitability of different

areas for coffee cultivation and to provide information and insights on environmental conditions and conflicts that may affect coffee crops. The information for risk management will be incorporated and the remote information will help in the identification of potential threats such as landslides and fires. The Copernicus Emergency Management Service (CEMS) provides information on climate-related hazards that could be very useful for decision makers in the coffee sector of Caldas, Colombia, which is a vulnerable region due to the conditions of the soils, rich in volcanic ash, which together with the erosive processes due to inadequate agronomic practices generate risk conditions due to susceptibility to landslides that are exacerbated during periods of more rain and the La Niña phenomenon. On the other hand, inadequate agronomic practice, as well as dry seasons due to the El Niño Southern Oscillation phenomenon, make the areas susceptible to fires that destroy crops and forests in protection zones for streams and rivers in the coffee region of Caldas.

4. **Hydrological balance for evaluation of the impacts in the coffee production:** This pilot seeks to analyse exposure to climate change and extreme events in the coffee region of the department of Caldas, Colombia, which concentrates different coffee ecotopes in the territories of the hydrographic basins afferent to the Cauca River and the Magdalena River. Copernicus data (to monitor weather and climate conditions, such as rainfall, water availability, temperature, solar radiation) will be used, together with the information from local climate stations for the analysis of the water balance and the understanding of the effects of climate variability as well as long-term trends due to climate change. The weather stations on land that will be used belong to the National Federation of Coffee Growers of Colombia (FNC) and the Institute of Hydrology and Environmental Studies of Colombia (IDEAM); the preliminary agreement of the collaboration was successfully discussed. The exposure variables that will be evaluated include indicators of the hydrological regime, as well as excesses and deficits of water and soil moisture, which vary in coherence with the characteristic frequencies of large-scale ocean-atmosphere circulation patterns, specifically the ENSO for the coffee region is relevant. Copernicus Global Land Services provide Soil Water Index; the Satellite measurements integrate over relative large-scale areas, with the presence of vegetation. Physically based conceptual models, climatic scenarios and planning models will be used to select adaptation measures and risk management in coffee production.
5. **Environmental footprint of coffee in Caldas:** The National Federation of Coffee Growers of Colombia (FNC) established an environmental strategy that seeks balancing economic income, the quality of life of coffee families and environmental resources. This strategy is mainly focused on adaptation and mitigation of climate change and climate risks and efficient environmental resource management. Colombia has a technical guide for calculating the environmental footprint based on the concept of life cycle analysis. Remote sensing data can facilitate the identification of environmental problems and conflicts, the monitoring of environmental impacts on water, soil, forests, and biodiversity, as well as the calculation of the carbon and environmental footprint, which allows the identification of critical environmental points along the value chain.
6. **Vegetation Index:** Copernicus Global Land Services provide the Vegetation Indices, which include observation day for biophysical variables such as: Plant Phenology Index (PPI), Normalised Difference Vegetation Index (NDVI), Fraction of Absorbed Photosynthetically Active Radiation (FAPAR) and Leaf Area Index (LAI). In the Vegetation Productivity Index (VPI), the current value of NDVI is compared with long-term statistics for the same period to assess the overall condition of the vegetation., the current NDVI value is ranked in percentiles against its historical variability range: 0 %, 50 %, and 100 % mean that the observed value corresponds to the historical minimum (worst vegetation state), median (normal) or maximum (best situation). The integration of the analysis of these vegetation indices will provide new elements to coffee producers for the planning of activities and decision-making in crops.

#### 1.2.4 Use of EGNSS

Use of EGNSS will be focused on several key areas, which will be to identify coffee plantation areas, install relevant GNSS receivers, map coffee plantations, monitor soil conditions, track coffee bean shipments, and analyse data to identify essential patterns to provide data-driven decisions. The main goal will be the identification of the coffee plantation areas: Use satellite imagery and mapping tools, such as those available through Copernicus, to identify coffee plantations and other related facilities in Colombia. GNSS receivers will be installed on some of the vehicles in cooperation with CENICAFE that will be used to transport coffee beans and equipment to and from the plantation. This will allow you to track the movement of vehicles in real-time and optimize transportation routes. Mapping of the coffee plantations: GNSS receivers and specialized software will be used to map the coffee plantation and identify areas where coffee is being grown, removed, or replaced. This will allow us to track the growth and health of the

coffee plants over time as well as the increment/reduction of the area sown in coffee. Monitor soil conditions: Use GNSS and other sensors to monitor soil conditions, including moisture levels and nutrient content. This will allow us to optimize fertilizer and irrigation practices to improve coffee plant health and yield. Track coffee bean shipments: Use GNSS to track the movement of coffee bean shipments from the plantation to the processing facility. This will allow us to monitor delivery times and ensure that coffee beans are transported in a timely and efficient manner. Next, the data collected through GNSS, and other sensors will be analysed to identify patterns and optimize coffee production processes. This may involve adjusting transportation routes, implementing more effective irrigation or fertilisation practices, or making other process improvements to improve efficiency and yield. Overall, using EGNSS in COMUNIDAD in relation to coffee production in Colombia can help to improve efficiency, yield, and quality. By tracking the movement of vehicles and coffee beans, mapping the plantation, and monitoring soil conditions, it is possible to optimize the coffee production process and make data-driven decisions to improve outcomes.

### 1.2.5 Use of computer vision

Identify coffee plantation areas: Use satellite imagery and mapping tools, such as those available through Copernicus, to identify coffee plantations and other related facilities in Colombia. The manually identified coffee plantations should be used as the training data for the machine learning algorithm, capable of detecting the locations online based on data collected by the satellites. Map coffee plantations: Use computer vision algorithms to evaluate the satellite imagery dataset on the basis of previously obtained training data. The trained algorithm should be able to search for current coffee plantations, former plantations where the plants were removed and potentially locate areas suitable for future exploitation in coffee production. Monitor soil conditions: Use machine learning to evaluate hyperspectral imagery of soil and plants in combination with in-situ data of both the soil and plants to map and monitor soil conditions, moisture, and nutrient contents as well as health of the plants as an indicator. Analyse data: With the available outputs of the neural networks, the analysis should highlight the production patterns, emerging production needs and the effect of climate change on the land available for coffee production. The output data can allow for data driven decisions in the production including effective irrigation, fertilisation, and planting. The use of machine learning algorithms in COMUNIDAD in relation to coffee production in Colombia can help improve efficiency, yield, quality, and sustainability. By Mapping the past, present, and potentially future production areas, their soil conditions, it is possible to optimise the coffee production process by data, while implying the need for sustainability based on the monitoring of the area usable for coffee production.

As the CZU operates a custom-made state-of-the art computer used mainly for high-computation reliant tasks such as the training of neural networks and computation of complex optimization it will be used for the essential big data processing. The computer consists of twin interconnected NVIDIA GeForce 3090ti GPU's with the NVlink bridge, Intel i7 processor and 128 Gigabytes of RAM. The computer is operated via a Linux Ubuntu distribution, maximising the potential performance in computing given the prevalence of its use among servers and data analysis structures. The device itself is connected to the internet via the "Science" university network, allowing for an online approach to both data acquisition and output flow. The device serves as both a flexible and powerful tool for data analysis, processing, and modelling, while remaining available due to the ownership and operation by the university.

## 1.3 Infrastructure design and development

Infrastructure proposed for COMUNIDAD Platform is deployed as a three-tier architecture (data, application, and presentation layers) based on open-source tools using standardised and well documented web services and APIs allowing for easy system maintenance, enabling interoperability and integration with external systems, and avoiding vendor lock and the need for paying regular software maintenance fees. This approach was chosen to minimise total cost of ownership (TCO) of the developed system, however, requires proper training of a system administrator responsible for running the system. The draft of the schema of the COMUNIDAD platform is shown in Figure 5 below. COMUNIDAD Platform consists of two main parts acting as backend and frontend. Backend is represented by Remote Sensing Data Processing Platform (RSDPS) that is responsible for satellite imagery download, processing storage and publication using standardised services. On the frontend part there is a Wagtail CMS that builds up the

COMUNIDAD Platform user interface including all additional user tools (system description, manual, remote sensing wiki, training section, etc.) and communicates with the RSDPS that does not have any user accessible graphical interface.

Data layer consists of a PostgreSQL database with PostGIS spatial extension allowing storage of vector and raster spatial data directly in the database (used mainly for vector data) and there is yet a file storage for huge rasters – satellite images and derived products. Within the application layer there is a set of tools working with the data, including the pre-trained custom machine learning algorithm and their metadata, and providing standardised outputs to Wagtail frontend and can also expose standardised services for third application use. These are SensLog for sensor data display, aggregation and publication, Micka as a metadata catalogue allowing for searching according to many input

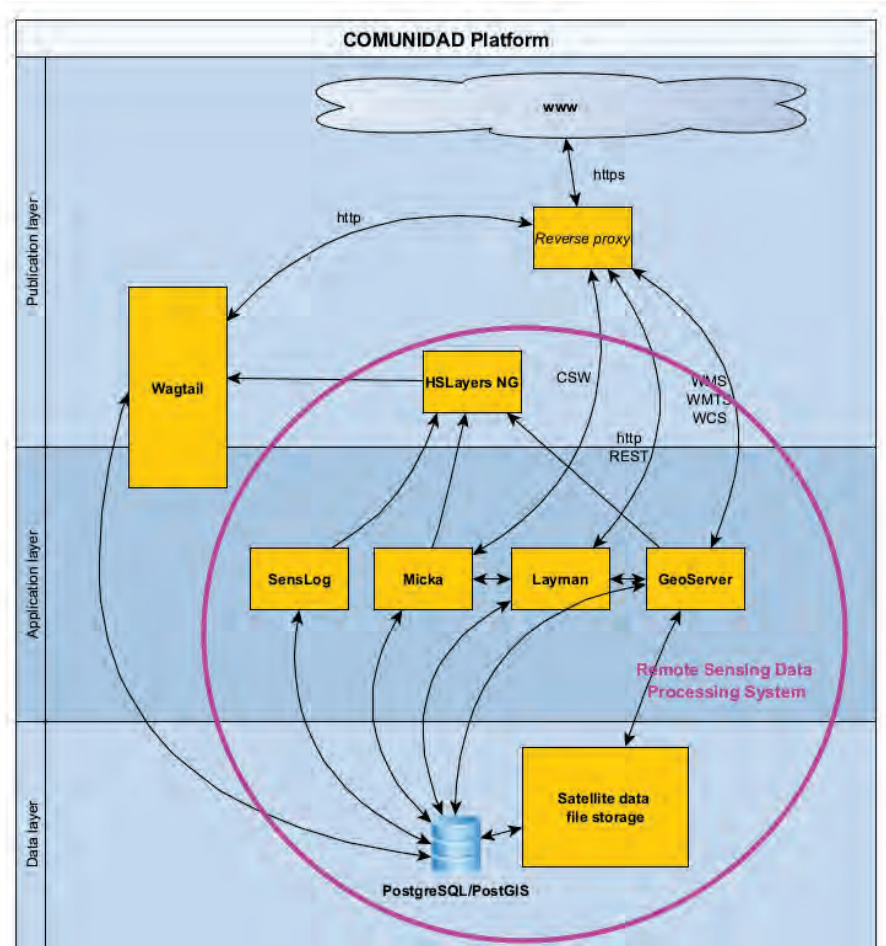


Figure 5 - Draft of the schema of COMUNIDAD platform

parameters including spatial search, Layman for publication of own spatial data and GeoServer providing OGC services (WMS, WFS, WCS, etc.) support to satellite and derived data publication.

On a publication layer there is HSLayers NG as a map application taking care of display of map services and providing many tools for working with map (display of metadata, searching, measuring, etc.) and Wagtail CMS acting as the COMUNIDAD Platform user interface, covering all underlying applications, and providing access to them and their tools. Deployment of reverse proxy for the whole infrastructure is planned, also NAT technology is foreseen for increased security of the COMUNIDAD Platform.

Existing components of project partners will be integrated to the COMUNIDAD platform and modified for utilisation in pilot countries. Thus, existing components of higher TRL level are expected to be moving in TRL level again due to modifications and customization for services and datasets from local providers in pilot countries.

**TRLs of existing products overview**

The strategy of the project is to use technologies developed and tested within various projects in Europe and to transfer these technologies to the environment of Latin America, adapt them to local environmental, geographical and user conditions and integrate them into the new COMUNIDAD platform, which is the main output of project with the TRL 4 at its output.

| Name of the product                                    | Owner      | TRL at the beginning | TRL at the end |
|--|------------|----------------------|----------------|
| Lesprojekt Cloud                                       | LESP       | 6                    | 7              |
| Pipeline for satellite imagery download and processing | LESP       | 4                    | 5              |
| AgroNode   | LESP, BOSC | 8                    | 8              |

|                           |                     |          |          |
|---------------------------|---------------------|----------|----------|
| SensLog                   | <b>BOSC, LESP</b>   | 8        | 8        |
| FIE20 application         | <b>BOSC</b>         | 4        | 6        |
| MapWhiteboard             | <b>BOSC, LESP</b>   | 4        | 6        |
| Hub4Everybody             | <b>LESP</b>         | 6        | 7        |
| Supercomputer at CZU      | <b>CZU</b>          | 6        | 7        |
| <b>COMUNIDAD platform</b> | <b>All partners</b> | <b>0</b> | <b>4</b> |

## 1.4 Training, workshops, and hackathons

The Training events will fulfil the SO2 by **8 regional workshops, 4 hackathons, and 1 international event** under the COMUNIDAD project.

**Regional workshops** will be focused on end users, for a wider audience and will consist of following topics:

- Introduction to Copernicus programme, products, and services - general overview
- Focus on utilisation of services for agriculture and forestry with applications developed by project partners.
- Introduction to application and services provided by COMUNIDAD platform localised for CELAC countries, resp. pilot countries (Chile and Colombia).

These Regional workshops will be organised in both pilot countries in different phases of the project – initial workshops to present planned pilots in M6-M7, workshops presenting an initial version of the COMUNIDAD platform and results from the first hackathons in M12-M13, workshops presenting results of the second hackathons in M19-M20 and the last workshops presenting the final version of the COMUNIDAD platform and results of pilots in M23-M24. Workshops will be organised by local pilot partners in both pilot countries.

**Hackathons** will be focused mainly on experienced users or developers and will focus on following topics:

- Introduction to Copernicus programme, products, and services – development of application using Copernicus services.
- Development of localised applications based on services provided by the COMUNIDAD platform.
- Extension of the COMUNIDAD platform by further data sources, functions, and services

The hackathons will be organised in two series in both pilot countries. The first series is focused on the initial introduction of the COMUNIDAD platform and the default application utilising the platform. This first series is planned in M12-M13. The second series of hackathons will be focused on the final version of the COMUNIDAD platform and applications involved in pilots and data produced by pilot applications. The second series is planned in M18-M19 in both pilot countries. The results of the final hackathons will be evaluated by the jury. The jury will evaluate teams based on pre-defined criteria announced at the beginning of each hackathon event, e.g., utilisation of Copernicus services and services of the COMUNIDAD platform, Readiness level, Innovation, Sustainability of solution, Cross-sectoral interoperability, etc. The winning team from each pilot country will be awarded by the option to attend the International event in Spain in M22 by covering travel costs of up to 5000€ in total for both teams. Members of the jury will be selected from national experts from Chile and Columbia as well as international experts from the EU.

