

**EUROPEAN COMMISSION**

Executive Agency for Small and Medium-sized Enterprises (EASME)

Director

**GRANT AGREEMENT****NUMBER — 689029 — ECOMS2**

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

**on the one part,**

*the Executive Agency for Small and Medium-sized Enterprises (EASME) ('the Agency'), under the power delegated by the European Commission ('the Commission')*<sup>1</sup>,

represented for the purposes of signature of this Agreement by Head Of Unit, Executive Agency for Small and Medium-sized Enterprises (EASME), H2020 Environment & Resources, Arnoldas MILUKAS,

**and****on the other part,**

1. 'the coordinator':

**MET OFFICE (MET OFFICE)**, established in FitzRoy Road, EXETER EX1 3PB, United Kingdom, GB888805362, represented for the purposes of signing the Agreement by Kyle LISCHAK

and the following other beneficiaries, if they sign their 'Accession Form' (see Annex 3 and Article 56):

2. **AGENCE NATIONALE DE LA RECHERCHE (ANR)**, DECRET 2006 963, established in 50 avenue Daumesnil, PARIS 75012, France,

3. **BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION (BSC)**, E4A82CE203194C3C, established in Calle Jordi Girona 31, BARCELONA 08034, Spain, ESS0800099D,

4. **CENTRO EURO-MEDITERRANEO SUI CAMBIAMENTI CLIMATICI SCARL (CMCC) SCARL**, 251549CF03873750750, established in VIA A IMPERATORE 16, LECCE 73100, Italy, IT03873750750,

5. **IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE (IC)**, RC000231, established in SOUTH KENSINGTON CAMPUS EXHIBITION ROAD, LONDON SW7 2AZ, United Kingdom, GB649926678,

6. **EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS (ECMWF)**, established in SHINFIELD PARK, READING RG2 9AX, United Kingdom, as 'beneficiary not receiving EU funding' (see Article 9),

7. **HELMHOLTZ-ZENTRUM GEESTHACHT ZENTRUM FUR MATERIAL- UND KUSTENFORSCHUNG GMBH (HZG) GMBH**, HRB285GE, established in MAX PLANCK STRASSE 1, GEESTHACHT 21502, Germany, DE135131669,

8. **CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)**, 180089013, established in Rue Michel -Ange 3, PARIS 75794, France, FR40180089013,

<sup>1</sup> Text in *italics* shows the options of the Model Grant Agreement that are applicable to this Agreement.

9. **KONINKLIJK NEDERLANDS METEOROLOGISCH INSTITUUT-KNMI (KNMI)**, 30276595, established in UTRECHTSEWEG 297, DE BILT 3731 GA, Netherlands, NL821693992B01,

10. **REPUBLICKI HIDROMETEOROLOSKI ZAVODSRBIJE (RHMS)**, 07003706, established in KNEZA VISESLAVA 66, BEOGRAD 11030, Serbia, RS102217008,

11. **SVERIGES METEOROLOGISKA OCH HYDROLOGISKA INSTITUT (SMHI)**, 2021000696, established in Folkborgsvaegen 1, NORRKOEPING 601 76, Sweden, SE202100069601,

Unless otherwise specified, references to ‘beneficiary’ or ‘beneficiaries’ include the coordinator.

The parties referred to above have agreed to enter into the Agreement under the terms and conditions below.

By signing the Agreement or the Accession Form, the beneficiaries accept the grant and agree to implement it under their own responsibility and in accordance with the Agreement, with all the obligations and conditions it sets out.

The Agreement is composed of:

#### Terms and Conditions

- |         |   |
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# TERMS AND CONDITIONS

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## **CHAPTER 1 GENERAL**

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

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

## **CHAPTER 2 ACTION**

### **ARTICLE 2 — ACTION TO BE IMPLEMENTED**

The grant is awarded for the action entitled ‘*European Climate Observations, Modelling and Services - 2 — ECOMS2*’ (‘**action**’), as described in Annex 1.

### **ARTICLE 3 — DURATION AND STARTING DATE OF THE ACTION**

The duration of the action will be **60 months** as of *the first day of the month following the date the Agreement enters into force (see Article 58)* (‘**starting date of the action**’).

### **ARTICLE 4 — ESTIMATED BUDGET AND BUDGET TRANSFERS**

#### **4.1 Estimated budget**

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

It contains the estimated eligible costs and the forms of costs, broken down by beneficiary and budget category (see Articles 5, 6). *It also contains the estimated costs of the beneficiaries not receiving EU funding (see Article 9).*

#### **4.2 Budget transfers**

The estimated budget breakdown indicated in Annex 2 may be adjusted by transfers of amounts between beneficiaries or between budget categories (or both). This does not require an amendment according to Article 55, if the action is implemented as described in Annex 1.

However, the beneficiaries may not add costs relating to subcontracts not provided for in Annex 1, unless such additional subcontracts are approved by an amendment or in accordance with Article 13.

## **CHAPTER 3 GRANT**

### **ARTICLE 5 — GRANT AMOUNT, FORM OF GRANT, REIMBURSEMENT RATES AND FORMS OF COSTS**

#### **5.1 Maximum grant amount**

The ‘**maximum grant amount**’ is **EUR 2,994,372.50** (two million nine hundred and ninety four thousand three hundred and seventy two EURO and fifty eurocents).

## 5.2 Form of grant, reimbursement rates and forms of costs

The grant reimburses **100% of the action's eligible costs** (see Article 6) (**'reimbursement of eligible costs grant'**) (see Annex 2).

The estimated eligible costs of the action are EUR **3,052,435.00** (three million fifty two thousand four hundred and thirty five EURO).

Eligible costs (see Article 6) must be declared under the following forms (**'forms of costs'**):

(a) for **direct personnel costs**:

- as actually incurred costs (**'actual costs'**) or
- on the basis of an amount per unit calculated by the beneficiary in accordance with its usual cost accounting practices (**'unit costs'**).

Personnel costs for **SME owners or beneficiaries that are natural persons** not receiving a salary (see Article 6.2, Points A.4 and A.5) must be declared on the basis of the amount per unit set out in Annex 2 (**unit costs**);

(b) for **direct costs for subcontracting**: as actually incurred costs (**actual costs**);

(c) for **direct costs of providing financial support to third parties**: *not applicable*;

(d) for **other direct costs**: as actually incurred costs (**actual costs**);

(e) for **indirect costs**: on the basis of a flat-rate applied as set out in Article 6.2, Point E (**'flat-rate costs'**);

(f) *specific cost category(ies): not applicable*.

## 5.3 Final grant amount — Calculation

The **'final grant amount'** depends on the actual extent to which the action is implemented in accordance with the Agreement's terms and conditions.

This amount is calculated by the *Agency* — when the payment of the balance is made (see Article 21.4) — in the following steps:

Step 1 – Application of the reimbursement rates to the eligible costs

Step 2 – Limit to the maximum grant amount

Step 3 – Reduction due to the no-profit rule

Step 4 – Reduction due to improper implementation or breach of other obligations

### 5.3.1 Step 1 — Application of the reimbursement rates to the eligible costs

The reimbursement rate(s) (see Article 5.2) are applied to the eligible costs (actual costs, unit costs and flat-rate costs; see Article 6) declared by the beneficiaries (see Article 20) and approved by the *Agency* (see Article 21).

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

If the amount obtained following Step 1 is higher than the maximum grant amount set out in Article 5.1, it will be limited to the latter.

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

The grant must not produce a profit.

‘**Profit**’ means the surplus of the amount obtained following Steps 1 and 2 plus the action’s total receipts, over the action’s total eligible costs.

The ‘**action’s total eligible costs**’ are the consolidated total eligible costs approved by the *Agency*.

The ‘**action’s total receipts**’ are the consolidated total receipts generated during its duration (see Article 3).

The following are considered **receipts**:

- (a) income generated by the action; if the income is generated from selling equipment or other assets purchased under the Agreement, the receipt is up to the amount declared as eligible under the Agreement;
- (b) financial contributions given by third parties to the beneficiary specifically to be used for the action, and
- (c) in-kind contributions provided by third parties free of charge and specifically to be used for the action, if they have been declared as eligible costs.

The following are however not considered receipts:

- (a) income generated by exploiting the action’s results (see Article 28);
- (b) financial contributions by third parties, if they may be used to cover costs other than the eligible costs (see Article 6);
- (c) financial contributions by third parties with no obligation to repay any amount unused at the end of the period set out in Article 3.

If there is a profit, it will be deducted from the amount obtained following Steps 1 and 2.

### 5.3.4 Step 4 — Reduction due to improper implementation or breach of other obligations — Reduced grant amount — Calculation

If the grant is reduced (see Article 43), the *Agency* will calculate the reduced grant amount by deducting the amount of the reduction (calculated in proportion to the improper implementation of the action or to the seriousness of the breach of obligations in accordance with Article 43.2) from the maximum grant amount set out in Article 5.1.

The final grant amount will be the lower of the following two:

- the amount obtained following Steps 1 to 3 or
- the reduced grant amount following Step 4.

#### 5.4 Revised final grant amount — Calculation

If — after the payment of the balance (in particular, after checks, reviews, audits or investigations; see Article 22) — the *Agency* rejects costs (see Article 42) or reduces the grant (see Article 43), it will calculate the ‘**revised final grant amount**’ for the beneficiary concerned by the findings.

This amount is calculated by the *Agency* on the basis of the findings, as follows:

- in case of **rejection of costs**: by applying the reimbursement rate to the revised eligible costs approved by the *Agency* for the beneficiary concerned;
- in case of **reduction of the grant**: by calculating the concerned beneficiary’s share in the grant amount reduced in proportion to its improper implementation of the action or to the seriousness of its breach of obligations (see Article 43.2).

In case of **rejection of costs and reduction of the grant**, the revised final grant amount for the beneficiary concerned will be the lower of the two amounts above.

### ARTICLE 6 — ELIGIBLE AND INELIGIBLE COSTS

#### 6.1 General conditions for costs to be eligible

‘**Eligible costs**’ are costs that meet the following criteria:

(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 3, with the exception of costs relating to the submission of the periodic report for the last reporting period and the final report (see Article 20);
- (iii) they must be indicated in the estimated budget set out in 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**:

## (i) they must be calculated as follows:

{amounts per unit set out in Annex 2 or calculated by the beneficiary in accordance with its usual cost accounting practices (see Article 6.2, Point A)

multiplied by

the number of actual units};

## (ii) the number of actual units must comply with the following conditions:

- the units must be actually used or produced in the period set out in Article 3;
- the units must be necessary for implementing the action or produced by it, and
- the number of units must be identifiable and verifiable, in particular supported by records and documentation (see Article 18);

(c) for **flat-rate costs**:

- (i) they must be calculated by applying the flat-rate set out in Annex 2, and
- (ii) the costs (actual costs or unit costs) to which the flat-rate is applied must comply with the conditions for eligibility set out in this Article.

**6.2 Specific conditions for costs to be eligible**

Costs are eligible if they comply with the general conditions (see above) and the specific conditions set out below for each of the following budget categories:

- A. direct personnel costs;
- B. direct costs of subcontracting;
- C. *not applicable*;
- D. other direct costs;
- E. indirect costs;
- F. *not applicable*.

‘Direct costs’ are costs that are directly linked to the action implementation and can therefore be attributed to it directly. They must not include any indirect costs (see Point E below).

‘Indirect costs’ are costs that are not directly linked to the action implementation and therefore cannot be attributed directly to it.

**A. Direct personnel costs****Types of eligible personnel costs**

A.1 **Personnel costs** are eligible, if they are related to personnel working for the beneficiary under an employment contract (or equivalent appointing act) and assigned to the action (‘**costs for employees (or equivalent)**’). They must be limited to salaries (including during parental leave), social security contributions, taxes and other costs included in the **remuneration**, if they arise from national law or the employment contract (or equivalent appointing act).

Beneficiaries that are non-profit legal entities<sup>2</sup> may also declare as personnel costs **additional remuneration** for personnel assigned to the action (including payments on the basis of supplementary contracts regardless of their nature), if:

- (a) it is part of the beneficiary's usual remuneration practices and is paid in a consistent manner whenever the same kind of work or expertise is required;
- (b) the criteria used to calculate the supplementary payments are objective and generally applied by the beneficiary, regardless of the source of funding used.

Additional remuneration for personnel assigned to the action is eligible up to the following amount:

- (a) if the person works full time and exclusively on the action during the full year: up to EUR 8 000;
- (b) if the person works exclusively on the action but not full-time or not for the full year: up to the corresponding pro-rata amount of EUR 8 000, or
- (c) if the person does not work exclusively on the action: up to a pro-rata amount calculated as follows:

{{EUR 8 000

divided by

the number of annual productive hours (see below)},

multiplied by

the number of hours that the person has worked on the action during the year}.

A.2 The **costs for natural persons working under a direct contract** with the beneficiary other than an employment contract are eligible personnel costs, if:

- (a) the person works under the beneficiary's instructions and, unless otherwise agreed with the beneficiary, on the beneficiary's premises;
- (b) the result of the work carried out belongs to the beneficiary, and
- (c) the costs are not significantly different from those for personnel performing similar tasks under an employment contract with the beneficiary.

A.3 The **costs of personnel seconded by a third party against payment** are eligible personnel costs, if the conditions in Article 11.1 are met.

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<sup>2</sup> For the definition, see Article 2.1(14) of the Rules for Participation Regulation No 1290/2013: '**non-profit legal entity**' means a legal entity which by its legal form is non-profit-making or which has a legal or statutory obligation not to distribute profits to its shareholders or individual members.

A.4 **Costs of owners** of beneficiaries that are small and medium-sized enterprises (**‘SME owners’**) who are working on the action and who do not receive a salary are eligible personnel costs, if they correspond to the amount per unit set out in Annex 2 multiplied by the number of actual hours worked on the action.

A.5 **Costs of ‘beneficiaries that are natural persons’** not receiving a salary are eligible personnel costs, if they correspond to the amount per unit set out in Annex 2 multiplied by the number of actual hours worked on the action.

### Calculation

Personnel costs must be calculated by the beneficiaries as follows:

{hourly rate

multiplied by

the number of actual hours worked on the action},

plus

for non-profit legal entities: additional remuneration to personnel assigned to the action under the conditions set out above (Point A.1)}.

The number of actual hours declared for a person must be identifiable and verifiable (see Article 18).

The total number of hours declared in EU or Euratom grants, for a person for a year, cannot be higher than the annual productive hours used for the calculations of the hourly rate. Therefore, the maximum number of hours that can be declared for the grant is:

{the number of annual productive hours for the year (see below)

minus

total number of hours declared by the beneficiary for that person in that year for other EU or Euratom grants}.

The **‘hourly rate’** is one of the following:

(a) for personnel costs declared as **actual costs**: the hourly rate is the amount calculated as follows:

{actual annual personnel costs (excluding additional remuneration) for the person

divided by

number of annual productive hours}.

The beneficiaries must use the annual personnel costs and the number of annual productive hours for each financial year covered by the reporting period. If a financial year is not closed at the end of the reporting period, the beneficiaries must use the hourly rate of the last closed financial year available.

For the ‘number of annual productive hours’, the beneficiaries may choose one of the following:

(i) ‘fixed number of hours’: 1 720 hours for persons working full time (or corresponding pro-rata for persons not working full time);

- (ii) ‘individual annual productive hours’: the total number of hours worked by the person in the year for the beneficiary, calculated as follows:

{annual workable hours of the person (according to the employment contract, applicable collective labour agreement or national law)

plus

overtime worked

minus

absences (such as sick leave and special leave)}.

‘Annual workable hours’ means the period during which the personnel must be working, at the employer’s disposal and carrying out his/her activity or duties under the employment contract, applicable collective labour agreement or national working time legislation.

If the contract (or applicable collective labour agreement or national working time legislation) does not allow to determine the annual workable hours, this option cannot be used;

- (iii) ‘standard annual productive hours’: the ‘standard number of annual hours’ generally applied by the beneficiary for its personnel in accordance with its usual cost accounting practices. This number must be at least 90% of the ‘standard annual workable hours’.

If there is no applicable reference for the standard annual workable hours, this option cannot be used.

For all options, the actual time spent on **parental leave** by a person assigned to the action may be deducted from the number of annual productive hours;

- (b) for personnel costs declared on the basis of **unit costs**: the hourly rate is one of the following:

- (i) for SME owners or beneficiaries that are natural persons: the hourly rate set out in Annex 2 (see Points A.4 and A.5 above), or
- (ii) for personnel costs declared on the basis of the beneficiary’s usual cost accounting practices: the hourly rate calculated by the beneficiary in accordance with its usual cost accounting practices, if:
- the cost accounting practices used are applied in a consistent manner, based on objective criteria, regardless of the source of funding;
  - the hourly rate is calculated using the actual personnel costs recorded in the beneficiary’s accounts, excluding any ineligible cost or costs included in other budget categories.