**The International event** will be organised in Spain in M22. This event will be aimed at taking up champions from the CELAC to define uptake as the result of successful dissemination or/and communication activities, whereby the audience (and the originator) undertake an evident change in behaviour by incorporating the knowledge they have gained in methods of working, design processes or similar. The COMUNIDAD uptake will be demonstrated by individuals (uptake hackathon champions) that will be identified within key Latin American organisations active in agriculture and forestry (6 from Chile and Colombia, 2 from the other CELAC countries for the potential transfer outside of the pilot countries; together 8 experts) representing a range of stakeholders, private and public decision makers that use the project outputs to better inform their own practices or contribute to their own research.

## 1.5 Interdisciplinary approach

The consortium is creating synergies for reaching the call expectations, including the local communities, stakeholders and policymakers of Chile and Colombia for improved implementation of Copernicus strategy to climate change adaptation and awareness in the selected downstream areas, as well, precisely selected well-known EU partners (University, SMEs, NGO) to effectively support the Copernicus uptake. COMUNIDAD is relatively small project, but clearly interdisciplinary, as it incorporates an exactly needed diverse range of players from Europe, Chile and Colombia from different disciplines important for the successful implementation of the project: IT, Copernicus and data management, digitalization, GNSS, AI environmental sciences, water management, agriculture and forestry, land use and management, modelling, monitoring, social and economic sciences, climate change research, as well

experiences for participative management of end users and training.

## 1.6 Integration of Social Sciences and Humanities

Social issues play a very important role in the COMUNIDAD that incorporates improving scientific knowledge in the agriculture, forestry, and land management, including relevant organisational and technology solutions in the COMUNIDAD Platform to clarify the issue to the general public and different groups of stakeholders. Social Science and Humanities research feeds into the project with contributions in the two dimensions of social structure and social action:

**(1) identifying and including main social drivers** leading to use of Copernicus data in behavioural transformations, and changes in collective action, policy and institutions, and feedbacks between agricultural/forestry management, land use and climate change & society (work and employment, inequality, migration, health, gender, demographics, etc.), and socio-economic indicators including those that assess the progress towards European Green Deal, SDGs (notably the SDG 1 “not poverty”, SDG 3 “good health and wellbeing”, SDG 6 “Ensure availability and sustainable management of water and sanitation for all”, SDG 11 “Sustainable cities and communities”, SDG 13 “Climate action” and SDG 15 “Life on land”), and

**(2) the configurations and perceptions of collective and individual actors** (stakeholders and citizens) who address the introduction of EU-space based applications/solutions in Chile and Colombia to combat climate change and support sustainability issues in agriculture, forestry, and land management. Both dimensions are considered as collective and as well individual actions, requiring messaging on the social imperatives of use of Copernicus data in the specific thematic areas, to develop jointly algorithms, services and/or products combined with use of EGNSS (if relevant), which serve local user needs and/or enhance the Copernicus product quality. The behavioural dimension can provide meaningful contribution to management strategies, and it will be integrated into COMUNIDAD Platform to be considered in the portfolio of various technologies and policy dimensions. Social structures and actions will be connected in this Platform as:

**a)** the role of behavioural changes and social and institutional innovation in prevention/ awareness of climate change demonstrating the advantages and differentiators of EU space based solutions and services in the practices of Chile and Colombia and making it an attractive option for public authorities, private industries and private investors, including social innovation measures, social factors (drivers and barriers) and their interlinkages with climate change and socioeconomic indicators will be identified and fed into the modelling on several scales/services and

**b)** stakeholders and citizens will engage with the COMUNIDAD activities through the Local trainings and Regional workshops (hackathons), to help connect COMUNIDAD Platform with their experience, their aspirations, and perspectives for the future. Stakeholders will identify their needs in participatory processes and influence project direction and outputs, affecting assumptions, scope, targets, and features (this will be discussed on the international training of the take up champions).

## 1.7 Gender dimension

The project and its activities will address all stakeholders and end users regardless of their gender and will consider different gender realities and needs. It will integrate gender specific data and knowledge in the innovation approaches and gender-sensitive topics. The research and innovation products, the communication tools as well as the dissemination and exploitation actions will use gender sensitive language and pictograms. Particular attention will be paid to an equal representation of participants from the general public (in terms of gender, age, socioeconomic background and digital literacy). The COMUNIDAD will further support Article 141(3) of the EC Treaty in exercising the inherent right to motherhood, fatherhood, or the combination of professional and family lives. Women’s participation is encouraged through equal access and opportunities. Gender balance in the consortium is ensured in the individual teams and at all management levels through equal opportunities.

## 1.8 Open Science

The consortium is devoted to adopting and integrating Open Science practices from the beginning of the project. In accordance with the EC’s definition, the partners understand Open Science as “an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the process”. Open Science is considered as a key mechanism to support the diffusion and uptake of scientific knowledge and innovation, both within and beyond the academic world. COMUNIDAD open science principles are presented below as an integral part of the methodology.

**Open access:** The principles of openness and transparency will underlie all research activities, fostering sharing and

collaboration as early as possible, and throughout the project's life. **Open and transparent practices** will be implemented in line with the open science policy in Horizon Europe, encouraging the use of the Open Research Europe (ORE) publishing platform and the open repository for research objects. In addition, all project results (reports, toolkit, dissemination materials, publications, training presentations, and research datasets) will be available on the project website, whenever possible. Partners have budgeted minor publication costs for limited payments for open access. The consortium is indeed committed to provide green open access wherever feasible.

**'Early and open sharing' of research:** Green open-access will allow authors to deposit a Preprint, a potentially revised author version or, where possible, a final peer-reviewed publisher's version (Registered reports) of their publication at an institutional or subject repository that allows public access. Most of these materials will also be freely available on the project website. The project will provide accessible PDF files to guarantee that persons visually impaired have access to all text material. The software tools will be released with suitable open-source licences, while the text and media content shall be released under appropriate Creative Commons licences.

**Reproducibility of research outputs:** To enhance reproducibility of the research outputs, open-source software will be used, and existing infrastructure will be harnessed to store data and results. COMUNIDAD will openly publish code, code lists and metadata in the GitHub page. Publications will have open access licences and make use of partners' institutional repositories. Clarity of citation of data sources will maximise the potential for reuse.

**Open peer review:** Several scientific publications expected in the project will be published in venues that follow clear Principles of Transparency, such as peer review processes. Several venues that provide open peer review have been already identified: e.g., the International Journal of Climate Change, WIT Transactions on Ecology and the Environment, Journal of Environmental Impacts, among others.

## 1.9 Research data management and management of other research outputs

Research data & outputs generated in the project will be provided as open as possible and as closed as necessary/possible. **Data and/or other research outputs** generated will be managed in line with the **FAIR principles** as specified in the HE Guidelines on Open Data:

(1) **Making it findable:** the consortium will openly publish code, code lists and metadata on a GitHub and publicise this on the project website and in papers. Moreover, to be able to distinguish and easily identify data sets, each dataset is assigned with a unique name (*COMUNIDAD.CountryCode.DatasetName.Version*).

(2) **Making it openly accessible:** the consortium will exert efforts, whenever possible, to make data and other research results as open data or through open services. In doing so the consortium will take into consideration the general obligation to maintain confidentiality in Article 21 and the rules concerning personal data under Article 23 of the standard EU-Grant Agreement (GA). The project deliverables marked as public will be made openly available via the project website and related platforms such as Zenodo, OpenAIRE, in accordance with the GA and Consortium Agreement. In PU-public deliverables, all data will be anonymised.

(3) **Making it interoperable:** Measures will be taken to ensure that we meet standards, including using standardised formats for variables, code, code lists and metadata; openly sharing codes and metadata to allow exchange and re-use between researchers, institutions, organisations, and countries. We will consider the following guidelines: non-proprietary and not tied to specific software; open, documented standard; common format used by the scientific community; standard representation (Unicode, ASCII); unencrypted; uncompressed.

(4) **Making it reusable:** When possible, the research data will be licensed under an open access licence. However, this will depend on the nature and level of privacy, and the Intellectual Property Right (IPR) involved in the data set. This will be guaranteed by providing the data on platforms such as Zenodo. The time limit of the data being re-usable will be interlinked with the Zenodo platform standards. In addition, the length of time the datasets will be stored will depend on the nature and content of the data. Restriction applies when privacy, IPR or other exploitations are affected. As the project progresses and data is identified and collected, further information on increasing data re-use will be outlined in the subsequent versions of the Data Management Plan (DMP). The DMP will ensure a high level of data quality and accessibility for final users and will include: i) Data and metadata formats and protocols, ii) Data sharing, and iii) Archiving and preservation, iv) Security and privacy issues, and v) GDPR matters.

The consortium has identified the following relevant **datasets** that could be processed in project:

(1) **Research Data/Outputs** - Questionnaires and online surveys; Output (raw data) from focus groups identified on the Local trainings, and interviews with policy makers; Results from measurements and observations; Images, audio, and video recordings; Documents and spreadsheets.

(2) **Personal Data** - Personal details of the human participants to relevant WP activities (mainly WP1) and WP6), like name, age, contact details; Further outputs of the individual WPs, including requirement elicitation and validation feedback; Personal data of newsletter subscribers and followers of social media profiles (WP6).

(3) **Data for evaluation** - Stakeholder engagement evaluation data, composed by the interaction of the users with the COMUNIDAD Platform. The exact data size is difficult to predict at this stage. Research datasets (e.g., downloaded from open data portals) are in the scale of some megabytes, while data from the participants is expected to be of some kilobytes. The coordinator (BOSC) will ensure compliance with relevant ethical and security regulations during the data collection itself.

### 1.10 Synergies

| Project acronym      | Main aim   | Potential uptake  | Partner(s)           |
|----------------------|--|---|----------------------|
| <b>FATIMA</b>        | FARming Tools for external nutrient Inputs and water MANagement  | Joined knowledge sharing. SPIDER best practices example   | <b>BOSC</b>          |
| <b>STARGATE</b>      | Developing a breakthrough, multiscale and holistic climate-smart agriculture methodology capitalising innovations in the field of landscape design, microclimate and weather risk management | Development of data framework and the climate smart decision support tools.   | <b>LESP</b>          |
| <b>SDI4Apps</b>      | Bridge the 1) world of INSPIRE, Copernicus and GEOSS and 2) world of voluntary initiatives and thousands of micro-SMEs and individuals developing applications based on GI                   | Build SDI infrastructure of easy-to-use services for development of end-users' applications.  | <b>BOSC</b>          |
| <b>DataBio</b>       | Deploy a state of the art, big data platform "on top of the existing partners' infrastructure and solutions.   | Building of platform on existing services and components  | <b>LESP</b>          |
| <b>AgriClima</b>     | Development of innovative climate (monitoring and warning) systems for effective nutrient and water management in the environment in the framework of EU-CELAC cooperation                   | Joined knowledge sharing. -in-situ monitoring -prediction of soil water content   | <b>LESP, CZU</b>     |
| <b>SIMONA</b>        | System for irrigation optimisation for vineyards in Argentina  | Joined knowledge sharing, in-situ monitoring, water management.   | <b>LESP</b>          |
| <b>SmartAgriHubs</b> | Digitisation of European agriculture by fostering an agricultural innovation ecosystem dedicated to excellence, sustainability, and success.   | Creation of Digital Innovation Hubs, an expert system for farmers and facilitating the exchange of best practices among the networks.       | <b>LESP, BOSC</b>    |
| <b>SANTAL</b>        | Identifying the characteristics of the market environment for a sustainable irrigation and nutrient supply system for agriculture in Colombia  | Joined knowledge sharing. -preparation of business plan   | <b>LESP</b>          |
| <b>GloFor</b>        | Erasmus Mundus MSc programme with associated partners from Latin America, Africa, and Asia   | Joined knowledge sharing. Students will have an opportunity to uptake results of COMUNIDAD  | <b>CZU</b>           |
| <b>POS103010</b>     | Design and evaluation of hybrid coffee dryers to improve the post harvesting processes.  | Technology design, waste management and renewable energy use. Farmers can use the results of this project to dry their product sustainably. | <b>CZU, CENICAFE</b> |

| No. | Name of the indicator according to the OECD methodology | principal objective | significant objective | not targeted |
|-----|---|---------------------|-----------------------|--------------|
| 1   | Participatory Development / Good Governance             | <b>X</b>            |                       |              |
| 2   | Aid to environment                                      | <b>X</b>            |                       |              |
| 3   | Biodiversity  | <b>X</b>            |                       |              |

|    |  |   |   |   |
|----|--|---|---|---|
| 4  | Climate change – mitigation                      | X |   |   |
| 5  | Climate change – adaptation                      | X |   |   |
| 6  | Desertification                                  | X |   |   |
| 7  | Disaster Risk Reduction                          | X |   |   |
| 8  | Disability                                       |   |   | X |
| 9  | Gender equality                                  |   | X |   |
| 10 | Trade development                                |   |   | X |
| 11 | Nutrition  | X |   |   |
| 12 | Reproductive, maternal, newborn and child health |   |   | X |

#\$CON-MET-CM\$# #COM-PL-CP\$# #REL-EVA-RE\$#

## 2 Impact

### #@IMP-ACT-IA@# Project’s pathways towards impact

The impacts will: (1) use Copernicus with other data to enhance operational efficiency management of farming, forestry, and biodiversity conservation; (2) minimise the environmental impact of agriculture/forestry; (3) help to adopt CELAC agriculture on climatic changes. (4) inform and empower the stakeholders including citizen on the importance of sustainable and efficient agriculture/forestry, (5) involve multi-actor participants to contribute to COMUNIDAD Platform, (5) present sharing of expertise with public and/or private entities to introduce EU-space based applications/solutions leveraging their innovative features in Chile and Colombia, and (6) give research-based feedback and recommendations to policy, policymakers, and regulatory instruments. COMUNIDAD develops and designs an interdisciplinary approach to ensure that the deliverables and results contribute significantly to the promoting the uptake of satellite navigation, position, and timing, to enable Chile and Colombia to benefit from the advanced features offered by EGNOS and Galileo, particularly in regulated domains of agriculture, forestry and land management, the domains most affected by climate change in Latin America. The project focuses on the multiple risks that are locally identified as climate vulnerability, addressing in a systemic approach to build climate resilience in the selected regions of Chile and Colombia. Project delivery is purposefully ambitious to address the needs as outlined in the call and deliver the long-term impact on specific needs of regions and communities. However, the applied approach is general enough to achieve solutions that are easily adaptable and applicable in other regions of Chile and Colombia, as well the other CELAC countries, for similar climatic challenges.

COMUNIDAD's main contribution is in perfect balance with vertical impact on innovative solutions on the agricultural, forestry, water & land management incl. biodiversity through creating new, local knowledge based and tailor-made solutions and combining them with horizontal impact by stakeholders’ management, socio-economical, policy and business in Chile and Colombia. The project will develop a Stakeholders management plan (D6.3) that will provide pathways to adapting transformative approaches and strategies to include Copernicus to the local/regional management and policy plans to maximise and spread the benefits of space-based applications and solutions enabled by EGNSS and Copernicus, to leverage downstream space excellence in particular of SMEs and universities, to facilitate investments and to foster market uptake in the agriculture, sustainable forestry and land management for maximum local impact. These plans will be co-designed and co-developed with stakeholders from local and regional authorities, decision-makers, research and education institutions, NGOs, business, and others. COMUNIDAD working program will contribute to the systematic transformation that will lead to more successful adaptation to climate change in Chile and Colombia (using EU space technologies) by:

- Producing a comprehensive knowledge-based dataset using existing data about the region, to identify, evaluate, implement, and examine the possibilities of upscaling an effective and profitable COMUNIDAD solutions.
- Implementing demonstrative combined use of EGNSS and COPERNICUS related Platform in Chile and Colombia with the potential to transfer the experiences to all relevant CELAC countries.
- Examining the possibilities of triggering public and/or private investment from Europe and beyond to take advantage of market opportunities in Europe or local markets.
- Developing comprehensive, multi approach environmental, societal, engineering, and economic studies.
- Developing user-friendly portal (based on Hub4Everybody) for upscaling and reach citizen engagement.
- Mobilising stakeholder to engage in COMUNIDAD Platform
- Creating decision-maker friendly documents - feasibility and business plans related to use of Copernicus data and new products and services.
- Engaging communities through citizen science activities.

To ensure maximum impact and sustainability of project results, COMUNIDAD identified 4 Specific objectives

attained through 6 interlinked WPs, that will create an easily manageable, understandable, and credible pathway to impact. WPs and their constituent Tasks and Deliverables have been tailored to provide results that will ensure lasting and tangible impact by addressing the Expected Outcomes and the Wider Impacts of the Horizon Europe Programme and the call.

**COMUNIDAD Specific contribution to the 3 high-level outcomes by the call, that are assuring the technical and environmental impacts:**

1. *The use of EGNSS and sharing of expertise with public and/or private entities to introduce EU-space based applications/solutions leveraging their innovative, unique features, in particular Galileo differentiators (authentication, high accuracy) and EU know-how.*

HOW: The project will help to build services and applications in pilot CELAC countries, which will support new solutions for agriculture/forestry, climatic changes adoption and biodiversity. Cooperation of partners from both Chile and Colombia, and EU will help new solutions for real practice and utilisation of EGNSS and Copernicus data. There will be reused already developed solutions for example HUB4Everybody, FIE20, Lesprojekt pipeline for RS data to establish sustainable agriculture and forestry applications and innovative EO value added products and services with demonstrated commercial value with international client communities.

2. *The use of Copernicus data, to jointly develop algorithms, services and/or products, which serve local user needs and/or enhance the Copernicus global product quality.*

HOW: Lead to an improved quality of the Copernicus global product, thereby enhancing the starting of Copernicus data and information in a global environment and GEOSS, COMUNIDAD will develop a set of new products for Chile and Colombia. Global Copernicus services will be based primarily on the ESA Open Access Hub and DIAS platform, where we will be able to integrate a set of services to the COMUNIDAD platform. Toward GEOSS we plan to cooperate with local data providers and platforms. The focus is to develop self-sustainable services for the CELAC market, which will run without financial support.

3. *The combined use of EGNSS and Copernicus to develop innovative downstream applications combining positioning navigation and timing with Earth observation services.*

HOW: COMUNIDAD project will build a platform that will provide one access point to data, services, and other global products of EGNSS and the Copernicus programme. Minimising the necessity to combine different data sources and services from different providers on various endpoints will bring wider options to integrate spectrum of services in innovative pilot applications focused on specified domains. In the COMUNIDAD project mainly on agriculture and forestry applications in Chile and Colombia, but for future exploitation to different domains and in other CELAC countries as well. Bringing EGNSS and Copernicus programme services to market in the CELAC region on the complex COMUNIDAD platform provides an alternative to other existing global products.

**Contribution to Key Strategic Orientations (KSO) defined by the Destination of the Work programme.**

The COMUNIDAD addresses mainly following KSO:

- *KSO A – Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains to accelerate and steer the digital and green transitions through human-centred technologies and innovations.*

COMUNIDAD project will transfer and promote the usage of available EO- and spatial data available by Copernicus programme as well as existing technologies of project partners to advance agriculture and forestry development in CELAC countries with the main focus on Chile and Colombia. The project complies with maximum openness and transparency in participation (Regional workshops, Hackathons), data sharing, interoperability, and the usage of applications, as well as communication and dissemination.

- *KSO C – Making Europe the first digitally led circular, climate-neutral, and sustainable economy through the transformation of its mobility, energy, construction and production systems.*

The EU is forerunner to leverage on data that originates from EO, and climate monitoring to advance efficient and sustainable agriculture and forestry. Know-how and technologies transferred to advance agriculture and forestry in CELAC countries is a win-win for both continents. The applications, algorithms, best-practices, and business models that are created in the CELAC countries settings feed the developments of the EU-space technology domain.

Contribution of COMUNIDAD to the headings mainly focused on the 4 *Evolution of services: Copernicus*. COMUNIDAD is transferring existing datasets and services to the new regions as well as designing new services based on Copernicus EO and spatial data. The potential impact on the uptake of utilisation of Copernicus services is larger with completely new market in CELAC countries.

**Political, Scientific factors:** The main impact of EU – CELAC cooperation (starting by Chile and Colombia) is to develop the “EU-CELAC Knowledge Area” through: i) improving cooperation in research and innovation; ii) strengthening scientific and technological capacities, and infrastructures; iii) supporting research, innovation and knowledge sharing taking into account the contribution of ancestral and traditional knowledge; iv) boosting the use of new technologies and technology transfer underpinning sustainable socio-economic development and v) fostering cooperation between both regions with respect to the digital economy and the reduction of the digital divide for improving competitiveness while making social inclusion a cross-cutting issue, vi) involve the different players to the collaboration, incl. stakeholders, policy makers, students and young researchers and the public. The EU and its Member States have had a significant presence in the CELAC region since the wide-spread return of democracy in the early nineties, creating a solid partnership based on shared values. The relationship between both regions has undergone important developments and is facing key challenges, which are part of the underlying concept of COMUNIDAD. During the nineties, the European Commission also defined the EU-LAC Strategic Partnership (COM/95/495 Final) based on an interregional approach with bilateral treatment to countries not fully inserted in the mentioned regional schemes (Mexico, Chile), and initiated the negotiation of the first comprehensive framework or association agreements with Mercosur (signed 1995), Chile signed on 1996 and 2002. This strategy continued during the 00’s with the negotiation and signature of new agreements with CARIFORUM (2008), Central America (2010) and Colombia and Peru (2010). The new agreements differ from traditional free trade agreements by including political dialogues and targeted development aid and are thus integral parts of the distinct European actorness on the international scene (Grugel 2004: 144). During the last decade, the framework of the EU-CELAC relations has changed. The stagnation in the “traditional” regional integration schemes in LAC (Mercosur, CAN and SICA, among others), and the rise of less institutionalised schemes such as first UNASUR and then CELAC, or integration schemes oriented to Asia, such as the Pacific Alliance (APEC) and the negotiation of the Trans Pacific Partnership, or with a divergent orientation, such as ALBA-TCP, have created a more fragmented Latin American and Caribbean region with different state (and groups of states) interests. On the other hand, the EU has experienced a profound internal crisis and certain diversification of Member States’ interest through successive enlargements, as well as a stronger pressure for action from its neighbour regions and states, strengthening thus its foreign policy towards Eastern Europe, Middle East and the Mediterranean. Furthermore, there has been a gradual, but deep, shift of the asymmetries between both regions, in a scenario where Latin America has significantly reduced the public debt, unemployment and fiscal deficits, as well as increased its GDP (ECLAC 2011; Silva 2014: 8;). Trade relations have also changed since the 90’s, where the EU accounted for 25% of Latin American trade, which was reduced to only 14% in 2013 (Gratius 2013: 96). Finally, the evolution of regional integration in Latin America and the Caribbean and the European economic crisis has permitted a significant shift from the interregional paradigm driven by the EC and a particular Spanish interest to a new bilateral paradigm that coexists, at EU level, with the bi-regional scheme. Main elements of this new paradigm are given by Brazil and its Strategic Partnership with the EU, which is seen because of the stagnated EU-Mercosur negotiations, the Strategic Partnership EU-Mexico, as well as the new leading role of Germany and the decline of Spain and France. These developments have emphasised the importance of enhancing a policy matrix towards the different CELAC regions and states, combining both biregional and bilateral cooperation schemes across a wide array of topics. For this, the development of a new strategic framework is needed, based on the existing common interests and an appraisal of the shared visions between both regions. The Copernicus program is in a wonderful position to help in this respect via Copernicus user uptake in Chile and Colombia.

**Social and economic factors:** There are several factors regarding the stakeholders involved in the project that could be an obstacle to its success. It is crucial that citizens, decision makers, businesses, NGOs, regional development and scientists, educators and other public and private actors are available to be engaged in the co-creation process and in the validation of the project tools, COMUNIDAD Platform and Copernicus standards & methods. One of the main issues that may be foreseen is a lack of mutual trust among local actors, but we are confident that the engagement methods adopted, as well as the participatory approach will incentivize cooperation and unite all the stakeholder in focusing on COMUNIDAD cooperation and sharing of the existing data in agriculture, forestry and land management, incl.- climate change. Another potential barrier may be reluctance of public administrations to engage citizens. The project will rely on a broad analysis of relevant practices and on the strong involvement of the local partners from Chile and Colombia to ensure that the COMUNIDAD platform is properly implemented in different contexts and with a significant involvement of local communities. Economic considerations are important when working on the local level, especially when public entities start adopting new strategies and tools in agriculture, sustainable forestry, and land management. The adoption of any new approach and tool, has initial costs related to training. However, the benefits should be clear and balance any costs over time as decision makers appreciate the practical assistance, they receive from having a scientifically grounded opportunity to test related information for different spatial and temporal scales that will be used to help farmers/foresters to make smart decisions and policy

makers to assess the effect of different land uses and farming practices on mitigating climate change impacts.

## 2.2 Measures to maximise impact - Dissemination, exploitation and communication

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The consortium will promote the project, its activities, and results to maximise the impacts. A Communication and Dissemination Plan will be developed and validated within M06 (as the deliverable D6.1) and will be regularly updated until the end of the project. The plans shall outline the approach to effectively communicate the project’s objectives and results, guiding partners in planning and implementing their dissemination activities and ultimately, nurturing the ground for the successful exploitation of the Project results. In addition, they will serve as a management tool for both the consortium and the EC, ensuring that the project’s dissemination activities are adequately and timely planned and implemented. To this end, the plan shall create specific project branding and follow a stepwise methodology to elaborate on what to disseminate (project assets), to whom (target groups) and by what means (i.e., strategies, tools and channels suitable for each target group). It will be set up as an action plan (when to disseminate) along with clear quantitative targets and will outline monitoring mechanisms, while also allowing for ad-hoc and on-demand actions, when necessary. Of significant purpose will be the Communication and Dissemination Plan’s aim to proceed with a continuous Barriers Analysis for achieving expected impacts namely in Chile and Colombia, identifying and mitigating during the whole project duration “bottlenecks and blockades”.

| <b>Project dissemination channels</b>                               |  |
|---|--|
| <b>Scientific conferences</b>                                       | International / national scientific conferences: Project researchers are frequently invited to present their scientific outcomes in highly ranked international scientific conferences. As such, they retain the necessary access to disseminate the project’s outcomes to the scientific and research community and will do so by attending and presenting papers in scientific conferences, involving the young researchers as well. |
| <b>Scientific journals</b>  | The project’s scientific and innovation outputs are expected to generate high quality publications and as such be disseminated to top journals in relevant fields in Europe, as well in Chile and Colombia & in LAC.   |
| <b>Clustering and synergies with other projects and initiatives</b> | Interaction, networking, and creation of synergies with other relevant EU and LAC initiatives and projects that will be established from the very early stages of the project’s implementation. This will provide the opportunity to benefit from others’ experience and knowledge, as well as to maximize the impact of the Project communication activities by leveraging multipliers and network.                                   |
| <b>Events / training</b>  | Events for the dissemination of the project results on different clustering activities and conferences in EU/CELAC; for example, the focused workshop will be organised during Tropentag 2025, which is the biggest European event focused on tropical agrisciences. Training will be organised under the COMUNIDAD on local / regional / international.   |
| <b>Hub4Everybody</b>  | Will build an extended social explicit knowledge related to climate change, with having various materials (videos, data, etc.) in the on-line space that can be used in popular scientific activities, education and support decision making. Hub4Everybody will be an important front-end part of the COMUNIDAD platform.   |
| <b>Media, social media</b>  | Engaging with local and regional TV/Radio stations, newspapers, scientific and popular scientific journals, etc. This includes several technical and non- technical articles about the project outcomes and main achievements. Selected social media will be used as well for the project info distribution (LinkedIn, Instagram, Facebook...)   |

### 2.2.2 Communication activities

The primary communication objective is to inform and promote the project and its results to multiple audiences beyond the project’s own community. The C&D will outline in detail how the project communicates and disseminates its findings and key messages to the defined target audiences and beneficiaries of the project’s impact. The plan will include guidelines on the use of material to ensure coherent communication with all target beneficiaries. A project brand identity will be established at the beginning of the project, which will give a feel and recognizable tone to the project materials and outputs, including the project website. Recognizing that smartphones and other connected

devices are how people consume media, as well as for environmental reasons. As an exception to this, the consortium will create a printed project flyer and a roll-up banner for use at events. When printing, all efforts will be taken to minimise environmental impact and to uphold the highest standards of sustainability.

**Communication channels** – to appropriately support a more user-centred approach in understanding and developing the COMUNIDAD approach – include (but are not limited to) to:

1. **Website:** The project website will form a core component of both internal and external communication. An attractive website design will give the project a professional presentation. This virtual space is intended to foster a sense of community, and to provide partners with a space to exchange ideas and materials. It will facilitate interaction and include a download area with all promotional material and a calendar with relevant events. In addition, the website will also host a blog that will be used sourcing from partners and activities to share updates on the project, highlighting pilots, stakeholders’ information, and how to engage them in project activities. The link with the COMUNIDAD Platform will be user-friendly. **Measurable results:** Project website available on M02 with continuous updates, at least four project blog entries per year, more than 500 unique visitors expected by M12, and 1000 by the end of the project.
2. **Social media channels:** social media comprises a major element of the project and will be used in an effective and engaging way. The partners have great experience with using social media to stimulate interest among citizens. A social media strategy will be included within the C&D strategy and plan, which will outline how each channel can be optimised for maximum impact. Target audience demographics will be included, with tailored approaches for engaging each of them. These “multipliers” will help us reach out to new audiences and will increase our reach on social media. All partners will use their existing social media accounts to further drive traffic to the COMUNIDAD website. **Measurable results:** Creation of Instagram and LinkedIn accounts by M03; over 500 Instagram followers/year and over 300 members on LinkedIn Group at the end of the project; at least 2 project Videos uploaded to YouTube; social media links with at least 25 national and international representative groups from across the EU and CELAC.
4. **EU communication and amplification channels:** Using the EC communication channels will help to increase the visibility of the project. This will ensure the greater dissemination of news and findings through a multiplier effect (e.g., Twitter and LinkedIn accounts, FET newsletter; Digital, Single Market and Horizon Europe websites; News articles, Press releases, Blogs, Digital4Science platform, CORDIS success stories). The well-known communication channels from CELAC (namely Chile and Colombia) will be used as well. Synergies with relevant projects and programmes will be sought to maximise the impact of the research and visibility of the outputs developed. **Measurable results:** At least 2 publications will be attempted at the identified communication and amplification channels.
5. **Media and press releases:** Press releases will be crafted in a manner that appeals to journalists, linking the COMUNIDAD outcomes with relevant media narratives. They will be focused on significant developments or events. Each partner will be encouraged to further promote the press releases and will also be made available for interviews and other media opportunities as requests arise. **Measurable results:** At least 50 subscriptions to receive email updates on project achievements and results by M12 and at least 150 by the end of the project.