The actual personnel costs may be adjusted by the beneficiary on the basis of budgeted or estimated elements. Those elements must be relevant for calculating

the personnel costs, reasonable and correspond to objective and verifiable information;

and

- the hourly rate is calculated using the number of annual productive hours (see above).

**B. Direct costs of subcontracting** (including related duties, taxes and charges such as non-deductible value added tax (VAT) paid by the beneficiary) are eligible if the conditions in Article 13.1.1 are met.

**C. Direct costs of providing financial support to third parties** *not applicable.*

**D. Other direct costs**

**D.1 Travel costs and related subsistence allowances** (including related duties, taxes and charges such as non-deductible value added tax (VAT) paid by the beneficiary) are eligible if they are in line with the beneficiary's usual practices on travel.

**D.2 *The depreciation costs of equipment, infrastructure or other assets (new or second-hand) as recorded in the beneficiary's accounts are eligible, if they were purchased in accordance with Article 10.1.1 and written off in accordance with international accounting standards and the beneficiary's usual accounting practices.***

*The costs of renting or leasing equipment, infrastructure or other assets (including related duties, taxes and charges such as non-deductible value added tax (VAT) paid by the beneficiary) are also eligible, if they do not exceed the depreciation costs of similar equipment, infrastructure or assets and do not include any financing fees.*

*The costs of equipment, infrastructure or other assets **contributed in-kind against payment** are eligible, if they do not exceed the depreciation costs of similar equipment, infrastructure or assets, do not include any financing fees and if the conditions in Article 11.1 are met.*

*The only portion of the costs that will be taken into account is that which corresponds to the duration of the action and rate of actual use for the purposes of the action.*

**D.3 Costs of other goods and services** (including related duties, taxes and charges such as non-deductible value added tax (VAT) paid by the beneficiary) are eligible, if they are:

- (a) purchased specifically for the action and in accordance with Article 10.1.1 or
- (b) contributed in kind against payment and in accordance with Article 11.1.

Such goods and services include, for instance, consumables and supplies, dissemination (including open access), protection of results, certificates on the financial statements (if they are required by the Agreement), certificates on the methodology, translations and publications.

**D.4 Capitalised and operating costs of ‘large research infrastructure’<sup>3</sup> directly used for the action are eligible, if:**

- (a) *the value of the large research infrastructure represents at least 75% of the total fixed assets (at historical value in its last closed balance sheet before the date of the signature of the Agreement or as determined on the basis of the rental and leasing costs of the research infrastructure<sup>4</sup>);*
- (b) *the beneficiary’s methodology for declaring the costs for large research infrastructure has been positively assessed by the Commission (‘ex-ante assessment’);*
- (c) *the beneficiary declares as direct eligible costs only the portion which corresponds to the duration of the action and the rate of actual use for the purposes of the action, and*
- (d) *they comply with the conditions as further detailed in the annotations to the H2020 grant agreements.*

**E. Indirect costs**

**Indirect costs** are eligible if they are declared on the basis of the flat-rate of 25% of the eligible direct costs (see Article 5.2 and Points A to D above), from which are excluded:

- (a) costs of subcontracting and
- (b) costs of in-kind contributions provided by third parties which are not used on the beneficiary’s premises;
- (c) *not applicable;*
- (d) *not applicable.*

Beneficiaries receiving an operating grant<sup>5</sup> financed by the EU or Euratom budget cannot declare indirect costs for the period covered by the operating grant.

<sup>3</sup> ‘**Large research infrastructure**’ means research infrastructure of a total value of at least EUR 20 million, for a beneficiary, calculated as the sum of historical asset values of each individual research infrastructure of that beneficiary, as they appear in its last closed balance sheet before the date of the signature of the Agreement or as determined on the basis of the rental and leasing costs of the research infrastructure.

<sup>4</sup> For the definition, see Article 2(6) of Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020) (OJ L 347, 20.12.2013 p.104)-(**‘Horizon 2020 Framework Programme Regulation No 1291/2013’**): ‘**Research infrastructure**’ are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. Where relevant, they may be used beyond research, e.g. for education or public services. They include: major scientific equipment (or sets of instruments); knowledge-based resources such as collections, archives or scientific data; e-infrastructures such as data and computing systems and communication networks; and any other infrastructure of a unique nature essential to achieve excellence in research and innovation. Such infrastructures may be ‘single-sited’, ‘virtual’ or ‘distributed’.

<sup>5</sup> For the definition, see Article 121(1)(b) of Regulation (EU, Euratom) No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union and repealing Council Regulation (EC, Euratom) No 1605/2002 (OJ L 218, 26.10.2012, p.1) (**‘Financial Regulation No 966/2012’**): ‘**operating grant**’ means direct financial contribution, by way of donation, from the budget in order to finance the functioning of a body which pursues an aim of general EU interest or has an objective forming part of and supporting an EU policy.

## **F. Specific cost category(ies)**

*Not applicable*

### **6.3 Conditions for costs of linked third parties to be eligible**

*not applicable*

### **6.4 Conditions for in-kind contributions provided by third parties free of charge to be eligible**

**In-kind contributions provided free of charge** are eligible direct costs (for the beneficiary), if the costs incurred by the third party fulfil — *mutatis mutandis* — the general and specific conditions for eligibility set out in this Article (Article 6.1 and 6.2) and Article 12.1.

### **6.5 Ineligible costs**

‘**Ineligible costs**’ are:

(a) costs that do not comply with the conditions set out above (Article 6.1 to 6.4), in particular:

- (i) costs related to return on capital;
- (ii) debt and debt service charges;
- (iii) provisions for future losses or debts;
- (iv) interest owed;
- (v) doubtful debts;
- (vi) currency exchange losses;
- (vii) bank costs charged by the beneficiary’s bank for transfers from the *Agency*;
- (viii) excessive or reckless expenditure;
- (ix) deductible VAT;
- (x) costs incurred during suspension of the implementation of the action (see Article 49);

(b) costs declared under another EU or Euratom grant (including grants awarded by a Member State and financed by the EU or Euratom budget and grants awarded by bodies other than the *Agency* for the purpose of implementing the EU or Euratom budget); in particular, indirect costs if the beneficiary is already receiving an operating grant financed by the EU or Euratom budget in the same period.

### **6.6 Consequences of declaration of ineligible costs**

Declared costs that are ineligible will be rejected (see Article 42).

This may also lead to any of the other measures described in Chapter 6.

## **CHAPTER 4 RIGHTS AND OBLIGATIONS OF THE PARTIES**

### **SECTION 1 RIGHTS AND OBLIGATIONS RELATED TO IMPLEMENTING THE ACTION**

#### **ARTICLE 7 — GENERAL OBLIGATION TO PROPERLY IMPLEMENT THE ACTION**

##### **7.1 General 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 and all legal obligations under applicable EU, international and national law.

##### **7.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

#### **ARTICLE 8 — RESOURCES TO IMPLEMENT THE ACTION — THIRD PARTIES INVOLVED IN THE ACTION**

The beneficiaries must have the appropriate resources to implement the action.

If it is necessary to implement the action, the beneficiaries may:

- purchase goods, works and services (see Article 10);
- use in-kind contributions provided by third parties against payment (see Article 11);
- use in-kind contributions provided by third parties free of charge (see Article 12);
- call upon subcontractors to implement action tasks described in Annex 1 (see Article 13);
- call upon linked third parties to implement action tasks described in Annex 1 (see Article 14).

In these cases, the beneficiaries retain sole responsibility towards the *Agency* and the other beneficiaries for implementing the action.

#### **ARTICLE 9 — IMPLEMENTATION OF ACTION TASKS BY BENEFICIARIES NOT RECEIVING EU FUNDING**

##### ***9.1 Rules for the implementation of action tasks by beneficiaries not receiving EU funding***

*Beneficiaries not receiving EU funding must implement the action tasks attributed to them in Annex 1 according to Article 7.1.*

*Their costs are estimated in Annex 2 but:*

- *will not be reimbursed and*

- *will not be taken into account for the calculation of the grant (see Articles 5.2, 5.3 and 5.4, and 21).*

*Chapter 3, Articles 10 to 15, 18.1.2, 20.3(b), 20.4(b), 20.6, 21, 23a, 26.4, 27.2, 28.1, 28.2, 30.3, 31.5, 40, 42, 43, 44, 47 and 48 do not apply to these beneficiaries.*

*The beneficiary will not be subject to financial checks, reviews and audits under Article 22.*

*Beneficiaries not receiving EU funding may provide in-kind contributions to another beneficiary. In this case, they will be considered as a third party for the purpose of Articles 11 and 12.*

## **9.2 Consequences of non-compliance**

*If a beneficiary not receiving EU funding breaches any of its obligations under this Article, its participation of the Agreement may be terminated (see Article 50).*

*Such breaches may also lead to any of the other measures described in Chapter 6 that are applicable to it.*

## **ARTICLE 10 — PURCHASE OF GOODS, WORKS OR SERVICES**

### **10.1 Rules for purchasing goods, works or services**

10.1.1 If necessary to implement the action, the beneficiaries may purchase goods, works or services.

The beneficiaries must make such purchases ensuring the best value for money or, if appropriate, the lowest price. In doing so, they must avoid any conflict of interests (see Article 35).

The beneficiaries must ensure that *the Agency*, the Commission, the European Court of Auditors (ECA) and the European Anti-Fraud Office (OLAF) can exercise their rights under Articles 22 and 23 also towards their contractors.

10.1.2 Beneficiaries that are ‘contracting authorities’ within the meaning of Directive 2004/18/EC<sup>6</sup> or ‘contracting entities’ within the meaning of Directive 2004/17/EC<sup>7</sup> must comply with the applicable national law on public procurement.

### **10.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under Article 10.1.1, the costs related to the contract concerned will be ineligible (see Article 6) and will be rejected (see Article 42).

If a beneficiary breaches any of its obligations under Article 10.1.2, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

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<sup>6</sup> Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public work contracts, public supply contracts and public service contracts (OJ L 134, 30.04.2004, p. 114).

<sup>7</sup> Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors (OJ L 134, 30.04.2004, p. 1).

## **ARTICLE 11 — USE OF IN-KIND CONTRIBUTIONS PROVIDED BY THIRD PARTIES AGAINST PAYMENT**

### **11.1 Rules for the use of in-kind contributions against payment**

If necessary to implement the action, the beneficiaries may use in-kind contributions provided by third parties against payment.

The beneficiaries may declare costs related to the payment of in-kind contributions as eligible (see Article 6.1 and 6.2), up to the third parties' costs for the seconded persons, contributed equipment, infrastructure or other assets or other contributed goods and services.

The third parties and their contributions must be set out in Annex 1. The *Agency* may however approve in-kind contributions not set out in Annex 1 without amendment (see Article 55), if:

- they are specifically justified in the periodic technical report and
- 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.

The beneficiaries must ensure that *the Agency*, the Commission, the European Court of Auditors (ECA) and the European Anti-Fraud Office (OLAF) can exercise their rights under Articles 22 and 23 also towards the third parties.

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

If a beneficiary breaches any of its obligations under this Article, the costs related to the payment of the in-kind contribution will be ineligible (see Article 6) and will be rejected (see Article 42).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 12 — USE OF IN-KIND CONTRIBUTIONS PROVIDED BY THIRD PARTIES FREE OF CHARGE**

### **12.1 Rules for the use of in-kind contributions free of charge**

If necessary to implement the action, the beneficiaries may use in-kind contributions provided by third parties free of charge.

The beneficiaries may declare costs incurred by the third parties for the seconded persons, contributed equipment, infrastructure or other assets or other contributed goods and services as eligible in accordance with Article 6.4.

The third parties and their contributions must be set out in Annex 1. The *Agency* may however approve in-kind contributions not set out in Annex 1 without amendment (see Article 55), if:

- they are specifically justified in the periodic technical report and
- 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.

The beneficiaries must ensure that *the Agency*, the Commission, the European Court of Auditors (ECA) and the European Anti-Fraud Office (OLAF) can exercise their rights under Articles 22 and 23 also towards the third parties.

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

If a beneficiary breaches any of its obligations under this Article, the costs incurred by the third parties related to the in-kind contribution will be ineligible (see Article 6) and will be rejected (see Article 42).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 13 — IMPLEMENTATION OF ACTION TASKS BY SUBCONTRACTORS**

### **13.1 Rules for subcontracting action tasks**

13.1.1 If necessary to implement the action, the beneficiaries may award subcontracts covering the implementation of certain action tasks described in Annex 1.

Subcontracting may cover only a limited part of the action.

The beneficiaries must award the subcontracts ensuring the best value for money or, if appropriate, the lowest price. In doing so, they must avoid any conflict of interests (see Article 35).

The tasks to be implemented 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. The *Agency* may however approve subcontracts not set out in Annex 1 and 2 without amendment (see Article 55), if:

- they are specifically justified in the periodic technical report and
- they do 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.

The beneficiaries must ensure that *the Agency*, the Commission, the European Court of Auditors (ECA) and the European Anti-Fraud Office (OLAF) can exercise their rights under Articles 22 and 23 also towards their subcontractors.

13.1.2 The beneficiaries must ensure that their obligations under Articles 35, 36, 38 and 46 also apply to the subcontractors.

Beneficiaries that are ‘contracting authorities’ within the meaning of Directive 2004/18/EC or ‘contracting entities’ within the meaning of Directive 2004/17/EC must comply with the applicable national law on public procurement.

### **13.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under Article 13.1.1, the costs related to the subcontract concerned will be ineligible (see Article 6) and will be rejected (see Article 42).

If a beneficiary breaches any of its obligations under Article 13.1.2, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 14 — IMPLEMENTATION OF ACTION TASKS BY LINKED THIRD PARTIES**

*Not applicable*

## **ARTICLE 15 — FINANCIAL SUPPORT TO THIRD PARTIES**

### **15.1 Rules for providing financial support to third parties**

*Not applicable*

### **15.2 Financial support in the form of prizes**

*Not applicable*

### **15.3 Consequences of non-compliance**

*Not applicable*

## **ARTICLE 16 — PROVISION OF TRANS-NATIONAL OR VIRTUAL ACCESS TO RESEARCH INFRASTRUCTURE**

### **16.1 Rules for providing trans-national access to research infrastructure**

*Not applicable*

### **16.2 Rules for providing virtual access to research infrastructure**

*Not applicable*

### **16.3 Consequences of non-compliance**

*Not applicable*

## **SECTION 2 RIGHTS AND OBLIGATIONS RELATED TO THE GRANT ADMINISTRATION**

## **ARTICLE 17 — GENERAL OBLIGATION TO INFORM**

### **17.1 General obligation to provide information upon request**

The beneficiaries must provide — during implementation of the action or afterwards and in accordance with Article 41.2 — any information requested in order to verify eligibility of the costs, proper implementation of the action and compliance with any other obligation under the Agreement.

## **17.2 Obligation to keep information up to date and to inform about events and circumstances likely to affect the Agreement**

Each beneficiary must keep information stored in the 'Beneficiary Register' (via the electronic exchange system; see Article 52) up to date, in particular, its name, address, legal representatives, legal form and organisation type.

Each beneficiary must immediately inform the coordinator — which must immediately inform the *Agency* and the other beneficiaries — of any of the following:

- (a) **events** which are likely to affect significantly or delay the implementation of the action or the EU's financial interests, in particular:
  - (i) changes in its legal, financial, technical, organisational or ownership situation
- (b) **circumstances** affecting:
  - (i) the decision to award the grant or
  - (ii) compliance with requirements under the Agreement.

## **17.3 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 18 — KEEPING RECORDS — SUPPORTING DOCUMENTATION**

### **18.1 Obligation to keep records and other supporting documentation**

The beneficiaries must — for a period of *five* years after the payment of the balance — keep records and other supporting documentation in order to prove the proper implementation of the action and the costs they declare as eligible.

They must make them available upon request (see Article 17) or in the context of checks, reviews, audits or investigations (see Article 22).

If there are on-going checks, reviews, audits, investigations, litigation or other pursuits of claims under the Agreement (including the extension of findings; see Articles 22), the beneficiaries must keep the 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 *Agency* may accept non-original documents if it considers that they offer a comparable level of assurance.

#### **18.1.1 Records and other supporting documentation on the scientific and technical implementation**

The beneficiaries must keep records and other supporting documentation on scientific and technical implementation of the action in line with the accepted standards in the respective field.