**Communication activities** As face-to-face communication are the most effective means of communication; the project consortium will attend events that are relevant to the topic in EU and CELAC and through which target groups can be reached. However, some of the events will be attended online to spare time, environment, and financing.

1. **Leaflet and banner:** An informative and attractive leaflet and posters will be created, briefly outlining the project objectives and pointing interested parties towards the website and social media channels. It will be compact in size, making it easy for attendees at events to take with them. As an exception to this, the consortium will create the printed project flyer and a roll-up banner for use at events. When printing, all efforts will be taken to minimise environmental impact and to uphold the highest standards of sustainability (including choice of ink, transportation methods, etc.). **Measurable results:** At least 200 copies of the leaflet (in Spanish or English) will be distributed at various events.
2. **Newsletters** will bring together the most notable news from the project. Short interviews with members of the project’s consortium will be included to not only humanise the project but to allow consortium members to plainly describe the objectives and to present the project in a broader context. The design will strike an optimal balance between being informative and concise. **Measurable results:** At least 2 newsletters produced, distributed to the mailing list, published on the website and social media, and shared with the main stakeholders will be prepared in the project.
3. **Open days:** Once a year or in combination with the training events on the pilots, a selected group of practitioners and citizen representatives will be invited (external to the consortium). During this day, the programme will use innovation games in combination with presentations and invite participants to a dialogue on the ongoing work

and Copernicus data usage. **Measurable results:** At least 2 open days during the project duration; 1 in Chile and 1 in Colombia.

### **Data Management Plan and Intellectual Property Rights (IPR)**

In addition to the general conditions regarding Ownership, the IPR associated with project results will be regulated in the consortium agreement (CA). The project foresees a specific task with the objective to manage the research data generated and/or collected during the project. Copernicus-based service for sustainable agriculture and forestry will require the processing and storage of a large variety of data sets, starting by the land vegetation cover and following with rest of Copernicus data. For the use of the consortium and relevant stakeholders the non-sensitive data produced in the context of the project will be made publicly available and registered at relevant catalogues to assure that the project data sets can be located and reused as much as possible. Relevant data sets will be shared, hosted, and preserved on dedicated servers that ensure easy availability even after the project completion. COMUNIDAD will deliver a Data Management Plan (DMP) to provide an analysis of the main elements of the data management policy that will be used by the project. The DMP will reflect the status within the consortium about the data that will be produced: Identifier and description for each data set to be produced, reference to existing suitable standards (throughout the project, the use of relevant and prominent de-facto standards, such as OGC, W3C related to the specific domains, will be fostered), description of how data will be shared and of the procedures that will be put in place for long-term preservation of the data. This plan is also an important tool for IP management exploitation and dissemination activities as it establishes the management principles for the data produced in the project.

Exploitation of IPR will receive special attention from the beginning. All rules regarding the management of knowledge and IPR will be governed by the CA that will be signed by all partners before the project will start its activities. The CA will address background and foreground knowledge, ownership, protected third-party components of the products, and protection, use, and dissemination of results and access rights. The overall philosophy is sharing and open access to all results of the project. Within the project consortium, the following principles will be implemented.

**(1) Confidentiality:** During the project duration and beyond (several years, to be agreed in the CA), the partners shall treat any information that is designated as property by the disclosing contractors as confidential. They shall also impose the same obligations to their employees and suppliers.

**(2) Pre-existing know-how:** Each Partner is and remains the sole owner of its IPR over its pre-existing know-how. The Partners will identify and list the pre-existing know-how over which they may grant access rights for the project and agree that the access rights to the pre-existing know-how needed for carrying out their own work under the project shall be granted on a royalty-free basis.

**(3) Ownership and protection of knowledge:** The ownership of project knowledge will belong to the partner(s) generating it. Protection will be implemented as appropriate.

**(4) Open data:** Data and results obtained during the project that are based on open public sector data will be made available free of charge.

**(5) Use and dissemination:** If dissemination of knowledge does not adversely affect its protection or use and is subject to legitimate interests, the partners shall ensure further dissemination of their own knowledge as provided under the Grant Agreement (GA) and the CA.

The WP6 is specifically designed to ensure that the anticipated societal impact of COMUNIDAD deliverables for governance and business growth is met. It will include policy and market analyses of the innovations to identify the commercialization potential in Chile and Colombia. Accordingly, dissemination and exploitation will be targeted towards relevant stakeholder groups.

#§COM-DIS-VIS-CDV§#

## 2.3 Summary

### KEY ELEMENT OF THE IMPACT SECTION

#### SPECIFIC NEEDS

*What are the specific needs that triggered this project?*

**N1:** more resilient regions in Chile and Colombia

**N2:** use of a complex platform providing services and methods utilising Copernicus and GEOSS data for final users in Chile and Colombia

**N3:** provide environmental, social, and economic benefits and economic systematic transformative change in the COMUNIDAD pilot regions.

**N4:** framework and requirement analysis for utilisation of Copernicus downstream services in Chile and Colombia

**N5:** improve climate awareness.

**N6:** more secure and more certain societal-economic future

**N7:** use of the Copernicus in different downstream areas important for CELAC (namely agriculture and forestry, inc. land, water, and climate management).

#### EXPECTED RESULTS

*What do you expect to generate by the end of the project?*

**ER1:** increase knowledge about climate change impacts in the societal sphere in Chile and Colombia

**ER2:** analysis of the environmental, and socio-economic climate-related risks and related data

**ER3:** use of Copernicus downstream services for agriculture/forestry in Chile and Colombia including farmers, foresters, climate scientists, innovative SMEs, policy makers, NGOs, and researchers.

**ER4:** Modification of existing solutions FIE20 application, Lesprojekt cloud, HUB4Everybody etc. for target users from Chile and Colombia

**ER5:** analysis of the costs

**ER6:** assessment implications about human well-being

**ER7:** data storage / COMUNIDAD platform

**ER8:** commercialization of the platform

#### D & E & C MEASURES

*What dissemination, exploitation and communication measures will you apply to the results?*

**Civil Society:** Direct Engagement with ongoing Hub4Everybody initiatives Training and other events for local and regional stakeholders. Website and dedicated social media channels, newsletters At least 2 open days, Newsletters, Videos

**Industry and SMEs:** Workshops, Newsletters, Online training, feasibility plans for implementations, business plans.

**Policy:** Policy Briefs, Clustering Events Press releases, Newsletters, Promotional material, CELAC frameworks and communication channels, EU communication and amplification channels

**Research Community:** Clustering Events, International conferences, Peer-review journals, Project Website, Newsletters, and Publications about project results.

*What are the expected wider scientific, economic and societal effects of the project contributing to the expected impacts outlined in the respective destination in the work programme?*

**Environmental (scientific):**

- I1:** Increased innovation potential of the research sector and environmental authorities in Chile and Colombia
- I2:** Enhanced utilisation of seasonal forecasts will lead to responsible agricultural, forest and land management and flood/drought, fires risks reduction.
- I3:** Effective collaboration with the general public
- I4:** Reduction of risks & increase biodiversity, ecosystem resilience.
- I5:** Copernicus services led to optimal adaptation measures design considering multiple spatiotemporal scales. Improvement of ecosystem services and climate resilient agriculture, aquaculture and forestry in Chile and Colombia

**Societal:**

- I6:** More information for leisure activities / novel ecotourism offers.
  - I7:** Smart policies balanced with stakeholders' interests will result in increased resilience and awareness of communities and local businesses.
  - I8:** Local collaborative approaches, capacity building, stakeholder engagement, rural communities' empowerment, and awareness creation.
- Economic:**
- I9:** The improvement of the data management and EGNSS will lead to reduction of forest fires and economic impacts especially in the sectors of agriculture.
  - I10:** Openness of the services to local authorities, national ministry, commercial subjects, communities, researchers.....

**OUTCOMES**

*What change do you expect to see after successful dissemination and exploitation of project results to the target group(s)?*

- O1:** common use of Copernicus data and EGNSS in Chile and Colombia
- O2:** solutions to better manage climate change, forest fires, water in agriculture and mitigate the impacts of droughts or to better manage flooding.
- O3:** solutions for a more climate resilient agriculture and forestry
- O4:** inclusion of digital solutions and services to better predict, monitor and report on climate events.
- O5:** economic analysis and business models to support decisions making, in particular in relation on investments balance between reducing risks through building climate resilience and improving climate risk preparedness and climate emergency management.
- O6:** organisation of Copernicus services to support farmers to manage on the everyday activities (sowing, irrigation, tillage, fertilisation, protection, spraying, harvesting...) and combine these data with EGNSS.
- O7:** COMUNIDAD Platform operational

**TARGET GROUPS**

*Who will use or further up-take the results of the project? Who will benefit from the results of the project?*

- T1:** scientists, researchers incl. young researchers and innovators
- T2:** Professionals and policy makers that have a role in the management, sustainable development, preservation and protection of climate, water, biodiversity and forest resources.
- T3:** CELAC and European organisations that provide / use datasets for climate change assessment. Government and Public Authorities (local, regional, and national bodies, mainly in Chile and Colombia)
- T4:** Industries and businesses, data providers, SMEs, representatives of private sector and employees
- T5:** Environmental and Engineering Consultancies
- T6:** Environmental organisations and NGOs
- T7:** Citizens and society at large, local residents.
- T8:** Educational institutions
- T9:** Young people, Press, Influencers....

#\$IMP-ACT-IA\$#

### 3 Quality and efficiency of the implementation

#@QUA-LIT-QL@# #@WRK-PLA-WP@#

#### 3.1 Work plan and resources

COMUNIDAD is structured in 6 work packages where WP1 and WP6 are horizontal covering project management and communications, dissemination, and exploitation. WP2 and WP5 are mainly responsible for the design and development of infrastructure and COMUNIDAD platform. While WP4 covers the practical works utilising developed services and datasets on the COMUNIDAD platform by development of pilot applications for different domains. WP3 is organising training events and take up activities.

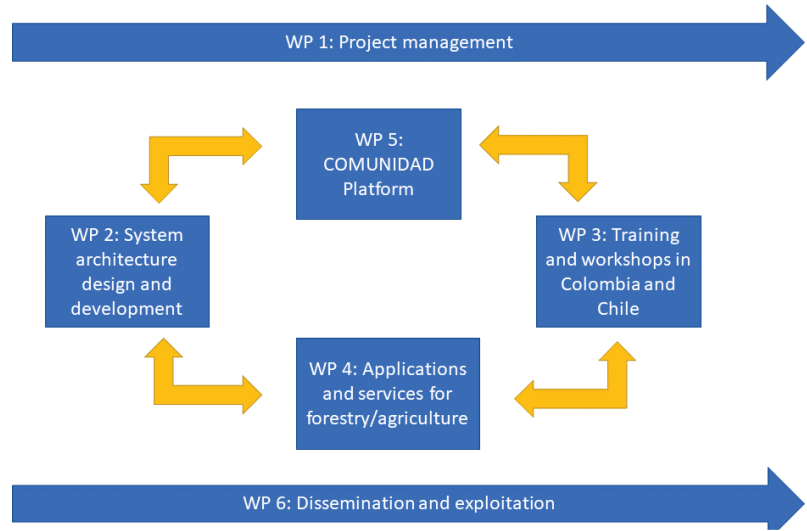


Figure 6 – PERT chart

|   | Resp. partner | M1   | M2   | M3   | M4   | M5 | M6     | M7   | M8  | M9 | M10  | M11  | M12    | M13 | M14 | M15 | M16 | M17 | M18 | M19 | M20 | M21 | M22    | M23  | M24    |
|---|---------------|------|------|------|------|----|--------|------|-----|----|------|------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|------|--------|
| <b>WP1 Project management</b>   | LESP          |      |      | MS1  |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 1.1 Financial and Administrative Management                                      | LESP          | D1.1 |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 1.2 Technical Management   | BOSC          |      | D1.3 |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 1.3 Compliance with Ethics, Data and Risk Management                             | BOSC          | D1.2 |      | D1.4 |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| <b>WP2 System architecture design and development</b>                                 | BOSC          |      |      |      |      |    |        |      | MS2 |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 2.1 Definition of requirements for infrastructure and for pilots                 | BOSC          |      |      |      | D2.1 |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 2.2 Design of infrastructure   | BOSC          |      |      |      |      |    |        | D2.2 |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 2.3 Implementation of infrastructure   | LESP          |      |      |      |      |    |        |      |     |    |      | D2.3 |        |     |     |     |     |     |     |     |     |     |        |      |        |
| <b>WP3 Training and workshops in Chile and Colombia</b>                               | SINNO         |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     | MS5    |      |        |
| Task 3.1 Introduction to Copernicus datasets and services                             | LESP          |      |      |      |      |    | D3.1   |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 3.2 Preparation and collection of materials                                      | SINNO         |      |      |      |      |    |        | D3.2 |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 3.3 Development of training supporting materials                                 | SINNO         |      |      |      |      |    |        |      |     |    |      | D3.3 |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 3.4 Trainings and workshop organization  | BOSC          |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        | D3.4 |        |
| Task 3.5 Evaluation and feedback of trainings and materials                           | UAYSEN        |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        | D3.5 |        |
| Task 3.6 Hackathons   | BOSC          |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        | D3.6 |        |
| <b>WP4 Applications and services for forestry/agriculture</b>                         | UAYSEN        |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      | MS4    |
| Task 4.1 Colombian applications requirements definition                               | UAM           |      |      |      |      |    | D4.1   |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 4.2 Development of Colombian pilot applications                                  | UAM           |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        | D4.2 |        |
| Task 4.3 Validation of Colombian pilot applications                                   | CENICAFE      |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        | D4.3 |        |
| Task 4.4 Chilean applications requirements definition                                 | UAYSEN        |      |      |      |      |    | D4.4   | D4.5 |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 4.5 Development of Chilean pilot applications                                    | UAYSEN        |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        | D4.6 |        |
| Task 4.6 Validation of Chilean pilot applications                                     | FIA           |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      | D4.7   |
| <b>WP5 COMUNIDAD Platform</b>   | CZU           |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 5.1 Definition of infrastructure for COMUNIDAD platform                          | BOSC          |      |      |      |      |    |        |      |     |    | D5.1 |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 5.2 Integration of components to the COMUNIDAD platform                          | LESP          |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     | D5.2   |      |        |
| Task 5.3 Testing of the COMUNIDAD platform  | CZU           |      |      |      |      |    |        |      |     |    |      |      | D5.3.1 |     |     |     |     |     |     |     |     |     | D5.3.2 |      |        |
| Task 5.4 Support of the operational status of the COMUNIDAD platform                  | LESP          |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      | D5.4   |
| Task 5.5 COMUNIDAD platform operational status - Colombia                             | UAM           |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      | D5.4   |
| Task 5.6 COMUNIDAD platform operational status - Chile                                | UAYSEN        |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      | D5.4   |
| <b>WP6 Dissemination and exploitation</b>   | CZU           |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 6.1 Communication and Dissemination plan and Execution of C&D Activities         | CZU           |      |      |      |      |    | D6.1.1 |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      | D6.1.2 |
| Task 6.2 Planning of activities with the Advisory Board for Chile and Colombia actors | SINNO         |      |      |      |      |    |        | D6.2 |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      |        |
| Task 6.3 Exploitation strategy  | CZU           |      |      |      |      |    |        |      |     |    |      |      | D6.3.1 |     |     |     |     |     |     |     |     |     |        |      | D6.3.2 |
| Task 6.4 The promotion of COMUNIDAD Platform in CELAC countries                       | SINNO         |      |      |      |      |    |        |      |     |    |      |      |        |     |     |     |     |     |     |     |     |     |        |      | D6.4   |