### 18.1.2 Records and other documentation to support the costs declared

The beneficiaries must keep the records and documentation supporting the costs declared, in particular the following:

- (a) for **actual costs**: adequate records and other supporting documentation to prove the costs declared, such as contracts, subcontracts, invoices and accounting records. In addition, the beneficiaries' usual cost accounting practices 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 documentation;
- (b) for **unit costs**: adequate records and other supporting documentation to prove the number of units declared. Beneficiaries do not need to identify the actual eligible costs covered or to keep or provide supporting documentation (such as accounting statements) to prove the amount per unit.

In addition, for **direct personnel costs declared as unit costs calculated in accordance with the beneficiary's usual cost accounting practices**, the beneficiaries must keep adequate records and documentation to prove that the cost accounting practices used comply with the conditions set out in Article 6.2, Point A.

The beneficiaries may submit to the Commission, for approval, a certificate (drawn up in accordance with Annex 6) stating that their usual cost accounting practices comply with these conditions (**'certificate on the methodology'**). If the certificate is approved, costs declared in line with this methodology will not be challenged subsequently, unless the beneficiaries have concealed information for the purpose of the approval.

- (c) for **flat-rate costs**: adequate records and other supporting documentation to prove the eligibility of the costs to which the flat-rate is applied. The beneficiaries do not need to identify the costs covered or provide supporting documentation (such as accounting statements) to prove the amount declared at a flat-rate.

In addition, for **personnel costs** (declared as actual costs or on the basis of unit costs), the beneficiaries must keep **time records** for the number of hours declared. The time records must be in writing and approved by the persons working on the action and their supervisors, at least monthly. In the absence of reliable time records of the hours worked on the action, the *Agency* may accept alternative evidence supporting the number of hours declared, if it considers that it offers an adequate level of assurance.

As an exception, for **persons working exclusively on the action**, there is no need to keep time records, if the beneficiary signs a **declaration** confirming that the persons concerned have worked exclusively on the action.

### 18.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, costs insufficiently substantiated will be ineligible (see Article 6) and will be rejected (see Article 42), and the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

## ARTICLE 19 — SUBMISSION OF DELIVERABLES

### 19.1 Obligation to submit deliverables

The coordinator must submit the ‘**deliverables**’ identified in Annex 1, in accordance with the timing and conditions set out in it.

### 19.2 Consequences of non-compliance

If the coordinator breaches any of its obligations under this Article, the *Agency* may apply any of the measures described in Chapter 6.

## ARTICLE 20 — REPORTING — PAYMENT REQUESTS

### 20.1 Obligation to submit reports

The coordinator must submit to the *Agency* (see Article 52) the technical and financial reports set out in this Article. These reports include the requests for payment and must be drawn up using the forms and templates provided in the electronic exchange system (see Article 52).

### 20.2 Reporting periods

The action is divided into the following ‘**reporting periods**’:

- RP1: from month 1 to month 18
- RP2: *from month 19 to month 36*
- RP3: *from month 37 to month 60*

### 20.3 Periodic reports — Requests for interim payments

The coordinator must submit a periodic report within 60 days following the end of each reporting period.

The **periodic report** must include the following:

(a) a ‘**periodic technical report**’ containing:

- (i) an **explanation of the work carried out** by the beneficiaries;
- (ii) an **overview of the progress** towards the objectives of the action, including milestones and deliverables identified in Annex 1.

This report must include explanations justifying the differences between work expected to be carried out in accordance with Annex 1 and that actually carried out.

The report must also detail the exploitation and dissemination of the results and — if required in Annex 1 — an updated ‘**plan for the exploitation and dissemination of the results**’;

- (iii) a **summary** for publication by the *Agency*;

- (iv) the answers to the ‘**questionnaire**’, covering issues related to the action implementation and the economic and societal impact, notably in the context of the Horizon 2020 key performance indicators and the Horizon 2020 monitoring requirements;

(b) a ‘**periodic financial report**’ containing:

- (i) an ‘**individual financial statement**’ (see Annex 4) from each beneficiary, for the reporting period concerned.

The individual financial statement must detail the eligible costs (actual costs, unit costs and flat-rate costs; see Article 6) for each budget category (see Annex 2).

The beneficiaries must declare all eligible costs, even if — for actual costs, unit costs and flat-rate costs — they exceed the amounts indicated in the estimated budget (see Annex 2). Amounts which are not declared in the individual financial statement will not be taken into account by the *Agency*.

If an individual financial statement is not submitted for a reporting period, it may be included in the periodic financial report for the next reporting period.

The individual financial statements of the last reporting period must also detail the **receipts of the action** (see Article 5.3.3).

Each beneficiary must **certify** that:

- the information provided is full, reliable and true;
  - the costs declared are eligible (see Article 6);
  - the costs can be substantiated by adequate records and supporting documentation (see Article 18) that will be produced upon request (see Article 17) or in the context of checks, reviews, audits and investigations (see Article 22), and
  - for the last reporting period: that all the receipts have been declared (see Article 5.3.3);
- (ii) an **explanation of the use of resources** and the information on subcontracting (see Article 13) and in-kind contributions provided by third parties (see Articles 11 and 12) from each beneficiary, for the reporting period concerned;
- (iii) *not applicable*;
- (iv) a ‘**periodic summary financial statement**’ (see Annex 4), created automatically by the electronic exchange system, consolidating the individual financial statements for the reporting period concerned and including — except for the last reporting period — the **request for interim payment**.

## 20.4 Final report — Request for payment of the balance

In addition to the periodic report for the last reporting period, the coordinator must submit the final report within 60 days following the end of the last reporting period.

The **final report** must include the following:

- (a) a '**final technical report**' with a **summary** for publication containing:
  - (i) an overview of the results and their exploitation and dissemination;
  - (ii) the conclusions on the action, and
  - (iii) the socio-economic impact of the action;
- (b) a '**final financial report**' containing:
  - (i) a '**final summary financial statement**' (see Annex 4), created automatically by the electronic exchange system, consolidating the individual financial statements for all reporting periods and including the **request for payment of the balance** and
  - (ii) a '**certificate on the financial statements**' (drawn up in accordance with Annex 5) for each beneficiary, if it requests a total contribution of EUR 325 000 or more, as reimbursement of actual costs and unit costs calculated on the basis of its usual cost accounting practices (see Article 5.2 and Article 6.2, Point A).

## 20.5 Information on cumulative expenditure incurred

*Not applicable*

## 20.6 Currency for financial statements and conversion into euro

Financial statements must be drafted in euro.

Beneficiaries with accounting 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*, calculated over the corresponding reporting period.

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

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

## 20.7 Language of reports

All reports (technical and financial reports, including financial statements) must be submitted in the language of the Agreement.

## 20.8 Consequences of non-compliance — Suspension of the payment deadline — Termination

If the reports submitted do not comply with this Article, the *Agency* may suspend the payment deadline (see Article 47) and apply any of the other measures described in Chapter 6.

If the coordinator breaches its obligation to submit the reports and if it fails to comply with this obligation within 30 days following a written reminder sent by the *Agency*, the Agreement may be terminated (see Article 50).

## ARTICLE 21 — PAYMENTS AND PAYMENT ARRANGEMENTS

### 21.1 Payments to be made

The following payments will be made to the coordinator:

- one **pre-financing payment**;
- one or more **interim payments**, on the basis of the request(s) for interim payment (see Article 20), and
- one **payment of the balance**, on the basis of the request for payment of the balance (see Article 20).

### 21.2 Pre-financing payment — Amount — Amount retained for the Guarantee Fund

The aim of the pre-financing is to provide the beneficiaries with a float.

It remains the property of the *EU* until the payment of the balance.

The amount of the pre-financing payment will be EUR **1,245,935.75** (one million two hundred and forty five thousand nine hundred and thirty five EURO and seventy five eurocents).

The *Agency* will — except if Article 48 applies — make the pre-financing payment to the coordinator within 30 days either from the entry into force of the Agreement (see Article 58) or from 10 days before the starting date of the action (see Article 3), whichever is the latest.

An amount of EUR **149,718.63** (one hundred and forty nine thousand seven hundred and eighteen EURO and sixty three eurocents), corresponding to 5% of the maximum grant amount (see Article 5.1), is retained by the *Agency* from the pre-financing payment and transferred into the '**Guarantee Fund**'.

### 21.3 Interim payments — Amount — Calculation

Interim payments reimburse the eligible costs incurred for the implementation of the action during the corresponding reporting periods.

The *Agency* will pay to the coordinator the amount due as interim payment within 90 days from receiving the periodic report (see Article 20.3), except if Articles 47 or 48 apply.

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

The **amount due as interim payment** is calculated by the *Agency* in the following steps:

Step 1 – Application of the reimbursement rates

Step 2 – Limit to 90% of the maximum grant amount

### 21.3.1 Step 1 — Application of the reimbursement rates

The reimbursement rate(s) (see Article 5.2) are applied to the eligible costs (actual costs, unit costs and flat-rate costs ; see Article 6) declared by the beneficiaries (see Article 20) and approved by the *Agency* (see above) for the concerned reporting period.

### 21.3.2 Step 2 — Limit to 90% of the maximum grant amount

The total amount of pre-financing and interim payments must not exceed 90% of the maximum grant amount set out in Article 5.1. The maximum amount for the interim payment will be calculated as follows:

{90% of the maximum grant amount (see Article 5.1)

minus

{pre-financing and previous interim payments}}.

## 21.4 Payment of the balance — Amount — Calculation — Release of the amount retained for the Guarantee Fund

The payment of the balance reimburses the remaining part of the eligible costs incurred by the beneficiaries for the implementation of the action.

If the total amount of earlier payments is greater than the final grant amount (see Article 5.3), the payment of the balance takes the form of a recovery (see Article 44).

If the total amount of earlier payments is lower than the final grant amount, the *Agency* will pay the balance within 90 days from receiving the final report (see Article 20.4), except if Articles 47 or 48 apply.

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

The **amount due as the balance** is calculated by the *Agency* by deducting the total amount of pre-financing and interim payments (if any) already made, from the final grant amount determined in accordance with Article 5.3:

{final grant amount (see Article 5.3)

minus

{pre-financing and interim payments (if any) made}}.

At the payment of the balance, the amount retained for the Guarantee Fund (see above) will be released and:

- if the balance is positive: the amount released will be paid in full to the coordinator together with the amount due as the balance;
- if the balance is negative (payment of the balance taking the form of recovery): it will be deducted from the amount released (see Article 44.1.2). If the resulting amount:
  - is positive, it will be paid to the coordinator
  - is negative, it will be recovered.

The amount to be paid may however be offset — without the beneficiary's consent — against any other amount owed by the beneficiary to the *Agency*, the Commission or another executive agency (under the EU or Euratom budget), up to the maximum EU contribution indicated, for that beneficiary, in the estimated budget (see Annex 2).

### **21.5 Notification of amounts due**

When making payments, the *Agency* will formally notify to the coordinator the amount due, specifying whether it concerns an interim payment or the payment of the balance.

For the payment of the balance, the notification will also specify the final grant amount.

In the case of reduction of the grant or recovery of undue amounts, the notification will be preceded by the contradictory procedure set out in Articles 43 and 44.

### **21.6 Currency for payments**

The *Agency* will make all payments in euro.

### **21.7 Payments to the coordinator — Distribution to the beneficiaries**

Payments will be made to the coordinator.

Payments to the coordinator will discharge the *Agency* from its payment obligation.

The coordinator must distribute the payments between the beneficiaries without unjustified delay.

Pre-financing may however be distributed only:

- (a) if the minimum number of beneficiaries set out in the call for proposals has acceded to the Agreement (see Article 56) and
- (b) to beneficiaries that have acceded to the Agreement (see Article 56).

### **21.8 Bank account for payments**

All payments will be made to the following bank account:

Name of bank: NATIONAL WESTMINSTER BANK PLC  
Address of branch: LEICESTER CSC,BEDE HOUSE: 11 WESTER LEICESTER, United Kingdom  
Full name of the account holder: THE MET OFFICE H2020  
Full account number (including bank codes):  
IBAN code: GB16NWBK60721251503840

## 21.9 Costs of payment transfers

The cost of the payment transfers is borne as follows:

- the *Agency* 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.

## 21.10 Date of payment

Payments by the *Agency* are considered to have been carried out on the date when they are debited to its account.

## 21.11 Consequences of non-compliance

21.11.1 If the *Agency* 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 three and a half points. 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 upon 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).

Suspension of the payment deadline or payments (see Articles 47 and 48) will not be considered as late payment.

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.

21.11.2 If the coordinator breaches any of its obligations under this Article, the grant may be reduced (see Article 43) and the Agreement or the participation of the coordinator may be terminated (see Article 50).

Such breaches may also lead to any of the other measures described in Chapter 6.

## ARTICLE 22 — CHECKS, REVIEWS, AUDITS AND INVESTIGATIONS — EXTENSION OF FINDINGS

### 22.1 Checks, reviews and audits by the *Agency and the Commission*

#### 22.1.1 Right to carry out checks

The *Agency or the Commission* will — during the implementation of the action or afterwards — check the proper implementation of the action and compliance with the obligations under the Agreement, including assessing deliverables and reports.

For this purpose the *Agency or the Commission* may be assisted by external persons or bodies.

The *Agency or the Commission* may also request additional information in accordance with Article 17. The *Agency or the Commission* may request beneficiaries to provide such information to it directly.

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

#### 22.1.2 Right to carry out reviews

The *Agency or the Commission* may — during the implementation of the action or afterwards — carry out reviews on the proper implementation of the action (including assessment of deliverables and reports), compliance with the obligations under the Agreement and continued scientific or technological relevance of the action.

Reviews may be started **up to two years after the payment of the balance**. They will be formally notified to the coordinator or beneficiary concerned and will be considered to have started on the date of the formal notification.

If the review is carried out on a third party (see Articles 10 to 16), the beneficiary concerned must inform the third party.

The *Agency or the Commission* may carry out reviews directly (using its own staff) or indirectly (using external persons or bodies appointed to do so). It will inform the coordinator or beneficiary concerned of the identity of the external persons or bodies. They have the right to object to the appointment on grounds of commercial confidentiality.

The coordinator or beneficiary concerned must 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 *Agency or the Commission* may request beneficiaries to provide such information to it directly.

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

For **on-the-spot** reviews, the beneficiaries must allow access to their sites and premises, including to external persons or bodies, 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 ‘**review report**’ will be drawn up.

The *Agency or the Commission* will formally notify the review report to the coordinator or beneficiary concerned, which has 30 days to formally notify observations (‘**contradictory review procedure**’).

Reviews (including review reports) are in the language of the Agreement.

### **22.1.3 Right to carry out audits**

The *Agency or the Commission* may — during the implementation of the action or afterwards — carry out audits on the proper implementation of the action and compliance with the obligations under the Agreement.

Audits may be started **up to two years after the payment of the balance**. They will be formally notified to the coordinator or beneficiary concerned and will be considered to have started on the date of the formal notification.

If the audit is carried out on a third party (see Articles 10 to 16), the beneficiary concerned must inform the third party.

The *Agency or the Commission* may carry out audits directly (using its own staff) or indirectly (using external persons or bodies appointed to do so). It will inform the coordinator or beneficiary concerned of the identity of the external persons or bodies. They have the right to object to the appointment on grounds of commercial confidentiality.

The coordinator or beneficiary concerned must provide — within the deadline requested — any information (including complete accounts, individual salary statements or other personal data) to verify compliance with the Agreement. The *Agency or the Commission* may request beneficiaries to provide such information to it directly.

For **on-the-spot** audits, the beneficiaries must allow access to their sites and premises, including to external persons or bodies, 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 *Agency or the Commission* will formally notify the draft audit report to the coordinator or beneficiary concerned, which has 30 days to formally notify observations (‘**contradictory audit procedure**’). This period may be extended by the *Agency or the Commission* in justified cases.

The ‘**final audit report**’ will take into account observations by the coordinator or beneficiary concerned. The report will be formally notified to it.

Audits (including audit reports) are in the language of the Agreement.

The *Agency or the Commission* may also access the beneficiaries’ statutory records for the periodical assessment of unit costs or flat-rate amounts.

## **22.2 Investigations by the European Anti-Fraud Office (OLAF)**

Under Regulations No 883/2013<sup>15</sup> and No 2185/96<sup>16</sup> (and in accordance with their provisions and procedures), the European Anti-Fraud Office (OLAF) may — at any moment during implementation of the action or afterwards — carry out investigations, including on-the-spot checks and inspections, to establish whether there has been fraud, corruption or any other illegal activity affecting the financial interests of the EU.

## **22.3 Checks and audits by the European Court of Auditors (ECA)**

Under Article 287 of the Treaty on the Functioning of the European Union (TFEU) and Article 161 of the Financial Regulation No 966/2012<sup>17</sup>, the European Court of Auditors (ECA) may — at any moment during implementation of the action or afterwards — carry out audits.

The ECA has the right of access for the purpose of checks and audits.

## **22.4 Checks, reviews, audits and investigations for international organisations**

*In conformity with its financial regulations, the European Union, including the European Anti-Fraud Office (OLAF) and the European Court of Auditors (ECA), may undertake, including on the spot, checks, reviews audits and investigations.*

*This Article will be applied in accordance with any specific agreement concluded in this respect by the international organisation and the European Union.*

## **22.5 Consequences of findings in checks, reviews, audits and investigations — Extension of findings**

### **22.5.1 Findings in this grant**

Findings in checks, reviews, audits or investigations carried out in the context of this grant may lead to the rejection of ineligible costs (see Article 42), reduction of the grant (see Article 43), recovery of undue amounts (see Article 44) or to any of the other measures described in Chapter 6.

Rejection of costs or reduction of the grant after the payment of the balance will lead to a revised final grant amount (see Article 5.4).

Findings in checks, reviews, audits or investigations may lead to a request for amendment for the modification of Annex 1 (see Article 55).

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<sup>15</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>16</sup> Council Regulation (Euratom, EC) No 2185/1996 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).

<sup>17</sup> Regulation (EU, Euratom) No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union and repealing Council Regulation (EC, Euratom) No 1605/2002 (OJ L 298, 26.10.2012, p. 1).

Checks, reviews, audits or investigations that find systemic or recurrent errors, irregularities, fraud or breach of obligations may also lead to consequences in other EU or Euratom grants awarded under similar conditions (**‘extension of findings from this grant to other grants’**).

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

### 22.5.2 Findings in other grants

The *Agency or the Commission* may extend findings from other grants to this grant (**‘extension of findings from other grants to this grant’**), if:

- (a) the beneficiary concerned is found, in other EU or Euratom 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 — no later than two years after the payment of the balance of this grant.

The extension of findings may lead to the rejection of costs (see Article 42), reduction of the grant (see Article 43), recovery of undue amounts (see Article 44), suspension of payments (see Article 48), suspension of the action implementation (see Article 49) or termination (see Article 50).

### 22.5.3 Procedure

The *Agency or the Commission* will formally notify the beneficiary concerned the systemic or recurrent errors and its intention to extend these audit findings, together with the list of grants affected.

22.5.3.1 If the findings concern **eligibility of costs**: the formal 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 by the *Agency or the Commission* 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.

The beneficiary concerned has 90 days from receiving notification to submit observations, revised financial statements or to propose a duly substantiated **alternative correction method**. This period may be extended by the *Agency or the Commission* in justified cases.

The amounts to be rejected will be determined on the basis of the revised financial statements, subject to their approval.

If the *Agency or the Commission* does not receive any observations or revised financial statements, does not accept the observations or the proposed alternative correction method or does not approve the revised financial statements, it will formally notify the beneficiary concerned the application of the initially notified correction rate for extrapolation.

If the *Agency or the Commission* accepts the alternative correction method proposed by the beneficiary concerned, it will formally notify the application of the accepted alternative correction method.

22.5.3.2 If the findings concern **improper implementation** or a **breach of another obligation**: the formal notification will include:

- (a) an invitation to submit observations on the list of grants affected by the findings and
- (b) the flat-rate the *Agency or the Commission* intends to apply according to the principle of proportionality.

The beneficiary concerned has 90 days from receiving notification to submit observations or to propose a duly substantiated alternative flat-rate.

If the *Agency or the Commission* does not receive any observations or does not accept the observations or the proposed alternative flat-rate, it will formally notify the beneficiary concerned the application of the initially notified flat-rate.

If the *Agency or the Commission* accepts the alternative flat-rate proposed by the beneficiary concerned, it will formally notify the application of the accepted alternative flat-rate.

## **22.6 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, any insufficiently substantiated costs will be ineligible (see Article 6) and will be rejected (see Article 42).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 23 — EVALUATION OF THE IMPACT OF THE ACTION**

### **23.1 Right to evaluate the impact of the action**

The *Agency or the Commission* may carry out interim and final evaluations of the impact of the action measured against the objective of the *EU* programme.

Evaluations may be started during implementation of the action and up to *five* years after the payment of the balance. The evaluation is considered to start on the date of the formal notification to the coordinator or beneficiaries.

The *Agency or the Commission* may make these evaluations directly (using its own staff) or indirectly (using external bodies or persons it has authorised to do so).

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

## **23.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the *Agency* may apply the measures described in Chapter 6.

## **SECTION 3 RIGHTS AND OBLIGATIONS RELATED TO BACKGROUND AND RESULTS**

### **SUBSECTION 1 GENERAL**

#### **ARTICLE 23a — MANAGEMENT OF INTELLECTUAL PROPERTY**

##### **23a.1 Obligation to take measures to implement the Commission Recommendation on the management of intellectual property in knowledge transfer activities**

Beneficiaries that are universities or other public research organisations must take measures to implement the principles set out in Points 1 and 2 of the Code of Practice annexed to the Commission Recommendation on the management of intellectual property in knowledge transfer activities<sup>18</sup>.

This does not change the obligations set out in Subsections 2 and 3 of this Section.

The beneficiaries must ensure that researchers and third parties involved in the action are aware of them.

##### **23a.2 Consequences of non-compliance**

If a beneficiary breaches its obligations under this Article, the *Agency* may apply any of the measures described in Chapter 6.

### **SUBSECTION 2 RIGHTS AND OBLIGATIONS RELATED TO BACKGROUND**

#### **ARTICLE 24 — AGREEMENT ON BACKGROUND**

##### **24.1 Agreement on background**

The beneficiaries must identify and agree (in writing) on the background for the action (**‘agreement on background’**).

**‘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:

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

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<sup>18</sup> Commission Recommendation C (2008) 1329 of 10.4.2008 on the management of intellectual property in knowledge transfer activities and the Code of Practice for universities and other public research institutions attached to this recommendation.

## 24.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

## ARTICLE 25 — ACCESS RIGHTS TO BACKGROUND

### 25.1 Exercise of access rights — Waiving of access rights — No sub-licensing

To exercise access rights, this must first be requested in writing (‘**request for access**’).

‘**Access rights**’ means rights to use results or background under the terms and conditions laid down in this Agreement.

Waivers of access rights are not valid unless in writing.

Unless agreed otherwise, access rights do not include the right to sub-license.

### 25.2 Access rights for other beneficiaries, for implementing their own tasks under the action

The beneficiaries must give 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 —:

- (a) informed the other beneficiaries that access to its background is subject to legal restrictions or limits, including those imposed by the rights of third parties (including personnel), or
- (b) agreed with the other beneficiaries that access would not be on a royalty-free basis.

### 25.3 Access rights for other beneficiaries, for exploiting their own results

The beneficiaries must give each other access — under fair and reasonable conditions — to background needed for exploiting their own 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 legal restrictions or limits, including those imposed by the rights of third parties (including personnel).

‘**Fair and reasonable conditions**’ means 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.

Requests for access may be made — unless agreed otherwise — up to one year after the period set out in Article 3.

### 25.4 Access rights for affiliated entities

Unless otherwise agreed in the consortium agreement, access to background must also be given — under fair and reasonable conditions (see above; Article 25.3) and unless it is subject to legal restrictions or limits, including those imposed by the rights of third parties (including personnel) —

to affiliated entities<sup>19</sup> established in an EU Member State or ‘**associated country**’<sup>20</sup>, if this is needed to exploit the results generated by the beneficiaries to which they are affiliated.

Unless agreed otherwise (see above; Article 25.1), the affiliated entity concerned must make the request directly to the beneficiary that holds the background.

Requests for access may be made — unless agreed otherwise — up to one year after the period set out in Article 3.

### **25.5 Access rights for third parties**

*Not applicable*

### **25.6 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **SUBSECTION 3 RIGHTS AND OBLIGATIONS RELATED TO RESULTS**

### **ARTICLE 26 — OWNERSHIP OF RESULTS**

#### **26.1 Ownership by the beneficiary that generates the results**

Results are owned by the beneficiary that generates them.

‘**Results**’ means any (tangible or intangible) output of the action such as data, knowledge or information — whatever its form or nature, whether it can be protected or not — that is generated in the action, as well as any rights attached to it, including intellectual property rights.

#### **26.2 Joint ownership by several beneficiaries**

Two or more beneficiaries own results jointly if:

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<sup>19</sup> For the definition, see Article 2.1(2) of the Rules for Participation Regulation No 1290/2013: ‘**affiliated entity**’ means any legal entity that is under the direct or indirect control of a participant, or under the same direct or indirect control as the participant, or that is directly or indirectly controlling a participant.

‘Control’ may take any of the following forms:

- (a) the direct or indirect holding of more than 50% of the nominal value of the issued share capital in the legal entity concerned, or of a majority of the voting rights of the shareholders or associates of that entity;
- (b) the direct or indirect holding, in fact or in law, of decision-making powers in the legal entity concerned.

However the following relationships between legal entities shall not in themselves be deemed to constitute controlling relationships:

- (a) the same public investment corporation, institutional investor or venture-capital company has a direct or indirect holding of more than 50% of the nominal value of the issued share capital or a majority of voting rights of the shareholders or associates;
- (b) the legal entities concerned are owned or supervised by the same public body.

<sup>20</sup> For the definition, see Article 2.1(3) of the Rules for Participation Regulation No 1290/2013: ‘**associated country**’ means a third country which is party to an international agreement with the Union, as identified in *Article 7 of Horizon 2020 Framework Programme Regulation No 1291/2013*. *Article 7 sets out the conditions for association of non-EU countries to Horizon 2020*.

- (a) they have jointly generated them and
- (b) it is not possible to:
  - (i) establish the respective contribution of each beneficiary, or
  - (ii) separate them for the purpose of applying for, obtaining or maintaining their protection (see Article 27).

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, each joint owner may grant non-exclusive licences to third parties to exploit jointly-owned results (without any right to sub-license), if the other joint owners are given:

- (a) at least 45 days advance notice and
- (b) fair and reasonable compensation.

Once the results have been generated, joint owners may agree (in writing) to apply another regime than joint ownership (such as, for instance, transfer to a single owner (see Article 30) with access rights for the others).

### **26.3 Rights of third parties (including personnel)**

If third parties (including personnel) may claim rights to the results, the beneficiary concerned must ensure that it complies with its obligations under the Agreement.

If a third party generates results, the beneficiary concerned must obtain all necessary rights (transfer, licences or other) from the third party, in order to be able to respect its obligations as if those results were generated by the beneficiary itself.

If obtaining the rights is impossible, the beneficiary must refrain from using the third party to generate the results.

### **26.4 Agency ownership, to protect results**

26.4.1 *The Agency* may — with the consent of the beneficiary concerned — assume ownership of results to protect them, if a beneficiary intends — up to four years after the period set out in Article 3 — to disseminate its results without protecting them, except in any of the following cases:

- (a) the lack of protection is because protecting the results is not possible, reasonable or justified (given the circumstances);
- (b) the lack of protection is because there is a lack of potential for commercial or industrial exploitation, or
- (c) the beneficiary intends to transfer the results to another beneficiary or third party established in an EU Member State or associated country, which will protect them.

Before the results are disseminated and unless any of the cases above under Points (a), (b) or (c) applies, the beneficiary must formally notify the *Agency* and at the same time inform it of any reasons for refusing consent. The beneficiary may refuse consent only if it can show that its legitimate interests would suffer significant harm.

If the *Agency* decides to assume ownership, it will formally notify the beneficiary concerned within 45 days of receiving notification.

No dissemination relating to these results may before the end of this period or, if the *Agency* takes a positive decision, until it has taken the necessary steps to protect the results.

26.4.2 *The Agency* may — with the consent of the beneficiary concerned — assume ownership of results to protect them, if a beneficiary intends — up to four years after the period set out in Article 3 — to stop protecting them or not to seek an extension of protection, except in any of the following cases:

- (a) the protection is stopped because of a lack of potential for commercial or industrial exploitation;
- (b) an extension would not be justified given the circumstances.

A beneficiary that intends to stop protecting results or not seek an extension must — unless any of the cases above under Points (a) or (b) applies — formally notify the *Agency* at least 60 days before the protection lapses or its extension is no longer possible and at the same time inform it of any reasons for refusing consent. The beneficiary may refuse consent only if it can show that its legitimate interests would suffer significant harm.

If the *Agency* decides to assume ownership, it will formally notify the beneficiary concerned within 45 days of receiving notification.

## **26.5 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to the any of the other measures described in Chapter 6.

## **ARTICLE 27 — PROTECTION OF RESULTS — VISIBILITY OF EU FUNDING**

### **27.1 Obligation to protect the results**

Each beneficiary must examine the possibility of protecting its results and must adequately protect them — for an appropriate period and with appropriate territorial coverage — if:

- (a) the results can reasonably be expected to be commercially or industrially exploited and
- (b) protecting them is possible, reasonable and justified (given the circumstances).

When deciding on protection, the beneficiary must consider its own legitimate interests and the legitimate interests (especially commercial) of the other beneficiaries.

## 27.2 Agency ownership, to protect the results

If a beneficiary intends not to protect its results, to stop protecting them or not seek an extension of protection, *The Agency* may — under certain conditions (see Article 26.4) — assume ownership to ensure their (continued) protection.

## 27.3 Information on EU funding

Applications for protection of results (including patent applications) filed by or on behalf of a beneficiary must — unless the *Agency* requests or agrees otherwise or unless it is impossible — include the following:

“The project leading to this application has received funding from the *European Union’s Horizon 2020 research and innovation programme* under grant agreement No 689029”.

## 27.4 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such a breach may also lead to any of the other measures described in Chapter 6.

## ARTICLE 28 — EXPLOITATION OF RESULTS

### 28.1 Obligation to exploit the results

Each beneficiary must — up to four years after the period set out in Article 3 — take measures aiming to ensure ‘**exploitation**’ of its results (either directly or indirectly, in particular through transfer or licensing; see Article 30) by:

- (a) using them in further research activities (outside the action);
- (b) developing, creating or marketing a product or process;
- (c) creating and providing a service, or
- (d) using them in standardisation activities.

This does not change the security obligations in Article 37, which still apply.

### 28.2 Results that could contribute to European or international standards — Information on EU funding

If results are incorporated in a standard, the beneficiary concerned must — unless the *Agency* requests or agrees otherwise or unless it is impossible — ask the standardisation body to include the following statement in (information related to) the standard:

“Results incorporated in this standard received funding from the *European Union’s Horizon 2020 research and innovation programme* under grant agreement No 689029”.

### 28.3 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced in accordance with Article 43.

Such a breach may also lead to any of the other measures described in Chapter 6.

## ARTICLE 29 — DISSEMINATION OF RESULTS — OPEN ACCESS — VISIBILITY OF EU FUNDING

### 29.1 Obligation to disseminate results

Unless it goes against their legitimate interests, each beneficiary must — as soon as possible — ‘**disseminate**’ its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium).

This does not change the obligation to protect results in Article 27, the confidentiality obligations in Article 36, the security obligations in Article 37 or the obligations to protect personal data in Article 39, all of which still apply.

A beneficiary that intends to disseminate its results must give advance notice to the other beneficiaries of — unless agreed otherwise — at least 45 days, together with sufficient information on the results it will disseminate.

Any other beneficiary may object within — unless agreed otherwise — 30 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 dissemination may not take place unless appropriate steps are taken to safeguard these legitimate interests.

If a beneficiary intends not to protect its results, it may — under certain conditions (see Article 26.4.1) — need to formally notify the *Agency* before dissemination takes place.

### 29.2 Open access to scientific publications

Each beneficiary must ensure open access (free of charge online access for any user) to all peer-reviewed scientific publications relating to its results.

In particular, it must:

- (a) as soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;

Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

- (b) ensure open access to the deposited publication — via the repository — at the latest:
  - (i) on publication, if an electronic version is available for free via the publisher, or

- (ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.
- (c) ensure open access — via the repository — to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format and must include all of the following:

- the terms “*European Union (EU)*” and “*Horizon 2020*”;
- the name of the action, acronym and grant number;
- the publication date, and length of embargo period if applicable, and
- a persistent identifier.