Figure 7 – Gantt chart of the work packages

| Event No. | Location | Goals of event  | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 | M17 | M18 | M19 | M20 | M21 | M22 | M23 | M24 | Max |
|-----------|----------|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1         | ES       | kick-off meeting  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 2         | CZ       | introduction to Copernic data and services  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 3         | CL, CO   | regional workshops, initial user requirements                                       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 4         | CL, CO   | platform instalation introductory hackathons  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 5         | CL, CO   | regional workshop, results of hacks, mid-term meeting Chile                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 6         | CL, CO   | final hackathons  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 7         | CL, CO   | regional workshops, platform presentation, results of hackathons, results of pilots |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 8         | CL, CO   | regional workshops, final platform, final meeting Colombia                          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 9         | ES       | international event   |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 10        | BE       | final review  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

Figure 8 – Gantt chart of planned events

| Event No. | Location | Goals of event  | BOSC | LESP | CZU | UAYSEN | SINNO | UAM | CENICAFE | FIA |
|-----------|----------|---|------|------|-----|--------|-------|-----|----------|-----|
| 1         | ES       | kick-off meeting  | 3    | 3    | 2   | 4      | L     | 1   | 4        | 4   |
| 2         | CZ       | introduction to Copernic data and services  | L    | L    | L   | 0      | 1     | 1   | 1        | 1   |
| 3         | CL, CO   | regional workshops, initial user requirements                                       | 1    | 1    | 1   | L      | 0     | L   | L        | L   |
| 4         | CL, CO   | platform instalation, introductory hackathons                                       | 1    | 2    | 1   | L      | 0     | L   | L        | L   |
| 5         | CL, CO   | regional workshop, results of hacks, mid-term meeting Chile                         | 1    | 2    | 1   | L      | 0     | 2   | 1        | L   |
| 6         | CL, CO   | final hackathons  | 1    | 1    | 1   | L      | 2     | L   | L        | L   |
| 7         | CL, CO   | regional workshops, platform presentation, results of hackathons, results of pilots | 1.5  | 1    | 1   | L      | 2     | L   | L        | L   |
| 8         | CL, CO   | regional workshops, final platform, final meeting Colombia                          | 1    | 2    | 2   | 1      | 2     | 2   | L        | 1   |
| 9         | ES       | international event   | 2    | 2    | 2   | 1      | L     | 1   | 1        | 1   |
| 10        | BE       | final review  | 2    | 2    | 1   | 2      | 2     | 2   | 1        | 1   |

Figure 9 – Planned number of persons travelling to events (L=local travels)

Tables for section 3.

Table 3.1g: ‘Subcontracting costs’ items

Not applicable

Table 3.1h: ‘Purchase costs’ items (travel and subsistence, equipment and other goods, works and services)

| 1/BOSC                                 |          |  |
|--|----------|--|
|  | Cost (€) | Justification  |
| <b>Travel and subsistence</b>          | 38300    | Travel to Chile + Colombia 6.5 person/travel (1 person for part of meetings) |
|  | 10690    | Travel to Spain / Belgium 7 person/travel                                    |
| <b>Equipment</b>                       |          |  |
| <b>Other goods, works and services</b> | 1000     | Dissemination materials  |
| <b>Remaining purchase costs</b>        |          |  |
| <b>Total</b>                           | 49900    |  |

| 2/LESP                                 |          |  |
|--|----------|--|
|  | Cost (€) | Justification                              |
| <b>Travel and subsistence</b>          | 44480    | Travel to Chile + Colombia 9 person/travel |
|  | 10930    | Travel to Spain / Belgium 7 person/travel  |
| <b>Equipment</b>                       | 5000     | Server depreciation 24 months              |
| <b>Other goods, works and services</b> | 4000     | Server housing 24 months                   |

|                                 |       |
|---------------------------------|-------|
| <b>Remaining purchase costs</b> |       |
| <b>Total</b>                    | 64410 |

| <b>3/CZU</b>                           |                 |   |
|--|-----------------|---|
|  | <b>Cost (€)</b> | <b>Justification</b>  |
| <b>Travel and subsistence</b>          | 41300<br>7520   | Travel to Chile + Colombia 7 person/travel<br>Travel to Spain / Belgium 5 person/travel |
| <b>Equipment</b>                       |                 |   |
| <b>Other goods, works and services</b> | 10000           | Travel to Spain Chilean, Colombian, 2x CELACs experts                                   |
| <b>Remaining purchase costs</b>        |                 |   |
| <b>Total</b>                           | 58820           |   |

| <b>4/UAYSEN</b>                        |                       |  |
|--|-----------------------|--|
|  | <b>Cost (€)</b>       | <b>Justification</b>   |
| <b>Travel and subsistence</b>          | 2960<br>17020<br>2000 | Travel to Colombia<br>Travel to Spain / Belgium 5 person/travel<br>Inland travel |
| <b>Equipment</b>                       |                       |  |
| <b>Other goods, works and services</b> | 4500<br>800           | Rent cloud infrastructure 12 months<br>Dissemination materials                   |
| <b>Remaining purchase costs</b>        |                       |  |
| <b>Total</b>                           | 27280                 |  |

| <b>5/SINNO</b>                         |                 |   |
|--|-----------------|---|
|  | <b>Cost (€)</b> | <b>Justification</b>  |
| <b>Travel and subsistence</b>          | 34920<br>5400   | Travel to Chile + Colombia 6 person/travel<br>Travel to Czechia / Belgium 3 person/travel |
| <b>Equipment</b>                       |                 |   |
| <b>Other goods, works and services</b> | 7500            | Travel 3 Advisory board member to Spain   |
| <b>Remaining purchase costs</b>        |                 |   |
| <b>Total</b>                           | 47820           |   |

| <b>6/UAM</b>                           |                 |  |
|--|-----------------|--|
|  | <b>Cost (€)</b> | <b>Justification</b>   |
| <b>Travel and subsistence</b>          | 11170<br>12160  | Travel to Czechia / Spain / Belgium 5 person/travel<br>Trave to Colombia 4 person / travel |
| <b>Equipment</b>                       |                 |  |
| <b>Other goods, works and services</b> | 4500<br>500     | Rent cloud infrastructure 12 months<br>Dissemination materials                             |
| <b>Remaining purchase costs</b>        |                 |  |
| <b>Total</b>                           | 28330           |  |

| <b>7/CENICAFE</b>                      |                       |   |
|--|-----------------------|---|
|  | <b>Cost (€)</b>       | <b>Justification</b>  |
| <b>Travel and subsistence</b>          | 17160<br>2960<br>1000 | Travel to Czechia / Spain / Belgium 7 person/travel<br>Travel to Chile 1 person / travel<br>Inland travel |
| <b>Equipment</b>                       |                       |   |
| <b>Other goods, works and services</b> |                       |   |
| <b>Remaining purchase costs</b>        |                       |   |
| <b>Total</b>                           | 21120                 |   |

| <b>8/FIA</b> |  |  |
|--------------|--|--|
|--------------|--|--|

|  | Cost (€) | Justification                                       |
|--|----------|---|
| <b>Travel and subsistence</b>          | 17160    | Travel to Czechia / Spain / Belgium 7 person/travel |
|  | 2960     | Travel to Colombia 1 person / travel                |
|  | 2000     | Inland travel                                       |
| <b>Equipment</b>                       |          |   |
| <b>Other goods, works and services</b> |          |   |
| <b>Remaining purchase costs</b>        |          |   |
| <b>Total</b>                           | 22120    |   |

**Table 3.1i: ‘Other costs categories’ items (e.g. internally invoiced goods and services)**

**Not applicable**

**Table 3.1j: ‘In-kind contributions’ provided by third parties**

**Not applicable**

#\$QUA-LIT-QL\$# #SWRK-PLA-WP\$#

### 3.2 Capacity of participants and consortium as a whole

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The Consortium is well equipped to address this Call because it includes partners hailing from diverse fields of expertise not only to COMUNIDAD aim but also beyond (including i.e., engineers and data engineers, but also sustainable technologists, natural and social scientists, experts in digital technology etc) who have worked and/or researched in fields of COMUNIDAD. The diversity of backgrounds of the partners also provides COMUNIDAD with wide access to knowledge available from research, being able to ground theoretical approaches into practice and implement and adopt COMUNIDAD solutions in target areas of Colombia and Chile. COMUNIDAD partners will act on an equal opportunity basis, and COMUNIDAD will bring together a broad range of different stakeholders from across Latin America and Europe: national agricultural and industrial research institutes, international organisations, local industrial research organisations, institutions with links to farmer organisations and extension services, as well as technology providers, universities, and SMEs. Considering the size and expertise of partners, mainly advanced but also less experienced partners are involved in the consortium. Beyond the consortium, project partners have an extensive network of stakeholders (such as coffee farmers in Colombia and diverse end users from agriculture and forestry in Chile), state non-profit organisations for forest management, innovation agencies, governmental authorities, as well as business, civil society, and science organisations.

Project will be coordinated by the representative of Lesprojekt company – Mr. Karel Charvát, Jr. and technical management will be realized by representative of BOSC – Mr. Michal Kepka and BOSC will provide manager of the international collaboration – Mrs. Zuzana Boukalova.

**Baltic Open Solutions Center (BOSC)** is a Latvian SME company that was established in 2007 as a common spin-off of a research and development company. BOSC has customers in public sector companies as well as private companies. BOSC is working in environment, agriculture, and public services; GIS and open-source application development; WSN hardware design, prototyping, and testing; remote sensing and open data processing, Web based online learning tool and mobile App development. BOSC partners and specialists have more than 20 years of work experience in 5th, 6th, and 7th framework projects, Horizon2020 and Horizon Europe projects, and other cross-border initiatives, and more than 40 years’ experience in scientific work. BOSC is also a member of the Plan4All association.

**Lesprojekt-sluzby** is an SME company located in the Central Bohemia region of the Czech Republic having a 30 years history in developing open-source solutions for spatial data collection and remote sensing data interpretation and publication in the areas of forestry, agriculture, transport, and environment. With a broad portfolio of own developed tools and services, Lesprojekt covers the whole data processing chain, including sensor data collection, metadata and data storage, data aggregation, spatial analysis, and publication, heavily focusing on open software and open data use, contribution, development, and promotion. Lesprojekt is active in EU policy implementation support through many EU-funded projects (FP, H2020, Interreg, etc.); it has also been playing an active role in Corine Land Cover and INSPIRE implementation on the national level.

**Czech University of Life Sciences Prague (CZU)** is a public university and one of leading educational and research centres for agrarian sector, food, forestry, wood processing, environment and ecology, economics and management, informatics, rural and regional development in the Czech Republic. Faculty of Tropical AgriSciences (FTA) is a unique faculty within the university and provides education in information science, ecology and environmental

studies, utilisation of natural resources, landscape protection and landscape architecture, spatial planning or technologies used in life sciences (agriculture, food and forestry) and has a special segment of education and research, which is represented by programs in tropical agrisciences. The university is a member of Euroleague for Life Sciences. CZU and especially FTA participates in international development aid projects, in cooperation with research organisations and universities in developing countries e.g., in Peru, Colombia, Indonesia, Angola, Egypt, Zambia, Senegal, Cambodia.

**University Aysén (UAysén)** Located in the region of Aysén, Chile, an area also known as Patagonia-Aysén, the Universidad of Aysén (UAysén) is a state, public institution of higher education, founded only in 2015 and that started operations in 2017. Its mission is to contribute to the national sustainable development, with special emphasis on Patagonia Aysén, as well as social justice, through the development, dissemination and dissemination of knowledge, the comprehensive training of professionals, research and innovation, artistic creation, and cultural development. It guides its action by fundamental principles such as diversity, pluralism, inclusion, and equity; promotion of democracy and participation, and sustainable development, with a regional vocation oriented towards quality and innovation. The University offers 8 undergraduate programs in the fields of Agronomy, Forest Engineering, Industrial Civil Engineering, Informatics Civil Engineering, Nursing, Obstetrics, Psychology, and social work. It has almost 400 students and 50 full-time academics.

**SocialInnoLabs (SINNO)** is a non-profit organisation whose activity is mainly focused on (1) Promoting research, innovation, technology transfer, entrepreneurship, and social and territorial cohesion through specifically focused projects and structuring of an international network Social Spaces for Research and Innovation (SSRI), (2) supporting innovation policies, environmental, social cohesion and inclusive rural development in society and enterprises, promoting Corporate Social Responsibility projects, (3) promotion of social and cultural Projects to help and contribute to the integration of people and groups having disadvantaged conditions. The network of collaborators of the Foundation is held by many experts in different technological and social disciplines that individually are part of the Social Spaces of Innovation deployed in Spain. Many of these members come from universities, private companies, and other foundations with a strong vocation for social technological research.

**The Universidad Autónoma de Manizales (UAM®)** is a higher education institution of common utility, non-profit, located in the former Caldas railroad station in the city of Manizales, capital of the department of Caldas, Colombia. UAM has high-quality institutional accreditation granted by the Ministry of National Education-MEN. It consists of three faculties (engineering, health, social and business studies) and offers technological, undergraduate, specialisation, master's and doctoral programmes. Experimental and Computational Mechanics Laboratory (ECML) was created in 2017 to respond with practical solutions-oriented to research, innovation, and technological development through strategic alliances that strengthen scientific and technical capacities. Projects developed by ECML are oriented to agricultural engineering, biomedical engineering, materials, medicine, energy solutions, mechanical vibrations, technological devices, and applied mechanics. ECML has had international cooperation with institutions such as IPM (Academy of Sciences of the Czech Republic), University of Lavras (Brazil), University of Salzburg (Austria), among others, partnership with national companies such as Mylabs, 3i Ideas Innovadoras, and others. In addition to results in the research area such as six patents (3 patented and 3 in process), articles published in high impact international journals and participation in international congresses, ECML provides services in 3D printing (prototypes), reverse engineering, experimental mechanics, computational mechanics and simulation, applied engineering, and research for industries and academic projects.

**National Coffee Research Center of Colombia (Cenicafé)** In 1938, the National Coffee Federation (FNC) created Cenicafé, in order to study aspects related to production on farms, harvesting, processing, bean quality, handling and use of by-products of the coffee exploitation and the conservation of the natural resources of the Colombian coffee zone. Cenicafé is in Chinchiná, in the department of Caldas, and has 8 experimental stations distributed in the three mountain ranges; the Naranjal Central Station located in Chinchiná, Caldas, and the Pueblo Bello Experimental Stations in Pueblo Bello Cesar, Santander in Floridablanca, Santander, El Rosario in Venice, Antioquia, Paraguaicito in Buenavista, Quindío, La Catalina in Pereira, Risaralda, Líbano in Líbano, Tolima and El Tambo in El Tambo, Cauca. These Experimental Stations meet the representative environmental conditions of the majority of coffee farms in the country. The Center has researchers trained in the disciplines that constitute the most important areas of knowledge to address coffee problems. Since its foundation, Cenicafé has received the support of coffee growers, and its challenge has been the development of appropriate technologies for coffee production in Colombia in terms of economic, environmental, and social sustainability. First production, then everything else.