### 29.3 Open access to research data

*Regarding the digital research data generated in the action ('data'), the beneficiaries must:*

- (a) *deposit in a research data repository and take measures to make it possible for third parties to access, mine, exploit, reproduce and disseminate — free of charge for any user — the following:*
  - (i) *the data, including associated metadata, needed to validate the results presented in scientific publications as soon as possible;*
  - (ii) *other data, including associated metadata, as specified and within the deadlines laid down in the 'data management plan' (see Annex 1);*
- (b) *provide information — via the repository — about tools and instruments at the disposal of the beneficiaries and necessary for validating the results (and — where possible — provide the tools and instruments themselves).*

*This does not change the obligation to protect results in Article 27, the confidentiality obligations in Article 36, the security obligations in Article 37 or the obligations to protect personal data in Article 39, all of which still apply.*

*As an exception, the beneficiaries do not have to ensure open access to specific parts of their research data if the achievement of the action's main objective, as described in Annex 1, would be jeopardised by making those specific parts of the research data openly accessible. In this case, the data management plan must contain the reasons for not giving access.*

### 29.4 Information on EU funding — Obligation and right to use the EU emblem

Unless the Agency requests or agrees otherwise or unless it is impossible, any dissemination of results (in any form, including electronic) must:

- (a) display the EU emblem and
- (b) include the following text:

“This project has received funding from the *European Union’s Horizon 2020 research and innovation programme* under grant agreement No 689029”.

When displayed together with another logo, the EU emblem must have appropriate prominence.

For the purposes of their obligations under this Article, the beneficiaries may use the EU emblem without first obtaining approval from the *Agency*.

This does not however give them the right to exclusive use.

Moreover, they may not appropriate the EU emblem or any similar trademark or logo, either by registration or by any other means.

### **29.5 Disclaimer excluding *Agency* responsibility**

Any dissemination of results must indicate that it reflects only the author's view and that the *Agency* is not responsible for any use that may be made of the information it contains.

### **29.6 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such a breach may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 30 — TRANSFER AND LICENSING OF RESULTS**

### **30.1 Transfer of ownership**

Each beneficiary may transfer ownership of its results.

It must however ensure that its obligations under Articles 26.2, 26.4, 27, 28, 29, 30 and 31 also apply to the new owner and that this owner has the obligation to pass them on in any subsequent transfer.

This does not change the security obligations in Article 37, which still apply.

Unless agreed otherwise (in writing) for specifically-identified third parties or unless impossible under applicable EU and national laws on mergers and acquisitions, a beneficiary that intends to transfer ownership of results must give at least 45 days advance notice (or less if agreed in writing) to the other beneficiaries that still have (or still may request) access rights to the results. This notification must include sufficient information on the new owner to enable any beneficiary concerned to assess the effects on its access rights.

Unless agreed otherwise (in writing) for specifically-identified third parties, any other beneficiary may object within 30 days of receiving notification (or less if agreed in writing), if it can show that the transfer would adversely affect its access rights. In this case, the transfer may not take place until agreement has been reached between the beneficiaries concerned.

### **30.2 Granting licenses**

Each beneficiary may grant licences to its results (or otherwise give the right to exploit them), if:

(a) this does not impede the rights under Article 31 and

(b) *not applicable*.

In addition to Points (a) and (b), exclusive licences for results may be granted only if all the other beneficiaries concerned have waived their access rights (see Article 31.1).

This does not change the dissemination obligations in Article 29 or security obligations in Article 37, which still apply.

### **30.3 Agency right to object to transfers or licensing**

*Not applicable*

### **30.4 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such a breach may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 31 — ACCESS RIGHTS TO RESULTS**

### **31.1 Exercise of access rights — Waiving of access rights — No sub-licensing**

The conditions set out in Article 25.1 apply.

The obligations set out in this Article do not change the security obligations in Article 37, which still apply.

### **31.2 Access rights for other beneficiaries, for implementing their own tasks under the action**

The beneficiaries must give each other access — on a royalty-free basis — to results needed for implementing their own tasks under the action.

### **31.3 Access rights for other beneficiaries, for exploiting their own results**

The beneficiaries must give each other — under fair and reasonable conditions (see Article 25.3) — access to results needed for exploiting their own results.

Requests for access may be made — unless agreed otherwise — up to one year after the period set out in Article 3.

### **31.4 Access rights of affiliated entities**

Unless agreed otherwise in the consortium agreement, access to results must also be given — under fair and reasonable conditions (Article 25.3) — to affiliated entities established in an EU Member State or associated country, if this is needed for those entities to exploit the results generated by the beneficiaries to which they are affiliated.

Unless agreed otherwise (see above; Article 31.1), the affiliated entity concerned must make any such request directly to the beneficiary that owns the results.

Requests for access may be made — unless agreed otherwise — up to one year after the period set out in Article 3.

### **31.5 Access rights for the EU institutions, bodies, offices or agencies and EU Member States**

*The beneficiaries must give access to their results — on a royalty-free basis — to EU institutions, bodies, offices or agencies, for developing, implementing or monitoring EU policies or programmes.*

*Such access rights are limited to non-commercial and non-competitive use.*

*This does not change the right to use any material, document or information received from the beneficiaries for communication and publicising activities (see Article 38.2).*

### **31.6 Access rights for third parties**

*Not applicable*

### **31.7 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **SECTION 4 OTHER RIGHTS AND OBLIGATIONS**

### **ARTICLE 32 — RECRUITMENT AND WORKING CONDITIONS FOR RESEARCHERS**

#### **32.1 Obligation to take measures to implement the European Charter for Researchers and Code of Conduct for the Recruitment of 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>22</sup>, in particular regarding:

- working conditions;
- transparent recruitment processes based on merit, and
- career development.

The beneficiaries must ensure that researchers and third parties involved in the action are aware of them.

#### **32.2 Consequences of non-compliance**

If a beneficiary breaches its obligations under this Article, the *Agency* may apply any of the measures described in Chapter 6.

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<sup>22</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).

## ARTICLE 33 — GENDER EQUALITY

### 33.1 Obligation to aim for gender equality

The beneficiaries must take all measures to promote equal opportunities between men and women in the implementation of the action. 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.

### 33.2 Consequences of non-compliance

If a beneficiary breaches its obligations under this Article, the *Agency* may apply any of the measures described in Chapter 6.

## ARTICLE 34 — ETHICS

### 34.1 Obligation to comply with ethical principles

The beneficiaries must carry out the action in compliance with:

- (a) ethical principles (including the highest standards of research integrity — as set out, for instance, in the European Code of Conduct for Research Integrity<sup>23</sup> — and including, in particular, avoiding fabrication, falsification, plagiarism or other research misconduct) and
- (b) applicable international, EU and national law.

Funding will not be granted for activities carried out outside the EU if they are prohibited in all Member States.

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:

- (a) aim at human cloning for reproductive purposes;
- (b) intend to modify the genetic heritage of human beings which could make such changes heritable (with the exception of research relating to cancer treatment of the gonads, which may be financed), or
- (c) 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.

### 34.2 Activities raising ethical issues

Activities raising ethical issues must comply with the ‘**ethics requirements**’ set out in Annex 1.

Before the beginning of an activity raising an ethical issue, the coordinator must submit (see Article 52) to the *Agency* copy of:

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<sup>23</sup> The European Code of Conduct for Research Integrity of ALLEA (All European Academies) and ESF (European Science Foundation) of March 2011.

[http://www.esf.org/fileadmin/Public\\_documents/Publications/Code\\_Conduct\\_ResearchIntegrity.pdf](http://www.esf.org/fileadmin/Public_documents/Publications/Code_Conduct_ResearchIntegrity.pdf)

- (a) any ethics committee opinion required under national law and
- (b) any notification or authorisation for activities raising ethical issues required under national law.

If these documents are not in English, the coordinator must also submit an English summary of the submitted opinions, notifications and authorisations (containing, if available, the conclusions of the committee or authority concerned).

If these documents are specifically requested for the action, the request must contain an explicit reference to the action title. The coordinator must submit a declaration by each beneficiary concerned that all the submitted documents cover the action tasks.

### **34.3 Activities involving human embryos or human embryonic 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 *Agency* (see Article 52).

### **34.4 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43) and the Agreement or participation of the beneficiary may be terminated (see Article 50).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 35 — CONFLICT OF INTERESTS**

### **35.1 Obligation to avoid a conflict of interests**

The beneficiaries must take all measures to prevent any situation where the impartial and objective implementation of the action is compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest ('**conflict of interests**').

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

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

### **35.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43) and the Agreement or participation of the beneficiary may be terminated (see Article 50).

Such breaches may also lead to any of the other measures described in Chapter 6.

## ARTICLE 36 — CONFIDENTIALITY

### 36.1 General obligation to maintain confidentiality

During implementation of the action and for four years after the period set out in Article 3, the parties must keep confidential any data, documents or other material (in any form) that is identified as confidential at the time it is disclosed (**'confidential information'**).

If a beneficiary requests, the *Agency* may agree to keep such information confidential for an additional period beyond the initial four years.

If information has been identified as confidential only orally, it will be considered to be confidential only if this is confirmed in writing within 15 days of the oral disclosure.

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

The beneficiaries may disclose confidential information to their personnel or third parties involved in the action only if they:

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

This does not change the security obligations in Article 37, which still apply.

The *Agency* may disclose confidential information to its staff, other EU institutions and bodies or third parties, if:

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

Under the conditions set out in Article 4 of the Rules for Participation Regulation No 1290/2013<sup>24</sup>, the Commission must moreover make available information on the results to other EU institutions, bodies, offices or agencies as well as Member States or associated countries.

The confidentiality obligations no longer apply if:

- (a) the disclosing party agrees to release the other party;
- (b) the information was already known by the recipient or is given to him without obligation of confidentiality by a third party that was not bound by any obligation of confidentiality;
- (c) the recipient proves that the information was developed without the use of confidential information;
- (d) the information becomes generally and publicly available, without breaching any confidentiality obligation, or

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<sup>24</sup> Regulation (EU) No 1290/2013 of the European Parliament and of the Council of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" (OJ L 347, 20.12.2013 p.81).

(e) the disclosure of the information is required by EU or national law.

## **36.2 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

## **ARTICLE 37 — SECURITY-RELATED OBLIGATIONS**

### **37.1 Results with a security recommendation**

*Not applicable*

### **37.2 Classified results**

*Not applicable*

### **37.3 Activities involving dual-use goods or dangerous materials and substances**

*Not applicable*

### **37.4 Consequences of non-compliance**

*Not applicable*

## **ARTICLE 38 — PROMOTING THE ACTION — VISIBILITY OF EU FUNDING**

### **38.1 Communication activities by beneficiaries**

#### **38.1.1 Obligation to promote the action and its results**

The beneficiaries must promote the action and its results, by providing targeted information to multiple audiences (including the media and the public) in a strategic and effective manner.

This does not change the dissemination obligations in Article 29, the confidentiality obligations in Article 36 or the security obligations in Article 37, all of which still apply.

Before engaging in a communication activity expected to have a major media impact, the beneficiaries must inform the *Agency* (see Article 52).

#### **38.1.2 Information on EU funding — Obligation and right to use the EU emblem**

Unless the *Agency* requests or agrees otherwise or unless it is impossible, any communication activity related to the action (including in electronic form, via social media, etc.) and any infrastructure, equipment and major results funded by the grant must:

- (a) display the EU emblem and
- (b) include the following text:

For communication activities: “This project has received funding from the *European Union’s Horizon 2020 research and innovation programme* under grant agreement No 689029”.

For infrastructure, equipment and major results: “This [*infrastructure*][*equipment*][*insert type of result*] is part of a project that has received funding from the *European Union’s Horizon 2020 research and innovation programme* under grant agreement No 689029”.

When displayed together with another logo, the EU emblem must have appropriate prominence.

For the purposes of their obligations under this Article, the beneficiaries may use the EU emblem without first obtaining approval from the *Agency*.

This does not, however, give them the right to exclusive use.

Moreover, they may not appropriate the EU emblem or any similar trademark or logo, either by registration or by any other means.

### **38.1.3 Disclaimer excluding the *Agency* responsibility**

Any communication activity related to the action must indicate that it reflects only the author's view and that the *Agency* is not responsible for any use that may be made of the information it contains.

## **38.2 Communication activities by the *Agency***

### **38.2.1 Right to use beneficiaries’ materials, documents or information**

The *Agency* may use, for its communication and publicising activities, information relating to the action, documents notably summaries for publication and public deliverables as well as any other material, such as pictures or audio-visual material that it receives from any beneficiary (including in electronic form).

This does not change the confidentiality obligations in Article 36 and the security obligations in Article 37, all of which still apply.

However, if the *Agency’s* use of these materials, documents or information would risk compromising legitimate interests, the beneficiary concerned may request the *Agency* not to use it (see Article 52).

The right to use a beneficiary’s materials, documents and information includes:

- (a) **use for its own purposes** (in particular, making them available to persons working for the *Agency* or any other EU institution, body, office or agency or body or institutions in EU Member States; and copying or reproducing them in whole or in part, in unlimited numbers);
- (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** for communication and publicising activities (including shortening, summarising, inserting other elements (such as 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) giving **access in response to individual requests** under Regulation No 1049/2001<sup>25</sup>, without the right to reproduce or exploit;
- (f) **storage** in paper, electronic or other form;
- (g) **archiving**, in line with applicable document-management rules, and
- (h) the right to authorise **third parties** to act on its behalf or sub-license the modes of use set out in Points (b),(c),(d) and (f) to third parties if needed for the communication and publicising activities of the *Agency*.

If the right of use is subject to rights of a third party (including personnel of the beneficiary), the beneficiary must ensure that it complies with its obligations under this Agreement (in particular, by obtaining the necessary approval from the third parties concerned).

Where applicable (and if provided by the beneficiaries), the *Agency* will insert the following information:

“© – [year] – [name of the copyright owner]. All rights reserved. Licensed to the *Executive Agency for Small and Medium-sized Enterprises (EASME)* under conditions.”

### 38.3 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 43).

Such breaches may also lead to any of the other measures described in Chapter 6.

## ARTICLE 39 — PROCESSING OF PERSONAL DATA

### 39.1 Processing of personal data by the *Agency and the Commission*

Any personal data under the Agreement will be processed by the *Agency or the Commission* under Regulation No 45/2001<sup>26</sup> and according to the ‘notifications of the processing operations’ to the Data Protection Officer (DPO) of the *Agency or the Commission* (publicly accessible in the DPO register).

Such data will be processed by the ‘**data controller**’ of the *Agency or the Commission* for the purposes of implementing, managing and monitoring the Agreement or protecting the financial interests of the EU or Euratom (including checks, reviews, audits and investigations; see Article 22).

The persons whose personal data are processed have the right to access and correct their own personal data. For this purpose, they must send any queries about the processing of their personal data to the data controller, via the contact point indicated in the ‘service specific privacy statement(s) (SSPS)’ that are published on the *Agency and the Commission* websites.

<sup>25</sup> Regulation (EC) No 1049/2001 of the European Parliament and of the Council of 30 May 2001 regarding public access to European Parliament, Council and Commission documents, OJ L 145, 31.5.2001, p. 43.

<sup>26</sup> Regulation (EC) No 45/2001 of the European Parliament and of the Council of 18 December 2000 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data (OJ L 8, 12.01.2001, p. 1).

They also have the right to have recourse at any time to the European Data Protection Supervisor (EDPS).

### **39.2 Processing of personal data by the beneficiaries**

The beneficiaries must process personal data under the Agreement in compliance with applicable EU and national law on data protection (including authorisations or notification requirements).

The beneficiaries may grant their personnel access only to data that is strictly necessary for implementing, managing and monitoring the Agreement.

The beneficiaries must inform the personnel whose personal data are collected and processed by the *Agency or the Commission*. For this purpose, they must provide them with the service specific privacy statement (SSPS) (see above), before transmitting their data to the *Agency or the Commission*.

### **39.3 Consequences of non-compliance**

If a beneficiary breaches any of its obligations under Article 39.2, the *Agency* may apply any of the measures described in Chapter 6.

## **ARTICLE 40 — ASSIGNMENTS OF CLAIMS FOR PAYMENT AGAINST THE AGENCY**

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

If the *Agency* has not accepted the assignment or 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 *Agency*.

## **CHAPTER 5 DIVISION OF BENEFICIARIES' ROLES AND RESPONSIBILITIES**

### **ARTICLE 41 — DIVISION OF BENEFICIARIES' ROLES AND RESPONSIBILITIES**

#### **41.1 Roles and responsibilities towards the Agency**

The beneficiaries have full responsibility for implementing the action and complying with the Agreement.

The beneficiaries are jointly and severally liable for the **technical implementation** of the action as described in Annex 1. If a beneficiary fails to implement its part of the action, the other beneficiaries become responsible for implementing this part (without being entitled to any additional EU funding for doing so), unless the *Agency* expressly relieves them of this obligation.

The **financial responsibility** of each beneficiary is governed by Articles 44, 45 and 46.

#### **41.2 Internal division of roles and responsibilities**

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

(a) Each **beneficiary** must:

- (i) keep information stored in the 'Beneficiary Register' (via the electronic exchange system) up to date (see Article 17);
- (ii) inform the coordinator immediately of any events or circumstances likely to affect significantly or delay the implementation of the action (see Article 17);
- (iii) submit to the coordinator in good time:
  - individual financial statements for itself and, if required, certificates on the financial statements (see Article 20);
  - the data needed to draw up the technical reports (see Article 20);
  - ethics committee opinions and notifications or authorisations for activities raising ethical issues (see Article 34);
  - any other documents or information required by the *Agency or the Commission* under the Agreement, unless the Agreement requires the beneficiary to submit this information directly to the *Agency or the Commission*.

(b) The **coordinator** must:

- (i) monitor that the action is implemented properly (see Article 7);
- (ii) act as the intermediary for all communications between the beneficiaries and the *Agency* (in particular, providing the *Agency* with the information described in Article 17), unless the Agreement specifies otherwise;
- (iii) request and review any documents or information required by the *Agency* and verify their completeness and correctness before passing them on to the *Agency*;
- (iv) submit the deliverables and reports to the *Agency* (see Articles 19 and 20);
- (v) ensure that all payments are made to the other beneficiaries without unjustified delay (see Article 21);
- (vi) inform the *Agency* of the amounts paid to each beneficiary, when required under the Agreement (see Articles 44 and 50) or requested by the *Agency*.

The coordinator may not delegate the above-mentioned tasks to any other beneficiary or subcontract them to any third party.

### 41.3 Internal arrangements between beneficiaries — Consortium agreement

*The beneficiaries must have internal arrangements regarding their operation and co-ordination to ensure that the action is implemented properly. These internal arrangements must be set out in a written 'consortium agreement' between the beneficiaries, which may cover:*

- *internal organisation of the consortium;*
- *management of access to the electronic exchange system;*
- *distribution of EU funding;*
- *additional rules on rights and obligations related to background and results (including whether access rights remain or not, if a beneficiary is in breach of its obligations) (see Section 3 of Chapter 4);*
- *settlement of internal disputes;*
- *liability, indemnification and confidentiality arrangements between the beneficiaries.*

*The consortium agreement must not contain any provision contrary to the Agreement.*

#### **41.4 Relationship with complementary beneficiaries — Collaboration agreement**

*Not applicable*

#### **41.5 Relationship with partners of a joint action — Coordination agreement**

*Not applicable*

### **CHAPTER 6 REJECTION OF COSTS — REDUCTION OF THE GRANT — RECOVERY — PENALTIES — DAMAGES — SUSPENSION — TERMINATION — FORCE MAJEURE**

#### **SECTION 1 REJECTION OF COSTS — REDUCTION OF THE GRANT — RECOVERY — PENALTIES**

#### **ARTICLE 42 — REJECTION OF INELIGIBLE COSTS**

##### **42.1 Conditions**

42.1.1 The *Agency* will — at the time of an **interim payment**, **at the payment of the balance** or **afterwards** — reject any costs which are ineligible (see Article 6), in particular following checks, reviews, audits or investigations (see Article 22).

42.1.2 The rejection may also be based on the **extension of findings from other grants to this grant**, under the conditions set out in Article 22.5.2.

##### **42.2 Ineligible costs to be rejected — Calculation — Procedure**

Ineligible costs will be rejected in full.

If the *Agency* rejects costs **without reduction of the grant** (see Article 43) or **recovery of undue amounts** (see Article 44), it will formally notify the coordinator or beneficiary concerned the rejection of costs, the amounts and the reasons why (if applicable, together with the notification of amounts

due; see Article 21.5). The coordinator or beneficiary concerned may — within 30 days of receiving notification — formally notify the *Agency* of its disagreement and the reasons why.

If the *Agency* rejects costs **with reduction of the grant or recovery of undue amounts**, it will formally notify the rejection in the ‘**pre-information letter**’ on reduction or recovery set out in Articles 43 and 44.

### 42.3 Effects

If the *Agency* rejects costs at the time of an **interim payment or the payment of the balance**, it will deduct them from the total eligible costs declared, for the action, in the periodic or final summary financial statement (see Articles 20.3 and 20.4). It will then calculate the interim payment or payment of the balance as set out in Articles 21.3 or 21.4.

If the *Agency* — **after an interim payment but before the payment of the balance** — rejects costs declared in a periodic summary financial statement, it will deduct them from the total eligible costs declared, for the action, in the next periodic summary financial statement or in the final summary financial statement. It will then calculate the interim payment or payment of the balance as set out in Articles 21.3 or 21.4.

If the *Agency* rejects costs **after the payment of the balance**, it will deduct the amount rejected from the total eligible costs declared, by the beneficiary, in the final summary financial statement. It will then calculate the revised final grant amount as set out in Article 5.4.

## ARTICLE 43 — REDUCTION OF THE GRANT

### 43.1 Conditions

43.1.1 The *Agency* may — **at the payment of the balance or afterwards** — reduce the maximum grant amount (see Article 5.1), if the action has not been implemented properly as described in Annex 1 or another obligation under the Agreement has been breached.

43.1.2 The *Agency* may also reduce the maximum grant amount on the basis of the **extension of findings from other grants to this grant**, under the conditions set out in Article 22.5.2.

### 43.2 Amount to be reduced — Calculation — Procedure

The amount of the reduction will be proportionate to the improper implementation of the action or to the seriousness of the breach.

Before reduction of the grant, the *Agency* will formally notify a ‘**pre-information letter**’ to the coordinator or beneficiary concerned:

- informing it of its intention to reduce the grant, the amount it intends to reduce and the reasons why and
- inviting it to submit observations within 30 days of receiving notification

If the *Agency* does not receive any observations or decides to pursue reduction despite the observations it has received, it will formally notify **confirmation** of the reduction (if applicable, together with the notification of amounts due; see Article 21).

### 43.3 Effects

If the *Agency* reduces the grant at the time of **the payment of the balance**, it will calculate the reduced grant amount for the action and then determine the amount due as payment of the balance (see Articles 5.3.4 and 21.4).

If the *Agency* reduces the grant **after the payment of the balance**, it will calculate the revised final grant amount for the beneficiary concerned (see Article 5.4). If the revised final grant amount for the beneficiary concerned is lower than its share of the final grant amount, the *Agency* will recover the difference (see Article 44).

## ARTICLE 44 — RECOVERY OF UNDUE AMOUNTS

### 44.1 Amount to be recovered — Calculation — Procedure

The *Agency* will — after **termination of the participation of a beneficiary, at the payment of the balance or afterwards** — claim back any amount that was paid but is not due under the Agreement.

Each beneficiary's financial responsibility in case of recovery is limited to its own debt, except for the amount retained for the Guarantee Fund (see Article 21.4).

#### 44.1.1 Recovery after termination of a beneficiary's participation

If recovery takes place after termination of a beneficiary's participation (including the coordinator), the *Agency* will claim back the undue amount from the beneficiary concerned, by formally notifying it a debit note (see Article 50.2 and 50.3). This note will specify the amount to be recovered, the terms and the date for payment.

If payment is not made by the date specified in the debit note, the *Agency or the Commission* will **recover** the amount:

- (a) by '**offsetting**' it — without the beneficiary's consent — against any amounts owed to the beneficiary concerned by the *Agency, the Commission or another* executive agency (from the EU or Euratom budget).

In exceptional circumstances, to safeguard the EU's financial interests, the *Agency* may offset before the payment date specified in the debit note;

- (b) *not applicable*;

- (c) by **taking legal action** (see Article 57) or by **adopting an enforceable decision** under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 79(2) of the Financial regulation No 966/2012.

If payment is not made by the date specified in the debit note, the amount to be recovered (see above) will be increased by **late-payment interest** at the rate set out in Article 21.11, from the day following the payment date in the debit note, up to and including the date the *Agency or the Commission* receives full payment of the amount.

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 2007/64/EC<sup>27</sup> applies.

#### 44.1.2 Recovery at payment of the balance

If the payment of the balance takes the form of a recovery (see Article 21.4), the *Agency* will formally notify a ‘**pre-information letter**’ to the coordinator:

- informing it of its intention to recover, the amount due as the balance and the reasons why;
- specifying that it intends to deduct the amount to be recovered from the amount retained for the Guarantee Fund;
- requesting the coordinator to submit a report on the distribution of payments to the beneficiaries within 30 days of receiving notification, and
- inviting the coordinator to submit observations within 30 days of receiving notification.

If no observations are submitted or the *Agency* decides to pursue recovery despite the observations it has received, it will **confirm recovery** (together with the notification of amounts due; see Article 21.5) and:

- pay the difference between the amount to be recovered and the amount retained for the Guarantee Fund, **if the difference is positive** or
- formally notify to the coordinator a **debit note** for the difference between the amount to be recovered and the amount retained for the Guarantee Fund, **if the difference is negative**. This note will also specify the terms and the date for payment.

If the coordinator does not repay the *Agency* by the date in the debit note and has not submitted the report on the distribution of payments: the *Agency or the Commission* will **recover** the amount set out in the debit note from the coordinator (see below).

If the coordinator does not repay the *Agency* by the date in the debit note, but has submitted the report on the distribution of payments: the *Agency* will:

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

$\left\{ \left\{ \left\{ \text{beneficiary's costs declared in the final summary financial statement and approved by the } \right. \right. \right.$   
*Agency* multiplied by the reimbursement rate set out in Article 5.2 for the beneficiary concerned}

divided by

the EU contribution for the action calculated according to Article 5.3.1 }

multiplied by

the final grant amount (see Article 5.3)},

<sup>27</sup> Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC (OJ L 319, 05.12.2007, p. 1).

minus

{pre-financing and interim payments received by the beneficiary}.

- (b) formally notify to each beneficiary identified according to point (a) a **debit note** specifying the terms and date for payment. The amount of the debit note is calculated as follows:

{ {amount calculated according to point (a) for the beneficiary concerned

divided by

the sum of the amounts calculated according to point (a) for all the beneficiaries identified according to point (a)}

multiplied by

the amount set out in the debit note formally notified to the coordinator}.

If payment is not made by the date specified in the debit note, the *Agency* will **recover** the amount:

- (a) by '**offsetting**' it — without the beneficiary's consent — against any amounts owed to the beneficiary concerned by the *Agency*, the Commission or another executive agency (from the EU or Euratom budget).

In exceptional circumstances, to safeguard the EU's financial interests, the *Agency* may offset before the payment date specified in the debit note;

- (b) by **drawing on the Guarantee Fund**. The *Agency or the Commission* will formally notify the beneficiary concerned the debit note on behalf of the Guarantee Fund and recover the amount:

(i) *not applicable*;

(ii) by **taking legal action** (see Article 57) or by **adopting an enforceable decision** under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 79(2) of the Financial Regulation No 966/2012.

If payment is not made by the date in the debit note, the amount to be recovered (see above) will be increased by **late-payment interest** at the rate set out in Article 21.11, from the day following the payment date in the debit note, up to and including the date the *Agency or the Commission* receives full payment of the amount.

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 2007/64/EC applies.

#### 44.1.3 Recovery of amounts after payment of the balance

If, for a beneficiary, the revised final grant amount (see Article 5.4) is lower than its share of the final grant amount, it must repay the difference to the *Agency*.

The beneficiary's share of the final grant amount is calculated as follows:

{ {beneficiary's costs declared in the final summary financial statement and approved by the *Agency* multiplied by the reimbursement rate set out in Article 5.2 for the beneficiary concerned}

divided by

the EU contribution for the action calculated according to Article 5.3.1 }

multiplied by

the final grant amount (see Article 5.3)}.

If the coordinator has not distributed amounts received (see Article 21.7), the *Agency* will also recover these amounts.

The *Agency* will formally notify a **pre-information letter** to the beneficiary concerned:

- informing it of its intention to recover, the due amount and the reasons why and
- inviting it to submit observations within 30 days of receiving notification.

If no observations are submitted or the *Agency* decides to pursue recovery despite the observations it has received, it will **confirm** the amount to be recovered and formally notify to the beneficiary concerned a **debit note**. This note will also specify the terms and the date for payment.

If payment is not made by the date specified in the debit note, the *Agency* will **recover** the amount:

- (a) by '**offsetting**' it — without the beneficiary's consent — against any amounts owed to the beneficiary concerned by the *Agency*, the Commission or another executive agency (from the EU or Euratom budget).

In exceptional circumstances, to safeguard the EU's financial interests, the *Agency* may offset before the payment date specified in the debit note;

- (b) by **drawing on the Guarantee Fund**. The *Agency* or the Commission will formally notify the beneficiary concerned the debit note on behalf of the Guarantee Fund and recover the amount:

- (i) *not applicable*;

- (ii) by **taking legal action** (see Article 57) or by **adopting an enforceable decision** under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 79(2) of the Financial Regulation No 966/2012.

If payment is not made by the date in the debit note, the amount to be recovered (see above) will be increased by **late-payment interest** at the rate set out in Article 21.11, from the day following the date for payment in the debit note, up to and including the date the *Agency* or the Commission receives full payment of the amount.

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 2007/64/EC applies.

## ARTICLE 45 — ADMINISTRATIVE AND FINANCIAL PENALTIES

### 45.1 Conditions

Under Articles 109 and 131(4) of the Financial Regulation No 966/2012, the *Agency* may impose **administrative** and **financial penalties** if a beneficiary:

- (a) has committed substantial errors, irregularities or fraud or is in serious breach of its obligations under the Agreement or
- (b) has made false declarations about information required under the Agreement or for the submission of the proposal (or has not supplied such information).

Each beneficiary is responsible for paying the financial penalties imposed on it.

Under Article 109(3) of the Financial Regulation No 966/2012, the *Agency or the Commission* may — under certain conditions and limits — publish decisions imposing administrative or financial penalties.

### 45.2 Duration — Amount of penalty — Calculation

**Administrative penalties** exclude the beneficiary from all contracts and grants financed from the EU or Euratom budget for a maximum of five years from the date the infringement is established by the *Agency*.

If the beneficiary commits another infringement within five years of the date the first infringement is established, the *Agency* may extend the exclusion period up to 10 years.

**Financial penalties** will be between 2% and 10% of the maximum EU contribution indicated, for the beneficiary concerned, in the estimated budget (see Annex 2).

If the beneficiary commits another infringement within five years of the date the first infringement is established, the *Agency* may increase the rate of financial penalties to between 4% and 20%.

### 45.3 Procedure

Before applying a penalty, the *Agency* will formally notify the beneficiary concerned:

- informing it of its intention to impose a penalty, its duration or amount and the reasons why and
- inviting it to submit observations within 30 days.

If the *Agency* does not receive any observations or decides to impose the penalty despite of observations it has received, it will formally notify **confirmation** of the penalty to the beneficiary concerned and — in case of financial penalties — deduct the penalty from the payment of the balance or formally notify a **debit note**, specifying the amount to be recovered, the terms and the date for payment.

If payment is not made by the date specified in the debit note, the *Agency or the Commission* may **recover** the amount:

- (a) by ‘**offsetting**’ it — without the beneficiary’s consent — against any amounts owed to the beneficiary concerned by the *Agency, the Commission* or *another* executive agency (from the EU or Euratom budget).

In exceptional circumstances, to safeguard the EU’s financial interests, the *Agency* may offset before the payment date specified in the debit note;

- (b) by **taking legal action** (see Article 57) or by **adopting an enforceable decision** under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 79(2) of the Financial Regulation No 966/2012.

If payment is not made by the date in the debit note, the amount to be recovered (see above) will be increased by **late-payment interest** at the rate set out in Article 21.11, from the day following the payment date in the debit note, up to and including the date the *Agency or the Commission* receives full payment of the amount.

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 2007/64/EC applies.

## **SECTION 2 LIABILITY FOR DAMAGES**

### **ARTICLE 46 — LIABILITY FOR DAMAGES**

#### **46.1 Liability of the *Agency***

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

The *Agency* cannot be held liable for any damage caused by any of the beneficiaries or third parties involved in the action, as a consequence of implementing the Agreement.

#### **46.2 Liability of the beneficiaries**

##### **46.2.1 Conditions**

Except in case of force majeure (see Article 51), the beneficiaries must compensate the *Agency* 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.