**The Foundation for Agricultural Innovation (FIA)** is the innovation agency of the Ministry of Agriculture of Chile that seeks to promote innovation processes through the FIA strategic guidelines for the forestry and agricultural sector and/or the national agri-food chain through the promotion, articulation, development of capacities and technological dissemination of initiatives that contribute to the sustainable development and competitiveness of Chile and its

regions. Work that is carried out thanks to the accompaniment of technicians and professionals.

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## 4 Ethics & security

### Ethics Issues Table

| 1. Human Embryonic Stem Cells and Human Embryos  |     | Page |
|--|-----|------|
| Does this activity involve Human Embryonic Stem Cells (hESCs)?   | NO  |      |
| Does this activity involve the use of human embryos?   | NO  |      |
| 2. Humans  |     | Page |
| Does this activity involve human participants?   | NO  |      |
| Does this activity involve interventions (physical also including imaging technology, behavioural treatments, etc.) on the study participants?   | NO  |      |
| Does this activity involve conducting a clinical study as defined by the Clinical Trial Regulation (EU 536/2014)? (using pharmaceuticals, biologicals, radiopharmaceuticals, or advanced therapy medicinal products) | NO  |      |
| 3. Human Cells / Tissues (not covered by section 1)  |     | Page |
| Does this activity involve the use of human cells or tissues?  | NO  |      |
| 4. Personal Data   |     | Page |
| Does this activity involve processing of personal data?  | NO  |      |
| Does this activity involve further processing of previously collected personal data (including use of preexisting data sets or sources, merging existing data sets)?   | NO  |      |
| Is it planned to export personal data from the EU to non-EU countries? Specify the type of personal data and countries involved  | NO  |      |
| Is it planned to import personal data from non-EU countries into the EU or from a non-EU country to another non-EU country? Specify the type of personal data and countries involved                                 | NO  |      |
| Does this activity involve the processing of personal data related to criminal convictions or offences?  | NO  |      |
| 5. Animals   |     | Page |
| Does this activity involve animals?  | NO  |      |
| 6. Non-EU Countries  |     | Page |
| Will some of the activities be carried out in non-EU countries?  | YES | 1-45 |
| Call is focused on cooperation with international partners from non-EU countries, we are cooperating with Chile and Colombia.  |     |      |
| In case non-EU countries are involved, do the activities undertaken in these countries raise potential ethics issues?  | NO  |      |
| It is planned to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples,                      | NO  |      |

|   |    |             |
|---|----|-------------|
| etc.)?  |    |             |
| Is it planned to import any material (other than data) from non-EU countries into the EU or from a non-EU country to another non-EU country? For data imports, see section 4.   | NO |             |
| Does this activity involve low and/or lower middle-income countries, (if yes, detail the benefit sharing actions planned in the self-assessment)  | NO |             |
| Could the situation in the country put the individuals taking part in the activity at risk?   | NO |             |
| <b>7. Environment, Health and Safety</b>  |    | <b>Page</b> |
| Does this activity involve the use of substances or processes that may cause harm to the environment, to animals or plants. (during the implementation of the activity or further to the use of the results, as a possible impact) ?                      | NO |             |
| Does this activity deal with endangered fauna and/or flora / protected areas?   | NO |             |
| Does this activity involve the use of substances or processes that may cause harm to humans, including those performing the activity.(during the implementation of the activity or further to the use of the results, as a possible impact)?              | NO |             |
| <b>8. Artificial Intelligence</b>   |    | <b>Page</b> |
| Does this activity involve the development, deployment and/or use of Artificial Intelligence? (if yes, detail in the self-assessment whether that could raise ethical concerns related to human rights and values and detail how this will be addressed). | NO |             |
| <b>9. Other Ethics Issues</b>   |    | <b>Page</b> |
| Are there any other ethics issues that should be taken into consideration?  | NO |             |
| I confirm that I have taken into account all ethics issues above and that, if any ethics issues apply, I will complete the ethics self-assessment as described in the guidelines <a href="#">How to Complete your Ethics Self-Assessment</a>              |    | X           |

## Ethics Self-Assessment

### Ethical dimension of the objectives, methodology and likely impact

Activities of the project are not related to any potential conflicts with ethics. Project activities are focused on monitoring of environment and utilisation of EO and GNSS data in sustainable agriculture, forestry, and monitoring of global change.

### Compliance with ethical principles and relevant legislation

All project activities will be in compliance with national legislation of pilot countries (Chile and Colombia), and EU member states legislation. Ethics issues will be strictly monitored by project management during the whole project duration.

**Security issues table**

| 1. EU Classified Information (EUCI) <sup>2</sup>  |    | Page |
|---|----|------|
| Does this activity involve information and/or materials requiring protection against unauthorised disclosure (EUCI)?  | NO |      |
| Does this activity involve non-EU countries which need to have access to EUCI?  | NO |      |
| 2. Misuse   |    | Page |
| Does this activity involve human participants?  | NO |      |
| 3. Other Security Issues  |    | Page |
| Does this activity involve information and/or materials subject to national security restrictions? If yes, please specify: (Maximum number of characters allowed: 1000) | NO |      |
| Are there any other security issues that should be taken into consideration? If yes, please specify: (Maximum number of characters allowed: 1000)                       | NO |      |

**Security self-assessment**

Project activities will use data and services with defined licenses and mainly focus on open-source software and datasets. Any project activities will be focused on classified data or technologies.

## ANNEX 2

## ESTIMATED BUDGET FOR THE ACTION

| Forms of funding              | Estimated eligible <sup>1</sup> costs (per budget category) |                      |   |                   |                            |               |                                     |  |  |  |  | Estimated EU contribution <sup>2</sup>   |                             |                           |                                   |                                      |              |              |              |
|-------------------------------|---|----------------------|---|-------------------|----------------------------|---------------|-------------------------------------|--|--|--|--|--|-----------------------------|---------------------------|-----------------------------------|--------------------------------------|--------------|--------------|--------------|
|                               | Direct costs  |                      |   |                   |                            |               |                                     |  |  |  |  | EU contribution to eligible costs        |                             | Requested EU contribution | Maximum grant amount <sup>6</sup> |                                      |              |              |              |
|                               | A. Personnel costs  |                      | B. Subcontracting costs                         | C. Purchase costs |                            |               | D. Other cost categories            |  |  | E. Indirect costs <sup>3</sup>                                 |  | Total costs                              | Funding rate % <sup>4</sup> |                           |                                   | Maximum EU contribution <sup>5</sup> | g = f * U%   | h            | m            |
| A.1 Employees (or equivalent) | A.2 Natural persons under direct contract                   | A.3 Seconded persons | A.4 SME owners and natural person beneficiaries | B. Subcontracting | C.1 Travel and subsistence | C.2 Equipment | C.3 Other goods, works and services | C.4 Financial support to third parties | D.1 Internally invoiced goods and services | D.2 Transnational access to research infrastructure unit costs | D.3 Virtual access to research infrastructure unit costs |  |                             | D.4 Indirect costs        | E. Indirect costs                 |                                      |              |              |              |
| a1                            | a2  | a3                   | b   | c1                | c2                         | c3            | d1                                  | d2                                     | d3   | d4   | e  | f = 0,25 * (a1 + a2 + a3 + c1 + c2 + c3) |                             |                           |                                   |                                      |              |              |              |
| 1 - LESPRO                    | 165 025,00  | 0,00                 | 0,00  | 0,00              | 55 410,00                  | 5 000,00      | 4 000,00                            | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 57 508,75                   | 287 543,75                | 100                               | 287 543,75                           | 287 543,75   | 287 543,75   | 287 543,75   |
| 2 - BOSC                      | 135 000,00  | 0,00                 | 0,00  | 0,00              | 48 990,00                  | 0,00          | 1 000,00                            | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 46 247,50                   | 236 237,50                | 100                               | 236 237,50                           | 236 237,50   | 236 237,50   | 236 237,50   |
| 3 - CZU                       | 104 500,00  | 0,00                 | 0,00  | 0,00              | 48 820,00                  | 0,00          | 10 000,00                           | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 40 830,00                   | 204 150,00                | 100                               | 204 150,00                           | 204 150,00   | 204 150,00   | 204 150,00   |
| 4 - UAYSEN                    | 152 500,00  | 0,00                 | 0,00  | 0,00              | 21 980,00                  | 0,00          | 5 300,00                            | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 44 945,00                   | 224 725,00                | 100                               | 224 725,00                           | 224 725,00   | 224 725,00   | 224 725,00   |
| 5 - SOCIALINNOVLABS           | 92 000,00   | 0,00                 | 0,00  | 0,00              | 40 320,00                  | 0,00          | 7 500,00                            | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 34 955,00                   | 174 775,00                | 100                               | 174 775,00                           | 174 775,00   | 174 775,00   | 174 775,00   |
| 6 - UAM                       | 87 400,00   | 0,00                 | 0,00  | 0,00              | 23 330,00                  | 0,00          | 5 000,00                            | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 28 932,50                   | 144 662,50                | 100                               | 144 662,50                           | 144 662,50   | 144 662,50   | 144 662,50   |
| 7 - FNC                       | 59 800,00   | 0,00                 | 0,00  | 0,00              | 21 120,00                  | 0,00          | 0,00                                | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 20 250,00                   | 101 150,00                | 100                               | 101 150,00                           | 101 150,00   | 101 150,00   | 101 150,00   |
| 8 - FIA                       | 79 200,00   | 0,00                 | 0,00  | 0,00              | 22 120,00                  | 0,00          | 0,00                                | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 25 330,00                   | 126 650,00                | 100                               | 126 650,00                           | 126 650,00   | 126 650,00   | 126 650,00   |
| <b>Σ consortium</b>           | 876 025,00  | 0,00                 | 0,00  | 0,00              | 282 090,00                 | 5 000,00      | 32 800,00                           | 0,00                                   | 0,00                                       | 0,00   | 0,00   | 0,00                                     | 298 978,75                  | 1 499 893,75              |                                   | 1 499 893,75                         | 1 499 893,75 | 1 499 893,75 | 1 499 893,75 |

<sup>1</sup> See Article 6 for the eligibility conditions. All amounts must be expressed in EUR (see Article 21 for the conversion rules).

<sup>2</sup> The consortium remains free to decide on a different internal distribution of the EU funding (via the consortium agreement, see Article 7).

<sup>3</sup> Indirect costs already covered by an operating grant (received under any EU funding programme) are ineligible (see Article 6.3). Therefore, a beneficiary/affiliated entity that receives an operating grant during the action duration cannot declare indirect costs for the year(s)/reporting period(s) covered by the operating grant, unless they can demonstrate that the operating grant does not cover any costs of the action. This requires specific accounting tools. Please immediately contact us via the EU Funding & Tenders Portal for details.

<sup>4</sup> See Data Sheet for the funding rate(s).

<sup>5</sup> This is the theoretical amount of the EU contribution to costs, if the reimbursement rate is applied to all the budgeted costs. This theoretical amount is then capped by the 'maximum grant amount'.

<sup>6</sup> The 'maximum grant amount' is the maximum grant amount decided by the EU. It normally corresponds to the requested grant, but may be lower.

<sup>7</sup> See Annex 2a. 'Additional information on the estimated budget' for the details (units, cost per unit).

<sup>8</sup> See Data Sheet for the flat-rate.

## ANNEX 2a

### ADDITIONAL INFORMATION ON UNIT COSTS AND CONTRIBUTIONS

#### **SME owners/natural person beneficiaries without salary** (Decision C(2020) 7115<sup>1</sup>)

Type: unit costs

Units: days spent working on the action (rounded up or down to the nearest half-day)

Amount per unit (daily rate): calculated according to the following formula:

{EUR 5 080 / 18 days = **282,22**}  
 multiplied by  
 {country-specific correction coefficient of the country where the beneficiary is established}

The country-specific correction coefficients used are those set out in the Horizon Europe Work Programme (section Marie Skłodowska-Curie actions) in force at the time of the call (see [Portal Reference Documents](#)).

#### **HE and Euratom Research Infrastructure actions**<sup>2</sup>

Type: unit costs

Units<sup>3</sup>: see (for each access provider and installation) the unit cost table in Annex 2b

Amount per unit<sup>\*</sup>: see (for each access provider and installation) the unit cost table in Annex 2b

\* Amount calculated as follows:

For trans-national access:

$$\frac{\text{average annual total trans-national access costs to the installation (over past two years}^4)}{\text{average annual total quantity of trans-national access to the installation (over past two years}^5)}$$

For virtual access:

$$\frac{\text{total virtual access costs to the installation (over the last year}^6)}{\text{total quantity of virtual access to the installation (over the last year}^7)}$$

#### **Euratom staff mobility costs**<sup>8</sup>

##### Monthly living allowance

Type: unit costs

<sup>1</sup> Commission [Decision](#) of 20 October 2020 authorising the use of unit costs for the personnel costs of the owners of small and medium-sized enterprises and beneficiaries that are natural persons not receiving a salary for the work carried out by themselves under an action or work programme (C(2020)7715).

<sup>2</sup> [Decision](#) of 19 April 2021 authorising the use of unit costs for the costs of providing trans-national and virtual access in Research Infrastructure actions under the Horizon Europe Programme (2021-2027) and the Research and Training Programme of the European Atomic Energy Community (2021-2025).

<sup>3</sup> Unit of access (e.g. beam hours, weeks of access, sample analysis) fixed by the access provider in proposal.

<sup>4</sup> In exceptional and duly justified cases, the granting authority may agree to a different reference period.

<sup>5</sup> In exceptional and duly justified cases, the granting authority may agree to a different reference period.

<sup>6</sup> In exceptional and duly justified cases, the granting authority may agree to a different reference period.

<sup>7</sup> In exceptional and duly justified cases, the granting authority may agree to a different reference period.

<sup>8</sup> [Decision](#) of 15 March 2021 authorising the use of unit costs for mobility in co-fund actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025).

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit\*: see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b


\* Amount calculated as follows from 1 January 2021:  
 {EUR 4 300 multiplied by  
 country-specific correction coefficient\*\* of the country where the staff member is seconded}<sup>9</sup>

\*\*Country-specific correction coefficients as from 1 January 2021<sup>10</sup>

EU-Member States<sup>11</sup>

| Country / Place | Coefficient (%) |
|-----------------|-----------------|
| Bulgaria        | 59,1            |
| Czech Rep.      | 85,2            |
| Denmark         | 131,3           |
| Germany         | 101,9           |
| Bonn            | 95,8            |
| Karlsruhe       | 98              |
| Munich          | 113,9           |
| Estonia         | 82,3            |
| Ireland         | 129             |
| Greece          | 81,4            |
| Spain           | 94,2            |
| France          | 120,5           |
| Croatia         | 75,8            |
| Italy           | 95              |
| Varese          | 90,7            |
| Cyprus          | 78,2            |
| Latvia          | 77,5            |
| Lithuania       | 76,6            |
| Hungary         | 71,9            |
| Malta           | 94,7            |
| Netherlands     | 113,9           |
| Austria         | 107,9           |
| Poland          | 70,9            |
| Portugal        | 91,1            |
| Romania         | 66,6            |
| Slovenia        | 86,1            |

<sup>9</sup> Unit costs for living allowances are calculated by using a method of calculation similar to that applied for the secondment to the European Commission of seconded national experts (SNEs).

<sup>10</sup>  For the financial statements, the amount must be adjusted according to the actual place of secondment. The revised coefficients were adopted in the Decision authorising the use of unit costs for the Fusion Programme co-fund action under the Research and training Programme of the European Atomic Energy Community 2021-2025. They are based on the 2020 Annual update of the remuneration and pensions of the officials and other servants of the European Union and the correction coefficients applied thereto (OJ C 428, 11.12.2020) to ensure purchasing power parity. The revised coefficient are applied as from 1 January 2021 through an amendment to the grant agreement.

<sup>11</sup> No correction coefficient shall be applicable in Belgium and Luxembourg.

|          |       |
|----------|-------|
| Slovakia | 80,6  |
| Finland  | 118,4 |
| Sweden   | 124,3 |

Third countries

| Country/place  | Coefficient (%)                       |
|----------------|---------------------------------------|
| China          | 82,2                                  |
| India          | 72,3                                  |
| Japan          | 111,8                                 |
| Russia         | 92,7                                  |
| South Korea    | 92,3                                  |
| Switzerland    | 129,2                                 |
| Ukraine        | 82,3                                  |
| United Kingdom | 97,6                                  |
| United States  | 101,4 (New-York)<br>90,5 (Washington) |

**Mobility allowance**

Type: Unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit: EUR 600 per person-month; see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

**Family allowance**

Type: unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit: EUR 660 per person-month; see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

**Education allowance**

Type: Unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit\*: see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

\*Amount calculated as follows from 1 January 2021:  
{EUR 283.82 x number of dependent children<sup>12</sup>}

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<sup>12</sup> For the estimated budget (Annex 2): an average should be used. (⚠ For the financial statements, the number of children (and months) must be adjusted according to the actual family status at the moment the secondment starts.)

**ANNEX 3**

**ACCESSION FORM FOR BENEFICIARIES**

**BALTIC OPEN SOLUTIONS CENTER SIA (BOSC)**, PIC 997636465, established in AINAZU IELA 13, SAULKRASTI 2160, Latvia,

**hereby agrees**

**to become beneficiary**

**in Agreement No 101131859 — COMUNIDAD** ('the Agreement')

**between LESPROJEKT SLUZBY SRO (LESPRO) and European Union Agency for the Space Programme** ('granting authority'), under the powers delegated by the European Commission ('European Commission'),

**and mandates**

**the coordinator** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

**ANNEX 3**

**ACCESSION FORM FOR BENEFICIARIES**

**CESKA ZEMEDELSKA UNIVERZITA V PRAZE (CZU)**, PIC 999912570, established in KAMYCKA 129 SUCHDOL, PRAHA 165 00, Czechia,

**hereby agrees**

**to become beneficiary**

**in Agreement No 101131859 — COMUNIDAD** ('the Agreement')

**between LESPROJEKT SLUZBY SRO (LESPRO) and European Union Agency for the Space Programme** ('granting authority'), under the powers delegated by the European Commission ('European Commission'),

**and mandates**

**the coordinator** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

**ANNEX 3**

**ACCESSION FORM FOR BENEFICIARIES**

**UNIVERSIDAD DE AYSÉN (UAYSEN)**, PIC 922580387, established in GENERAL PARRA 101, COYHAIQUE 5951360, Chile,

**hereby agrees**

**to become beneficiary**

**in Agreement No 101131859 — COMUNIDAD** ('the Agreement')

**between LESPROJEKT SLUZBY SRO (LESPRO) and European Union Agency for the Space Programme** ('granting authority'), under the powers delegated by the European Commission ('European Commission'),

**and mandates**

**the coordinator** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

**ANNEX 3**

**ACCESSION FORM FOR BENEFICIARIES**

**FUNDACION SOCIALINNOLABS (SOCIALINNOLABS)**, PIC 926255523, established in CALLE SANTA ENGRACIA 4 PLANTA 3 PUERTA DC, MADRID 28010, Spain,

**hereby agrees**

**to become beneficiary**

**in Agreement No 101131859 — COMUNIDAD** ('the Agreement')

**between LESPROJEKT SLUZBY SRO (LESPRO) and European Union Agency for the Space Programme** ('granting authority'), under the powers delegated by the European Commission ('European Commission'),

**and mandates**

**the coordinator** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

**ANNEX 3**

**ACCESSION FORM FOR BENEFICIARIES**

**UNIVERSIDAD AUTONOMA DE MANIZALES (UAM)**, PIC 972974409, established in ANTIGUA ESTACION DEL FERROCARRIL DEPARTAMENTO CALDAS, MANIZALES 441, Colombia,

**hereby agrees**

**to become beneficiary**

**in Agreement No 101131859 — COMUNIDAD** ('the Agreement')

**between LESPROJEKT SLUZBY SRO (LESPRO) and European Union Agency for the Space Programme** ('granting authority'), under the powers delegated by the European Commission ('European Commission'),

**and mandates**

**the coordinator** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

**ANNEX 3**

**ACCESSION FORM FOR BENEFICIARIES**

**FEDERACION NACIONAL DE CAFETEROS DE COLOMBIA (FNC)**, PIC 920885312, established in CALLE 73 8 13, BOGOTA 110221, Colombia,

**hereby agrees**

**to become beneficiary**

**in Agreement No 101131859 — COMUNIDAD** ('the Agreement')

**between LESPROJEKT SLUZBY SRO (LESPRO) and European Union Agency for the Space Programme** ('granting authority'), under the powers delegated by the European Commission ('European Commission'),

**and mandates**

**the coordinator** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

**ANNEX 3**

**ACCESSION FORM FOR BENEFICIARIES**

**FUNDACION PARA LA INNOVACION AGRARIA (FIA)**, PIC 910607774, established in LORELEY 1582, LA REINA, SANTIAGO 7850601, Chile,

**hereby agrees**

**to become beneficiary**

**in Agreement No 101131859 — COMUNIDAD** ('the Agreement')

**between LESPROJEKT SLUZBY SRO (LESPRO) and European Union Agency for the Space Programme** ('granting authority'), under the powers delegated by the European Commission ('European Commission'),

**and mandates**

**the coordinator** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary



## **ANNEX 5**

### **SPECIFIC RULES**

#### **CONFIDENTIALITY AND SECURITY (— ARTICLE 13)**

##### **Sensitive information with security recommendation**

Sensitive information with a security recommendation must comply with the additional requirements imposed by the granting authority.

Before starting the action tasks concerned, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task. The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary.

For requirements restricting disclosure or dissemination, the information must be handled in accordance with the recommendation and may be disclosed or disseminated only after written approval from the granting authority.

##### **EU classified information**

If EU classified information is used or generated by the action, it must be treated in accordance with the security classification guide (SCG) and security aspect letter (SAL) set out in Annex 1 and Decision 2015/444<sup>1</sup> and its implementing rules — until it is declassified.

Deliverables which contain EU classified information must be submitted according to special procedures agreed with the granting authority.

Action tasks involving EU classified information may be subcontracted only with prior explicit written approval from the granting authority and only to entities established in an EU Member State or in a non-EU country with a security of information agreement with the EU (or an administrative arrangement with the Commission).

EU classified information may not be disclosed to any third party (including participants involved in the action implementation) without prior explicit written approval from the granting authority.

#### **ETHICS (— ARTICLE 14)**

##### **Ethics and research integrity**

The beneficiaries must carry out the action in compliance with:

- ethical principles (including the highest standards of research integrity)

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<sup>1</sup> Commission Decision 2015/444/EC, Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

and

- applicable EU, international and national law, including the EU Charter of Fundamental Rights and the European Convention for the Protection of Human Rights and Fundamental Freedoms and its Supplementary Protocols.

No funding can be granted, within or outside the EU, for activities that are prohibited in all Member States. No funding can be granted in a Member State for an activity which is forbidden in that Member State.

The beneficiaries must pay particular attention to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of persons, the right to non-discrimination, the need to ensure protection of the environment and high levels of human health protection.

The beneficiaries must ensure that the activities under the action have an exclusive focus on civil applications.

The beneficiaries must ensure that the activities under the action do not:

- aim at human cloning for reproductive purposes
- intend to modify the genetic heritage of human beings which could make such modifications heritable (with the exception of research relating to cancer treatment of the gonads, which may be financed)
- intend to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer, or
- lead to the destruction of human embryos (for example, for obtaining stem cells).

Activities involving research on human embryos or human embryonic stem cells may be carried out only if:

- they are set out in Annex 1 or
- the coordinator has obtained explicit approval (in writing) from the granting authority.

In addition, the beneficiaries must respect the fundamental principle of research integrity — as set out in the European Code of Conduct for Research Integrity<sup>2</sup>.

This implies compliance with the following principles:

- reliability in ensuring the quality of research reflected in the design, the methodology, the analysis and the use of resources
- honesty in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair and unbiased way

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<sup>2</sup> European Code of Conduct for Research Integrity of ALLEA (All European Academies).

- respect for colleagues, research participants, society, ecosystems, cultural heritage and the environment
- accountability for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider impacts

and means that beneficiaries must ensure that persons carrying out research tasks follow the good research practices including ensuring, where possible, openness, reproducibility and traceability and refrain from the research integrity violations described in the Code.

Activities raising ethical issues must comply with the additional requirements formulated by the ethics panels (including after checks, reviews or audits; see Article 25).

Before starting an action task raising ethical issues, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task, notably from any (national or local) ethics committee or other bodies such as data protection authorities.

The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary, which shows that the documents cover the action tasks in question and includes the conclusions of the committee or authority concerned (if any).

## **VALUES (— ARTICLE 14)**

### **Gender mainstreaming**

The beneficiaries must take all measures to promote equal opportunities between men and women in the implementation of the action and, where applicable, in line with the gender equality plan. They must aim, to the extent possible, for a gender balance at all levels of personnel assigned to the action, including at supervisory and managerial level.

## **INTELLECTUAL PROPERTY RIGHTS (IPR) — BACKGROUND AND RESULTS — ACCESS RIGHTS AND RIGHTS OF USE (— ARTICLE 16)**

### **Definitions**

Access rights — Rights to use results or background.

Dissemination — The public disclosure of the results by appropriate means, other than resulting from protecting or exploiting the results, including by scientific publications in any medium.

Exploit(ation) — The use of results in further research and innovation activities other than those covered by the action concerned, including among other things, commercial exploitation such as developing, creating, manufacturing and marketing a product or process, creating and providing a service, or in standardisation activities.

Fair and reasonable conditions — Appropriate conditions, including possible financial terms or royalty-free conditions, taking into account the specific circumstances of the request for access, for example the actual or potential value of the results or background to which access is requested and/or the scope, duration or other characteristics of the exploitation envisaged.

FAIR principles — ‘findability’, ‘accessibility’, ‘interoperability’ and ‘reusability’.

Open access — Online access to research outputs provided free of charge to the end-user.

Open science — An approach to the scientific process based on open cooperative work, tools and diffusing knowledge.

Research data management — The process within the research lifecycle that includes the organisation, storage, preservation, security, quality assurance, allocation of persistent identifiers (PIDs) and rules and procedures for sharing of data including licensing.

Research outputs — Results to which access can be given in the form of scientific publications, data or other engineered results and processes such as software, algorithms, protocols, models, workflows and electronic notebooks.

### **Scope of the obligations**

For this section, references to ‘beneficiary’ or ‘beneficiaries’ do not include affiliated entities (if any).

### **Agreement on background**

The beneficiaries must identify in a written agreement the background as needed for implementing the action or for exploiting its results.

Where the call conditions restrict control due to strategic interests reasons, background that is subject to control or other restrictions by a country (or entity from a country) which is not one of the eligible countries or target countries set out in the call conditions and that impact the exploitation of the results (i.e. would make the exploitation of the results subject to control or restrictions) must not be used and must be explicitly excluded from it in the agreement on background — unless otherwise agreed with the granting authority.

### **Ownership of results**

Results are owned by the beneficiaries that generate them.

However, two or more beneficiaries own results jointly if:

- they have jointly generated them and
- it is not possible to:
  - establish the respective contribution of each beneficiary, or
  - separate them for the purpose of applying for, obtaining or maintaining their protection.

The joint owners must agree — in writing — on the allocation and terms of exercise of their joint ownership (**‘joint ownership agreement’**), to ensure compliance with their obligations under this Agreement.

Unless otherwise agreed in the joint ownership agreement or consortium agreement, each joint owner may grant non-exclusive licences to third parties to exploit the jointly-owned results (without any right to sub-license), if the other joint owners are given:

- at least 45 days advance notice and
- fair and reasonable compensation.

The joint owners may agree — in writing — to apply another regime than joint ownership.

If third parties (including employees and other personnel) may claim rights to the results, the beneficiary concerned must ensure that those rights can be exercised in a manner compatible with its obligations under the Agreement.

The beneficiaries must indicate the owner(s) of the results (results ownership list) in the final periodic report.

### **Protection of results**

Beneficiaries which have received funding under the grant must adequately protect their results — for an appropriate period and with appropriate territorial coverage — if protection is possible and justified, taking into account all relevant considerations, including the prospects for commercial exploitation, the legitimate interests of the other beneficiaries and any other legitimate interests.

### **Exploitation of results**

Beneficiaries which have received funding under the grant must — up to four years after the end of the action (see Data Sheet, Point 1) — use their best efforts to exploit their results directly or to have them exploited indirectly by another entity, in particular through transfer or licensing.

If, despite a beneficiary's best efforts, the results are not exploited within one year after the end of the action, the beneficiaries must (unless otherwise agreed in writing with the granting authority) use the Horizon Results Platform to find interested parties to exploit the results.

If results are incorporated in a standard, the beneficiaries must (unless otherwise agreed with the granting authority or unless it is impossible) ask the standardisation body to include the funding statement (see Article 17) in (information related to) the standard.

### ***Additional exploitation obligations***

Where the call conditions impose additional exploitation obligations (including obligations linked to the restriction of participation or control due to strategic assets, interests, autonomy or security reasons), the beneficiaries must comply with them — up to four years after the end of the action (see Data Sheet, Point 1).

Where the call conditions impose additional exploitation obligations in case of a public emergency, the beneficiaries must (if requested by the granting authority) grant for a limited period of time specified in the request, non-exclusive licences — under fair and reasonable conditions — to their results to legal entities that need the results to address the public emergency and commit to rapidly and broadly exploit the resulting products and services at fair and reasonable conditions. This provision applies up to four years after the end of the action (see Data Sheet, Point 1).

### Additional information obligation relating to standards

Where the call conditions impose additional information obligations relating to possible standardisation, the beneficiaries must — up to four years after the end of the action (see Data Sheet, Point 1) — inform the granting authority, if the results could reasonably be expected to contribute to European or international standards.

### **Transfer and licensing of results**

#### Transfer of ownership

The beneficiaries may transfer ownership of their results, provided this does not affect compliance with their obligations under the Agreement.

The beneficiaries must ensure that their obligations under the Agreement regarding their results are passed on to the new owner and that this new owner has the obligation to pass them on in any subsequent transfer.

Moreover, they must inform the other beneficiaries with access rights of the transfer at least 45 days in advance (or less if agreed in writing), unless agreed otherwise in writing for specifically identified third parties including affiliated entities or unless impossible under the applicable law. This notification must include sufficient information on the new owner to enable the beneficiaries concerned to assess the effects on their access rights. The beneficiaries may object within 30 days of receiving notification (or less if agreed in writing), if they can show that the transfer would adversely affect their access rights. In this case, the transfer may not take place until agreement has been reached between the beneficiaries concerned.