Each beneficiary is responsible for paying the damages claimed from it.

##### **46.2.2 Amount of damages - Calculation**

The amount the *Agency* can claim from a beneficiary will correspond to the damage caused by that beneficiary.

### 46.2.3 Procedure

Before claiming damages, the *Agency* will formally notify the beneficiary concerned:

- informing it of its intention to claim damages, the amount and the reasons why and
- inviting it to submit observations within 30 days.

If the *Agency* does not receive any observations or decides to claim damages despite the observations it has received, it will formally notify **confirmation** of the claim for damages and a **debit note**, specifying the amount to be recovered, the terms and the date for payment.

If payment is not made by the date specified in the debit note, the *Agency or the Commission* may **recover** the amount:

- (a) by ‘**offsetting**’ it — without the beneficiary’s consent — against any amounts owed to the beneficiary concerned by the *Agency, the Commission* or *another* executive agency (from the EU or Euratom budget).

In exceptional circumstances, to safeguard the EU’s financial interests, the *Agency* may offset before the payment date specified in the debit note;

- (b) by **taking legal action** (see Article 57) or by **adopting an enforceable decision** under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 79(2) of the Financial Regulation No 966/2012.

If payment is not made by the date in the debit note, the amount to be recovered (see above) will be increased by **late-payment interest** at the rate set out in Article 21.11, from the day following the payment date in the debit note, up to and including the date the *Agency or the Commission* receives full payment of the amount.

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 2007/64/EC applies.

## **SECTION 3 SUSPENSION AND TERMINATION**

### **ARTICLE 47 — SUSPENSION OF PAYMENT DEADLINE**

#### **47.1 Conditions**

The *Agency* may — at any moment — suspend the payment deadline (see Article 21.2 to 21.4) if a request for payment (see Article 20) cannot be approved because:

- (a) it does not comply with the provisions of the Agreement (see Article 20);
- (b) the technical reports or financial reports have not been submitted or are not complete or additional information is needed, or

- (c) there is doubt about the eligibility of the costs declared in the financial statements and additional checks, reviews, audits or investigations are necessary.

## 47.2 Procedure

The *Agency* will formally notify the coordinator of the suspension and the reasons why.

The suspension will **take effect** the day notification is sent by the *Agency* (see Article 52).

If the conditions for suspending the payment deadline are no longer met, the suspension will be **lifted** — and the remaining period will resume.

If the suspension exceeds two months, the coordinator may request the *Agency* if the suspension will continue.

If the payment deadline has been suspended due to the non-compliance of the technical or financial reports (see Article 20) and the revised report or statement is not submitted or was submitted but is also rejected, the *Agency* may also terminate the Agreement or the participation of the beneficiary (see Article 50.3.1(l)).

## ARTICLE 48 — SUSPENSION OF PAYMENTS

### 48.1 Conditions

The *Agency* may — at any moment — suspend, in whole or in part, the pre-financing payment and interim payments for one or more beneficiaries or the payment of the balance for all beneficiaries, if a beneficiary:

- (a) has committed or is suspected of having committed substantial errors, irregularities, fraud or serious breach of obligations in the award procedure or under this Agreement or
- (b) has committed — in other EU or Euratom 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 22.5.2).

### 48.2 Procedure

Before suspending payments, the *Agency* will formally notify the coordinator:

- informing it of its intention to suspend payments and the reasons why and
- inviting it to submit observations within 30 days of receiving notification.

If the *Agency* does not receive observations or decides to pursue the procedure despite the observations it has received, it will formally notify **confirmation** of the suspension. Otherwise, it will formally notify that the suspension procedure is not continued.

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

If the conditions for resuming payments are met, the suspension will be **lifted**. The *Agency* will formally notify the coordinator.

During the suspension, the periodic report(s) (see Article 20.3) must not contain any individual financial statements from the beneficiary concerned. When the *Agency* resumes payments, the coordinator may include them in the next periodic report.

The beneficiaries may suspend implementation of the action (see Article 49.1) or terminate the Agreement or the participation of the beneficiary concerned (see Article 50.1 and 50.2).

## **ARTICLE 49 — SUSPENSION OF THE ACTION IMPLEMENTATION**

### **49.1 Suspension of the action implementation, by the beneficiaries**

#### **49.1.1 Conditions**

The beneficiaries may suspend implementation of the action or any part of it, if exceptional circumstances — in particular *force majeure* (see Article 51) — make implementation impossible or excessively difficult.

#### **49.1.2 Procedure**

The coordinator must immediately formally notify to the *Agency* the suspension (see Article 52), stating:

- the reasons why and
- the expected date of resumption.

The suspension will **take effect** the day this notification is received by the *Agency*.

Once circumstances allow for implementation to resume, the coordinator must immediately formally notify the *Agency* and request an **amendment** of the Agreement to set the date on which the action will be resumed, extend the duration of the action and make other changes necessary to adapt the action to the new situation (see Article 55) — unless the Agreement or the participation of a beneficiary has been terminated (see Article 50).

The suspension will be **lifted** with effect from the resumption date set out in the amendment. This date may be before the date on which the amendment enters into force.

Costs incurred during suspension of the action implementation are not eligible (see Article 6).

### **49.2 Suspension of the action implementation, by the *Agency***

#### **49.2.1 Conditions**

The *Agency* may suspend implementation of the action or any part of it:

- (a) if a beneficiary has committed or is suspected of having committed substantial errors, irregularities, fraud or serious breach of obligations in the award procedure or under this Agreement;
- (b) if a beneficiary has committed — in other EU or Euratom 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 22.5.2), or

(c) if the action is suspected of having lost its scientific or technological relevance.

#### **49.2.2 Procedure**

Before suspending implementation of the action, the *Agency* will formally notify the coordinator:

- informing it of its intention to suspend the implementation and the reasons why and
- inviting it to submit observations within 30 days of receiving notification.

If the *Agency* does not receive observations or decides to pursue the procedure despite the observations it has received, it will formally notify **confirmation** of the suspension. Otherwise, it will formally notify that the procedure is not continued.

The suspension will **take effect** five days after confirmation notification is received by the coordinator (or on a later date specified in the notification).

It will be **lifted** if the conditions for resuming implementation of the action are met.

The coordinator will be formally notified of the lifting and the Agreement will be **amended** to set the date on which the action will be resumed, extend the duration of the action and make other changes necessary to adapt the action to the new situation (see Article 55) — unless the Agreement has already been terminated (see Article 50).

The suspension will be lifted with effect from the resumption date set out in the amendment. This date may be before the date on which the amendment enters into force.

Costs incurred during suspension are not eligible (see Article 6).

The beneficiaries may not claim damages due to suspension by the *Agency* (see Article 46).

Suspension of the action implementation does not affect the *Agency's* right to terminate the Agreement or participation of a beneficiary (see Article 50), reduce the grant or recover amounts unduly paid (see Articles 43 and 44).

### **ARTICLE 50 — TERMINATION OF THE AGREEMENT OR OF THE PARTICIPATION OF ONE OR MORE BENEFICIARIES**

#### **50.1 Termination of the Agreement by the beneficiaries**

##### **50.1.1 Conditions and procedure**

The beneficiaries may terminate the Agreement.

The coordinator must formally notify termination to the *Agency* (see Article 52), stating:

- the reasons why and
- the date the termination will take effect. This date must be after the notification.

If no reasons are given or if the *Agency* considers the reasons do not justify termination, the Agreement will be considered to have been ‘**terminated improperly**’.

The termination will **take effect** on the day specified in the notification.

### 50.1.2 Effects

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

- (i) a periodic report (for the open reporting period until termination; see Article 20.3) and
- (ii) the final report (see Article 20.4).

If the *Agency* does not receive the reports within the deadline (see above), only costs which are included in an approved periodic report will be taken into account.

The *Agency* will **calculate** the final grant amount (see Article 5.3) and the balance (see Article 21.4) on the basis of the reports submitted. Only costs incurred until termination are eligible (see Article 6). Costs relating to contracts due for execution only after termination are not eligible.

Improper termination may lead to a reduction of the grant (see Article 43).

After termination, the beneficiaries’ obligations (in particular Articles 20, 22, 23, Section 3 of Chapter 4, 36, 37, 38 and 40) continue to apply.

## 50.2 Termination of the participation of one or more beneficiaries, by the beneficiaries

### 50.2.1 Conditions and procedure

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

The coordinator must formally notify termination to the *Agency* (see Article 52) and inform the beneficiary concerned.

If the coordinator’s participation is terminated without its agreement, the formal notification must be done by another beneficiary (acting on behalf of the other beneficiaries).

The notification must include:

- the reasons why;
- the opinion of the beneficiary concerned (or proof that this opinion has been requested in writing);
- the date the termination takes effect. This date must be after the notification, and
- a request for amendment (see Article 55), with a proposal for reallocation of the tasks and the estimated budget of the beneficiary concerned (see Annexes 1 and 2) and, if necessary, the addition of one or more new beneficiaries (see Article 56). If termination takes effect after the period set out in Article 3, no request for amendment must be included unless the beneficiary

concerned is the coordinator. In this case, the request for amendment must propose a new coordinator.

If this information is not given or if the *Agency* considers that the reasons do not justify termination, the participation will be considered to have been **terminated improperly**.

The termination will **take effect** on the day specified in the notification.

### 50.2.2 Effects

The coordinator must — within 30 days from when termination takes effect — submit:

- (i) a report on the distribution of payments to the beneficiary concerned and
- (ii) if termination takes effect during the period set out in Article 3, a '**termination report**' from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, an overview of the use of resources, the individual financial statement and, if applicable, the certificate on the financial statement (see Articles 20.3 and 20.4).

The information in the termination report must also be included in the periodic report for the next reporting period (see Article 20.3).

If the request for amendment is rejected by the *Agency*, (because it calls into question the decision awarding the grant or breaches the principle of equal treatment of applicants), the Agreement may be terminated according to Article 50.3.1(c).

If the request for amendment is accepted by the *Agency*, the Agreement is **amended** to introduce the necessary changes (see Article 55).

The *Agency* will **calculate** — on the basis of the periodic reports, the termination report and the report on the distribution of payments — if the (pre-financing and interim) payments received by the beneficiary concerned exceed the beneficiary's EU contribution (calculated by applying the reimbursement rate(s) to the eligible costs declared by the beneficiary and approved by the *Agency*). Only costs incurred by the beneficiary concerned until termination takes effect are eligible (see Article 6). Costs relating to contracts due for execution only after termination are not eligible.

- If the payments received **exceed the amounts due**:
  - if termination takes effect during the period set out in Article 3 and the request for amendment is accepted, the beneficiary concerned must repay to the coordinator the amount unduly received. The *Agency* will formally notify the amount unduly received and request the beneficiary concerned to repay it to the coordinator within 30 days of receiving notification. If it does not repay the coordinator, the *Agency* will draw upon the Guarantee Fund to pay the coordinator and then notify a **debit note** on behalf of the Guarantee Fund to the beneficiary concerned (see Article 44);
  - in all other cases (in particular if termination takes effect after the period set out in Article 3), the *Agency* will formally notify a **debit note** to the beneficiary concerned. If payment is not made by the date in the debit note, the Guarantee Fund will pay to the *Agency* the amount due

and the *Agency* will notify a debit note on behalf of the Guarantee Fund to the beneficiary concerned (see Article 44);

- if the beneficiary concerned is the former coordinator, it must repay the new coordinator according to the procedure above, unless:
  - termination is after an interim payment and
  - the former coordinator has not distributed amounts received as pre-financing or interim payments (see Article 21.7).

In this case, the *Agency* will formally notify a **debit note** to the former coordinator. If payment is not made by the date in the debit note, the Guarantee Fund will pay to the *Agency* the amount due. The *Agency* will then pay the new coordinator and notify a debit note on behalf of the Guarantee Fund to the former coordinator (see Article 44).

- If the payments received **do not exceed the amounts due**: amounts owed to the beneficiary concerned will be included in the next interim or final payment.

If the *Agency* does not receive the termination report within the deadline (see above), only costs included in an approved periodic report will be taken into account.

If the *Agency* does not receive the report on the distribution of payments within the deadline (see above), 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.

Improper termination may lead to a reduction of the grant (see Article 43) or termination of the Agreement (see Article 50).

After termination, the concerned beneficiary's obligations (in particular Articles 20, 22, 23, Section 3 of Chapter 4, 36, 37, 38 and 40) continue to apply.

### **50.3 Termination of the Agreement or the participation of one or more beneficiaries, by the *Agency***

#### **50.3.1 Conditions**

The *Agency* may terminate the Agreement or the participation of one or more beneficiaries, if:

- (a) one or more beneficiaries do not accede to the Agreement (see Article 56);
- (b) a change to their legal, financial, technical, organisational or ownership situation is likely to substantially affect or delay the implementation of the action or calls into question the decision to award the grant;
- (c) following termination of participation for one or more beneficiaries (see above), the necessary changes to the Agreement would call into question the decision awarding the grant or breach the principle of equal treatment of applicants (see Article 55);

- (d) implementation of the action is prevented by force majeure (see Article 51) or suspended by the coordinator (see Article 49.1) and either:
  - (i) resumption is impossible, or
  - (ii) the necessary changes to the Agreement would call into question the decision awarding the grant or breach the principle of equal treatment of applicants;
- (e) a beneficiary is declared bankrupt, being wound up, having its affairs administered by the courts, has entered into an arrangement with creditors, has suspended business activities, or is subject to any other similar proceedings or procedures under national law;
- (f) a beneficiary (or a natural person who has the power to represent or take decisions on its behalf) has been found guilty of professional misconduct, proven by any means;
- (g) a beneficiary does not comply with the applicable national law on taxes and social security;
- (h) the action has lost scientific or technological relevance;
  - (i) *not applicable*;
  - (j) *not applicable*;
- (k) a beneficiary (or a natural person who has the power to represent or take decisions on its behalf) has committed fraud, corruption, or is involved in a criminal organisation, money laundering or any other illegal activity affecting the EU's financial interests;
- (l) a beneficiary (or a natural person who has the power to represent or take decisions on its behalf) has — in the award procedure or under the Agreement — committed:
  - (i) substantial errors, irregularities, fraud or
  - (ii) serious breach of obligations, including improper implementation of the action, submission of false information, failure to provide required information, breach of ethical principles;
- (m) a beneficiary has committed — in other EU or Euratom 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'**).

### 50.3.2 Procedure

Before terminating the Agreement or participation of one or more beneficiaries, the *Agency* will formally notify the coordinator:

- informing it of its intention to terminate and the reasons why and
- inviting it, within 30 days of receiving notification, to submit observations and — in case of Point (l.ii) above — to inform the *Agency* of the measures to ensure compliance with the obligations under the Agreement.

If the *Agency* does not receive observations or decides to pursue the procedure despite the observations it has received, it will formally notify to the coordinator **confirmation** of the termination and the date it will take effect. Otherwise, it will formally notify that the procedure is not continued.

The termination will **take effect**:

- for terminations under Points (b), (c), (e), (g), (h), (j), and (l.ii) above: on the day specified in the notification of the confirmation (see above);
- for terminations under Points (a), (d), (f), (i), (k), (l.i) and (m) above: on the day after the notification of the confirmation is received by the coordinator.

### 50.3.3 Effects

(a) for **termination of the Agreement**:

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

- (i) a periodic report (for the last open reporting period until termination; see Article 20.3) and
- (ii) a final report (see Article 20.4).

If the Agreement is terminated for breach of the obligation to submit the reports (see Articles 20.8 and 50.3.1(l)), the coordinator may not submit any reports after termination.

If the *Agency* does not receive the reports within the deadline (see above), only costs which are included in an approved periodic report will be taken into account.

The *Agency* will **calculate** the final grant amount (see Article 5.3) and the balance (see Article 21.4) on the basis of the reports submitted. Only costs incurred until termination takes effect are eligible (see Article 6). Costs relating to contracts due for execution only after termination are not eligible.

This does not affect the *Agency's* right to reduce the grant (see Article 43) or to impose administrative and financial penalties (Article 45).

The beneficiaries may not claim damages due to termination by the *Agency* (see Article 46).

After termination, the beneficiaries' obligations (in particular Articles 20, 22, 23, Section 3 of Chapter 4, 36, 37, 38 and 40) continue to apply.

(b) for **termination of the participation of one or more beneficiaries**:

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 request for amendment (see Article 55), with a proposal for reallocation of the tasks and estimated budget of the beneficiary concerned (see Annexes 1 and 2) and, if

necessary, the addition of one or more new beneficiaries (see Article 56). If termination is notified after the period set out in Article 3, no request for amendment must be submitted unless the beneficiary concerned is the coordinator. In this case the request for amendment must propose a new coordinator, and

- (iii) if termination takes effect during the period set out in Article 3, a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, an overview of the use of resources, the individual financial statement and, if applicable, the certificate on the financial statement (see Article 20).