#### Granting licences

The beneficiaries may grant licences to their results (or otherwise give the right to exploit them), including on an exclusive basis, provided this does not affect compliance with their obligations.

Exclusive licences for results may be granted only if all the other beneficiaries concerned have waived their access rights.

#### Granting authority right to object to transfers or licensing — Horizon Europe actions

Where the call conditions in Horizon Europe actions provide for the right to object to transfers or licensing, the granting authority may — up to four years after the end of the action (see Data Sheet, Point 1) — object to a transfer of ownership or the exclusive licensing of results, if:

- the beneficiaries which generated the results have received funding under the grant
- it is to a legal entity established in a non-EU country not associated with Horizon Europe, and
- the granting authority considers that the transfer or licence is not in line with EU interests.

Beneficiaries that intend to transfer ownership or grant an exclusive licence must formally notify the granting authority before the intended transfer or licensing takes place and:

- identify the specific results concerned
- describe in detail the new owner or licensee and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or licence on EU interests, in particular regarding competitiveness as well as consistency with ethical principles and security considerations.

The granting authority may request additional information.

If the granting authority decides to object to a transfer or exclusive licence, it must formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information it has requested).

No transfer or licensing may take place in the following cases:

- pending the granting authority decision, within the period set out above
- if the granting authority objects
- until the conditions are complied with, if the granting authority objection comes with conditions.

A beneficiary may formally notify a request to waive the right to object regarding intended transfers or grants to a specifically identified third party, if measures safeguarding EU interests are in place. If the granting authority agrees, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

#### Granting authority right to object to transfers or licensing — Euratom actions

Where the call conditions in Euratom actions provide for the right to object to transfers or licensing, the granting authority may — up to four years after the end of the action (see Data Sheet, Point 1) — object to a transfer of ownership or the exclusive or non-exclusive licensing of results, if:

- the beneficiaries which generated the results have received funding under the grant
- it is to a legal entity established in a non-EU country not associated to the Euratom Research and Training Programme 2021-2025 and
- the granting authority considers that the transfer or licence is not in line with the EU interests.

Beneficiaries that intend to transfer ownership or grant a licence must formally notify the granting authority before the intended transfer or licensing takes place and:

- identify the specific results concerned
- describe in detail the results, the new owner or licensee and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or licence on EU interests, in particular regarding competitiveness as well as consistency with

ethical principles and security considerations (including the defence interests of the EU Member States under Article 24 of the Euratom Treaty).

The granting authority may request additional information.

If the granting authority decides to object to a transfer or licence, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

No transfer or licensing may take place in the following cases:

- pending the granting authority decision, within the period set out above
- if the granting authority objects
- until the conditions are complied with, if the granting authority objection comes with conditions.

A beneficiary may formally notify a request to waive the right to object regarding intended transfers or grants to a specifically identified third party, if measures safeguarding EU interests are in place. If the granting authority agrees, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

*Limitations to transfers and licensing due to strategic assets, interests, autonomy or security reasons of the EU and its Member States*

Where the call conditions restrict participation or control due to strategic assets, interests, autonomy or security reasons, the beneficiaries may not transfer ownership of their results or grant licences to third parties which are established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) — unless they have requested and received prior approval by the granting authority.

The request must:

- identify the specific results concerned
- describe in detail the new owner and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or license on the strategic assets, interests, autonomy or security of the EU and its Member States.

The granting authority may request additional information.

**Access rights to results and background**

*Exercise of access rights — Waiving of access rights — No sub-licensing*

Requests to exercise access rights and the waiver of access rights must be in writing.

Unless agreed otherwise in writing with the beneficiary granting access, access rights do not include the right to sub-license.

If a beneficiary is no longer involved in the action, this does not affect its obligations to grant access.

If a beneficiary defaults on its obligations, the beneficiaries may agree that that beneficiary no longer has access rights.

Access rights for implementing the action

The beneficiaries must grant each other access — on a royalty-free basis — to background needed to implement their own tasks under the action, unless the beneficiary that holds the background has — before acceding to the Agreement —:

- informed the other beneficiaries that access to its background is subject to restrictions, or
- agreed with the other beneficiaries that access would not be on a royalty-free basis.

The beneficiaries must grant each other access — on a royalty-free basis — to results needed for implementing their own tasks under the action.

Access rights for exploiting the results

The beneficiaries must grant each other access — under fair and reasonable conditions — to results needed for exploiting their results.

The beneficiaries must grant each other access — under fair and reasonable conditions — to background needed for exploiting their results, unless the beneficiary that holds the background has — before acceding to the Agreement — informed the other beneficiaries that access to its background is subject to restrictions.

Requests for access must be made — unless agreed otherwise in writing — up to one year after the end of the action (see Data Sheet, Point 1).

Access rights for entities under the same control

Unless agreed otherwise in writing by the beneficiaries, access to results and, subject to the restrictions referred to above (if any), background must also be granted — under fair and reasonable conditions — to entities that:

- are established in an EU Member State or Horizon Europe associated country
- are under the direct or indirect control of another beneficiary, or under the same direct or indirect control as that beneficiary, or directly or indirectly controlling that beneficiary and
- need the access to exploit the results of that beneficiary.

Unless agreed otherwise in writing, such requests for access must be made by the entity directly to the beneficiary concerned.

Requests for access must be made — unless agreed otherwise in writing — up to one year after the end of the action (see Data Sheet, Point 1).

Access rights for the granting authority, EU institutions, bodies, offices or agencies and national authorities to results for policy purposes — Horizon Europe actions

In Horizon Europe actions, the beneficiaries which have received funding under the grant must grant access to their results — on a royalty-free basis — to the granting authority, EU institutions, bodies, offices or agencies for developing, implementing and monitoring EU policies or programmes. Such access rights do not extend to beneficiaries' background.

Such access rights are limited to non-commercial and non-competitive use.

For actions under the cluster 'Civil Security for Society', such access rights also extend to national authorities of EU Member States for developing, implementing and monitoring their policies or programmes in this area. In this case, access is subject to a bilateral agreement to define specific conditions ensuring that:

- the access rights will be used only for the intended purpose and
- appropriate confidentiality obligations are in place.

Moreover, the requesting national authority or EU institution, body, office or agency (including the granting authority) must inform all other national authorities of such a request.

*Access rights for the granting authority, Euratom institutions, funding bodies or the Joint Undertaking Fusion for Energy — Euratom actions*

In Euratom actions, the beneficiaries which have received funding under the grant must grant access to their results — on a royalty-free basis — to the granting authority, Euratom institutions, funding bodies or the Joint Undertaking Fusion for Energy for developing, implementing and monitoring Euratom policies and programmes or for compliance with obligations assumed through international cooperation with non-EU countries and international organisations.

Such access rights include the right to authorise third parties to use the results in public procurement and the right to sub-license and are limited to non-commercial and non-competitive use.

*Additional access rights*

Where the call conditions impose additional access rights, the beneficiaries must comply with them.

**COMMUNICATION, DISSEMINATION, OPEN SCIENCE AND VISIBILITY (— ARTICLE 17)**

**Dissemination**

*Dissemination of results*

The beneficiaries must disseminate their results as soon as feasible, in a publicly available format, subject to any restrictions due to the protection of intellectual property, security rules or legitimate interests.

A beneficiary that intends to disseminate its results must give at least 15 days advance notice to the other beneficiaries (unless agreed otherwise), together with sufficient information on the results it will disseminate.

Any other beneficiary may object within (unless agreed otherwise) 15 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the results may not be disseminated unless appropriate steps are taken to safeguard those interests.

#### Additional dissemination obligations

Where the call conditions impose additional dissemination obligations, the beneficiaries must also comply with those.

### **Open Science**

#### Open science: open access to scientific publications

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and
- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.

Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement.

#### Open science: research data management

The beneficiaries must manage the digital research data generated in the action ('data') responsibly, in line with the FAIR principles and by taking all of the following actions:

- establish a data management plan ('DMP') (and regularly update it)

- as soon as possible and within the deadlines set out in the DMP, deposit the data in a trusted repository; if required in the call conditions, this repository must be federated in the EOSC in compliance with EOSC requirements
- as soon as possible and within the deadlines set out in the DMP, ensure open access — via the repository — to the deposited data, under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC 0) or a licence with equivalent rights, following the principle ‘as open as possible as closed as necessary’, unless providing open access would in particular:
  - be against the beneficiary’s legitimate interests, including regarding commercial exploitation, or
  - be contrary to any other constraints, in particular the EU competitive interests or the beneficiary’s obligations under this Agreement; if open access is not provided (to some or all data), this must be justified in the DMP
- provide information via the repository about any research output or any other tools and instruments needed to re-use or validate the data.

Metadata of deposited data must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: datasets (description, date of deposit, author(s), venue and embargo); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the dataset, the authors involved in the action, and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for related publications and other research outputs.

Open science: additional practices

Where the call conditions impose additional obligations regarding open science practices, the beneficiaries must also comply with those.

Where the call conditions impose additional obligations regarding the validation of scientific publications, the beneficiaries must provide (digital or physical) access to data or other results needed for validation of the conclusions of scientific publications, to the extent that their legitimate interests or constraints are safeguarded (and unless they already provided the (open) access at publication).

Where the call conditions impose additional open science obligations in case of a public emergency, the beneficiaries must (if requested by the granting authority) immediately deposit any research output in a repository and provide open access to it under a CC BY licence, a Public Domain Dedication (CC 0) or equivalent. As an exception, if the access would be against the beneficiaries’ legitimate interests, the beneficiaries must grant non-exclusive licenses — under fair and reasonable conditions — to legal entities that need the research output to address the public emergency and commit to rapidly and broadly exploit the resulting products and services at fair and reasonable conditions. This provision applies up to four years after the end of the action (see Data Sheet, Point 1).

**Plan for the exploitation and dissemination of results including communication activities**

Unless excluded by the call conditions, the beneficiaries must provide and regularly update a plan for the exploitation and dissemination of results including communication activities.

### **SPECIFIC RULES FOR CARRYING OUT THE ACTION (— ARTICLE 18)**

#### **Implementation in case of restrictions due to strategic assets, interests, autonomy or security of the EU and its Member States**

Where the call conditions restrict participation or control due to strategic assets, interests, autonomy or security, the beneficiaries must ensure that none of the entities that participate as affiliated entities, associated partners, subcontractors or recipients of financial support to third parties are established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) — unless otherwise agreed with the granting authority.

The beneficiaries must moreover ensure that any cooperation with entities established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) does not affect the strategic assets, interests, autonomy or security of the EU and its Member States.

#### **Recruitment and working conditions for researchers**

The beneficiaries must take all measures to implement the principles set out in the Commission Recommendation on the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers<sup>3</sup>, in particular regarding:

- working conditions
- transparent recruitment processes based on merit, and
- career development.

The beneficiaries must ensure that researchers and all participants involved in the action are aware of them.

#### **Specific rules for access to research infrastructure activities**

##### **Definitions**

Research Infrastructures — Facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields. This definition includes the associated human resources, and it covers major equipment or sets of instruments; knowledge-related facilities such as collections, archives or scientific data infrastructures; computing systems, communication networks, and any other infrastructure, of a unique nature and open to external users, essential to achieve excellence in research and innovation. Where relevant, they may be used beyond research, for example

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<sup>3</sup> Commission Recommendation 2005/251/EC of 11 March 2005 on the European Charter for Researchers and on a Code of Conduct for the Recruitment of Researchers (OJ L 75, 22.3.2005, p. 67).

for education or public services, and they may be ‘single-sited’, ‘virtual’ or ‘distributed’<sup>4</sup>:

When implementing access to research infrastructure activities, the beneficiaries must respect the following conditions:

- for transnational access:

- access which must be provided:

The access must be free of charge, transnational access to research infrastructure or installations for selected user-groups.

The access must include the logistical, technological and scientific support and the specific training that is usually provided to external researchers using the infrastructure. Transnational access can be either in person (hands-on), provided to selected users that visit the installation to make use of it, or remote, through the provision to selected user-groups of remote scientific services (e.g. provision of reference materials or samples, remote access to a high-performance computing facility).

- categories of users that may have access:

Transnational access must be provided to selected user-groups, i.e. teams of one or more researchers (users).

The majority of the users must work in a country other than the country(ies) where the installation is located (unless access is provided by an international organisation, the Joint Research Centre (JRC), an ERIC or similar legal entity).

Only user groups that are allowed to disseminate the results they have generated under the action may benefit from the access (unless the users are working for SMEs).

Access for user groups with a majority of users not working in a EU Member State or Horizon Europe associated country is limited to 20% of the total amount of units of access provided under the grant (unless a higher percentage is foreseen in Annex 1).

- procedure and criteria for selecting user groups:

The user groups must request access by submitting (in writing) a description of the work that they wish to carry out and the names, nationalities and home institutions of the users.

The user groups must be selected by (one or more) selection panels set up by the consortium.

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<sup>4</sup> See Article 2(1) of the Horizon Europe Framework Programme Regulation 2021/695.

The selection panels must be composed of international experts in the field, at least half of them independent from the consortium (unless otherwise specified in Annex 1).

The selection panels must assess all proposals received and recommend a short-list of the user groups that should benefit from access.

The selection panels must base their selection on scientific merit, taking into account that priority should be given to user groups composed of users who:

- have not previously used the installation and
- are working in countries where no equivalent research infrastructure exist.

It will apply the principles of transparency, fairness and impartiality.

Where the call conditions impose additional rules for the selection of user groups, the beneficiaries must also comply with those.

- other conditions:

The beneficiaries must request written approval from the granting authority for the selection of user groups requiring visits to the installations exceeding 3 months (unless such visits are foreseen in Annex 1).

In addition, the beneficiaries must:

- advertise widely, including on a their websites, the access offered under the Agreement
  - promote equal opportunities in advertising the access and take into account the gender dimension when defining the support provided to users
  - ensure that users comply with the terms and conditions of the Agreement
  - ensure that its obligations under Articles 12, 13, 17 and 33 also apply to the users
  - keep records of the names, nationalities, and home institutions of users, as well as the nature and quantity of access provided to them
- for virtual access:
    - access which must be provided:

The access must be free of charge, virtual access to research infrastructure or installations.

‘Virtual access’ means open and free access through communication networks to digital resources and services needed for research, without selecting the users to whom access is provided.

The access must include the support that is usually provided to external users.

Where allowed by the call conditions, beneficiaries may in justified cases define objective eligibility criteria (e.g. affiliation to a research or academic institution) for specific users.

- other conditions:

The beneficiaries must have the virtual access services assessed periodically by a board composed of international experts in the field, at least half of whom must be independent from the consortium (unless otherwise specified in Annex 1). For this purpose, information and statistics on the users and the nature and quantity of the access provided, must be made available to the board.

The beneficiaries must advertise widely, including on a dedicated website, the access offered under the grant and the eligibility criteria, if any.

Where the call conditions impose additional traceability<sup>5</sup> obligations, information on the traceability of the users and the nature and quantity of access must be provided by the beneficiaries.

These obligations apply regardless of the form of funding or budget categories used to declare the costs (unit costs or actual costs or a combination of the two).

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<sup>5</sup> According to the definition given in ISO 9000, i.e.: "Traceability is the ability to trace the history, application, use and location of an item or its characteristics through recorded identification data." The users can be traced, for example, by authentication and/or by authorization or by other means that allows for analysis of the type of users and the nature and quantity of access provided.



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