The information in the termination report must also be included in the periodic report for the next reporting period (see Article 20.3).

If the request for amendment is rejected by the *Agency* (because it calls into question the decision awarding the grant or breaches the principle of equal treatment of applicants), the Agreement may be terminated according to Article 50.3.1(c).

If the request for amendment is accepted by the *Agency*, the Agreement is **amended** to introduce the necessary changes (see Article 55).

The *Agency* will **calculate** — on the basis of the periodic reports, the termination report and the report on the distribution of payments — if the (pre-financing and interim) payments received by the beneficiary concerned exceed the beneficiary's EU contribution (calculated by applying the reimbursement rate(s) to the eligible costs declared by the beneficiary and approved by the *Agency*). Only costs incurred by the beneficiary concerned until termination takes effect are eligible (see Article 6). Costs relating to contracts due for execution only after termination are not eligible.

- If the payments received **exceed the amounts due**:
  - if termination takes effect during the period set out in Article 3 and the request for amendment is accepted, the beneficiary concerned must repay to the coordinator the amount unduly received. The *Agency* will formally notify the amount unduly received and request the beneficiary concerned to repay it to the coordinator within 30 days of receiving notification. If it does not repay the coordinator, the *Agency* will draw upon the Guarantee Fund to pay the coordinator and then notify a debit note on behalf of the Guarantee Fund to the beneficiary concerned (see Article 44);
  - in all other cases, in particular if termination takes effect after the period set out in Article 3, the *Agency* will formally notify a **debit note** to the beneficiary concerned. If payment is not made by the date in the debit note, the Guarantee Fund will pay to the *Agency* the amount due and the *Agency* will notify a debit note on behalf of the Guarantee Fund to the beneficiary concerned (see Article 44);
  - if the beneficiary concerned is the former coordinator, it must repay the new coordinator the amount unduly received, unless:
    - termination takes effect after an interim payment and

- the former coordinator has not distributed amounts received as pre-financing or interim payments (see Article 21.7)

In this case, the *Agency* will formally notify a **debit note** to the former coordinator. If payment is not made by the date in the debit note, the Guarantee Fund will pay to the *Agency* the amount due. The *Agency* will then pay the new coordinator and notify a debit note on behalf of the Guarantee Fund to the former coordinator (see Article 44).

- If the payments received **do not exceed the amounts due**: amounts owed to the beneficiary concerned will be included in the next interim or final payment.

If the *Agency* does not receive the termination report within the deadline (see above), only costs included in an approved periodic report will be taken into account.

If the *Agency* does not receive the report on the distribution of payments within the deadline (see above), 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.

After termination, the concerned beneficiary's obligations (in particular Articles 20, 22, 23, Section 3 of Chapter 4, 36, 37, 38 and 40) continue to apply.

## **SECTION 4 FORCE MAJEURE**

### **ARTICLE 51 — FORCE MAJEURE**

'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 third parties involved in the action), and
- proves to be inevitable in spite of exercising all due diligence.

The following cannot be invoked as force majeure:

- any default of a service, defect in equipment or material or delays in making them available, unless they stem directly from a relevant case of force majeure,
- labour disputes or strikes, or
- financial difficulties.

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.

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

## **CHAPTER 7 FINAL PROVISIONS**

### **ARTICLE 52 — COMMUNICATION BETWEEN THE PARTIES**

#### **52.1 Form and means of communication**

Communication under the Agreement (information, requests, submissions, ‘formal notifications’, etc.) must:

- be made in writing and
- bear the number of the Agreement.

**Until the payment of the balance:** all communication must be made through the electronic exchange system and using the forms and templates provided there.

**After the payment of the balance:** formal notifications must be made by registered post with proof of delivery (‘formal notification on paper’).

Communications in the electronic exchange system must be made by persons authorised according to the ‘Terms and Conditions of Use of the electronic exchange system’. 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 his/her appointment letter (see Terms and Conditions of Use of the electronic exchange system).

If the electronic exchange system is temporarily unavailable, instructions will be given on the *Agency and Commission* websites.

#### **52.2 Date of communication**

**Communications** are considered to have been made when they are sent by the sending party (i.e. on the date and time they are sent through the electronic exchange system).

**Formal notifications** through the **electronic** exchange system are considered to have been made when they are received by the receiving party (i.e. on the date and time of acceptance by the receiving party, as indicated by the time stamp). A formal notification that has not been accepted within 10 days after sending is considered to have been accepted.

Formal notifications **on paper** sent by **registered post** with proof of delivery (only after the payment of the balance) are considered to have been made on either:

- 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.

### **52.3 Addresses for communication**

The **electronic** exchange system must be accessed via the following URL:

<https://ec.europa.eu/research/participants/portal/desktop/en/projects/>

The *Agency* will formally notify the coordinator and beneficiaries in advance any changes to this URL.

**Formal notifications on paper** (only after the payment of the balance) addressed **to the Agency** must be sent to the following address:

*Executive Agency for Small and Medium-sized Enterprises (EASME)  
H2020 Environment & Resources  
COV 2  
B-1049 Brussels Belgium*

Formal notifications on paper (only after the payment of the balance) addressed **to the beneficiaries** must be sent to their legal address as specified in the 'Beneficiary Register'.

## **ARTICLE 53 — INTERPRETATION OF THE AGREEMENT**

### **53.1 Precedence of the Terms and Conditions over the Annexes**

The provisions in the Terms and Conditions of the Agreement take precedence over its Annexes.

Annex 2 takes precedence over Annex 1.

### **53.2 Privileges and immunities**

*Nothing in the Agreement may be interpreted as a waiver of any privileges or immunities accorded to the EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS by its constituent documents or international law.*

## **ARTICLE 54 — CALCULATION OF PERIODS, DATES AND DEADLINES**

In accordance with Regulation No 1182/71<sup>28</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.

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<sup>28</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).

## ARTICLE 55 — AMENDMENTS TO THE AGREEMENT

### 55.1 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.

### 55.2 Procedure

The party requesting an amendment must submit a request for amendment signed in the electronic exchange system (see Article 52).

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;
- for a change of coordinator without its agreement: the opinion of the coordinator (or proof that this opinion has been requested in writing).

The *Agency* may request additional information.

If the party receiving the request agrees, it must sign the amendment in the electronic exchange system within 45 days of receiving notification (or any additional information the *Agency* 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 agreed by the parties or, in the absence of such an agreement, on the date on which the amendment enters into force.

## ARTICLE 56 — ACCESSION TO THE AGREEMENT

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

The other beneficiaries must accede to the Agreement by signing the Accession Form (see Annex 3) in the electronic exchange system (see Article 52) within 30 days after its entry into force (see Article 58).

They will assume the rights and obligations under the Agreement with effect from the date of its entry into force (see Article 58).

If a beneficiary does not accede to the Agreement within the above deadline, the coordinator must — within 30 days — request an amendment to make any changes necessary to ensure proper implementation of the action. This does not affect the *Agency's* right to terminate the Agreement (see Article 50).

## **56.2 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 55. It must include an Accession Form (see Annex 3) signed by the new beneficiary in the electronic exchange system (see Article 52).

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

## **ARTICLE 57 — APPLICABLE LAW AND SETTLEMENT OF DISPUTES**

### **57.1 Applicable law**

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

### **57.2 Dispute settlement**

If a dispute concerning the interpretation, application or validity of the Agreement cannot be settled amicably, the General Court — or, on appeal, the Court of Justice of the European Union — has sole jurisdiction. Such actions must be brought under Article 272 of the Treaty on the Functioning of the EU (TFEU).

*As an exception, if such a dispute is between the Agency and REPUBLICKI HIDROMETEOROLOSKI ZAVODSRBIJE, the competent Belgian courts have sole jurisdiction.*

*As an exception, for the following beneficiaries:*

- *EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS*

*such disputes must — if they cannot be settled amicably — be referred to arbitration.*

*The Permanent Court of Arbitration Optional Rules for Arbitration Involving International Organisations and States in force at the date of entry into force of the Agreement will apply.*

*The appointing authority will be the Secretary-General of the Permanent Court of Arbitration following a written request submitted by either party.*

*The arbitration proceedings must take place in Brussels and the language used in the arbitral proceedings will be English.*

*The arbitral award will be binding on all parties and will not be subject to appeal.*

If a dispute concerns administrative or financial penalties, offsetting or an enforceable decision under Article 299 TFEU (see Articles 44, 45 and 46), the beneficiaries must bring action before the General

Court — or, on appeal, the Court of Justice of the European Union — under Article 263 TFEU. *Actions against enforceable decisions must be brought against the Commission (not against the Agency).*

#### **ARTICLE 58 — ENTRY INTO FORCE OF THE AGREEMENT**

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

#### **SIGNATURES**

For the coordinator

For the *Agency*



## **EUROPEAN COMMISSION**

Executive Agency for Small and Medium-sized Enterprises (EASME)

H2020 Environment & Resources



### **ANNEX 1 (part A)**

**Coordination and support action**

**NUMBER — 689029 — ECOMS2**

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# 1.1. The project summary

Project Number <sup>1</sup>	689029	Project Acronym <sup>2</sup>	ECOMS2
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**One form per project**

**General information**

Project title <sup>3</sup>	European Climate Observations, Modelling and Services - 2
Starting date <sup>4</sup>	The first day of the month after the signature by the Commission
Duration in months <sup>5</sup>	60
Call (part) identifier <sup>6</sup>	H2020-SC5-2015-one-stage
Topic	SC5-05b-2015 Earth-system modelling and climate services
Fixed EC Keywords	Project management and coordination, Communication networks, media, information society, Climatic research
Free keywords	Earth system modelling, climate services, coordination, network

**Abstract <sup>7</sup>**

The ECOMS2 Action will coordinate and support Europe’s knowledge base to enable better management of climate-related risks and opportunities thereby creating greater social and economic value. ECOMS2 has 4 main objectives: 1. Develop a European framework for Earth-system modelling and climate service activities. The framework will be built around a managed network of European, national and international activities and organisations. Such a network does not yet exist but is becoming increasingly necessary. 2. Coordinate and integrate European climate modelling, climate observations and climate service infrastructure initiatives (including JPI-Climate, Climate-KIC, Copernicus C3S) and facilitate dialogue among the relevant stakeholders, including climate science communities, funding bodies, providers and users. This will improve synergies, reduce fragmentation and promote alignment between activities. The user communities will include public sector, businesses, industry and society. 3. Establish multi-disciplinary expert groups to assess the state-of-the-art in Earth-system modelling and climate services in Europe; and identify existing gaps, new challenges and emerging needs. 4. Enhance communication and dissemination activities with stakeholders, in particular through events to bring the network together and showcase progress; stakeholder-oriented reports on the state-of-the-art in Earth-system modelling and climate services in Europe; operating a website; and undertaking additional stakeholder interactions to increase awareness and maximise project impacts. This CSA will deliver a range of highly beneficial impacts. Two key impacts are (i) to greatly enhance the transfer of information between suppliers and users to improve the resilience of European society to climate change and mitigation of the risk of dangerous climate change; and (ii) to improve coordination to increase efficiency, reduce fragmentation and create synergies with international R&I programmes.

## 1.2. List of Beneficiaries

Project Number <sup>1</sup>	689029	Project Acronym <sup>2</sup>	ECOMS2
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### List of Beneficiaries

No	Name	Short name	Country	Project entry month <sup>8</sup>	Project exit month
1	MET OFFICE	MET OFFICE	United Kingdom	1	60
2	AGENCE NATIONALE DE LA RECHERCHE	ANR	France	1	60
3	BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION	BSC	Spain	1	60
4	CENTRO EURO-MEDITERRANEO SUI CAMBIAMENTI CLIMATICI SCARL	CMCC	Italy	1	60
5	IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE	IC	United Kingdom	1	60
6	EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS	ECMWF	United Kingdom	1	60
7	HELMHOLTZ-ZENTRUM GEESTHACHT ZENTRUM FUR MATERIAL- UND KUSTENFORSCHUNG GMBH	HZG	Germany	1	60
8	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	CNRS	France	1	60
9	KONINKLIJK NEDERLANDS METEOROLOGISCH INSTITUUT-KNMI	KNMI	Netherlands	1	60
10	REPUBLICKI HIDROMETEOROLOSKI ZAVODSRBIJE	RHMSS	Serbia	1	60
11	SVERIGES METEOROLOGISKA OCH HYDROLOGISKA INSTITUT	SMHI	Sweden	1	60

## 1.3. Workplan Tables - Detailed implementation

### 1.3.1. WT1 List of work packages

WP Number <sup>9</sup>	WP Title	Lead beneficiary <sup>10</sup>	Person-months <sup>11</sup>	Start month <sup>12</sup>	End month <sup>13</sup>
WP1	Project Management	1 - MET OFFICE	25.00	1	60
WP2	Create and manage the network	1 - MET OFFICE	59.00	1	60
WP3	Mapping and analysis of current Earth system modelling and climate service activities	11 - SMHI	59.00	1	55
WP4	Forward-looking recommendations	8 - CNRS	44.00	1	55
WP5	Festivals	7 - HZG	27.00	1	60
WP6	Communication and dissemination	9 - KNMI	59.00	1	60
<b>Total</b>			273.00		

### 1.3.2. WT2 list of deliverables

<b>Deliverable Number</b> <sup>14</sup>	<b>Deliverable Title</b>	<b>WP number</b> <sup>9</sup>	<b>Lead beneficiary</b>	<b>Type</b> <sup>15</sup>	<b>Dissemination level</b> <sup>16</sup>	<b>Due Date (in months)</b> <sup>17</sup>
D1.1	Summary report on project progress (month 3)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	3
D1.2	Data Management Plan	WP1	1 - MET OFFICE	Report	Public	6
D1.3	Summary report on project progress (month 9)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	9
D1.4	Summary report on project progress (month 15)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	15
D1.5	Summary report on project progress (month 21)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	21
D1.6	Summary report on project progress (month 27)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	27
D1.7	Summary report on project progress (month 33)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	33
D1.8	Summary report on project progress (month 39)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	39
D1.9	Summary report on project progress (month 45)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the	45

<b>Deliverable Number</b> <sup>14</sup>	<b>Deliverable Title</b>	<b>WP number</b> <sup>9</sup>	<b>Lead beneficiary</b>	<b>Type</b> <sup>15</sup>	<b>Dissemination level</b> <sup>16</sup>	<b>Due Date (in months)</b> <sup>17</sup>
					Commission Services)	
D1.10	Summary report on project progress (month 51)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	51
D1.11	Summary report on project progress (month 57)	WP1	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	57
D2.1	Initial list of organisations in the network and the international forums to be used to ensure network is active	WP2	2 - ANR	Report	Public	9
D2.2	The status of the network and effectiveness of integration and coordination, and future plans for the network	WP2	1 - MET OFFICE	Report	Public	30
D2.3	Potential future sustainability and improvement of the network	WP2	1 - MET OFFICE	Report	Public	54
D3.1	Report on European Earth system modelling for climate services	WP3	11 - SMHI	Report	Public	15
D3.2	Progress on the integration of climate services and Earth system modelling	WP3	3 - BSC	Report	Public	35
D3.3	Matching new demands of climate services with evolving Earth system modelling and prediction capabilities	WP3	5 - IC	Report	Public	55
D4.1	Integration of Earth system modelling and climate services	WP4	3 - BSC	Report	Public	12

<b>Deliverable Number</b> <sup>14</sup>	<b>Deliverable Title</b>	<b>WP number</b> <sup>9</sup>	<b>Lead beneficiary</b>	<b>Type</b> <sup>15</sup>	<b>Dissemination level</b> <sup>16</sup>	<b>Due Date (in months)</b> <sup>17</sup>
D4.2	Lessons and practice of co-developing climate services with users	WP4	7 - HZG	Report	Public	24
D4.3	Research needs and European funding landscape	WP4	1 - MET OFFICE	Report	Public	36
D4.4	Recommendations on research needs	WP4	8 - CNRS	Report	Public	50
D5.1	First festival held	WP5	7 - HZG	Other	Public	12
D5.2	Second festival held	WP5	7 - HZG	Other	Public	36
D5.3	Third festival held	WP5	7 - HZG	Other	Public	60
D6.1	Website and Internet Communication Platform	WP6	4 - CMCC	Websites, patents filling, etc.	Public	4
D6.2	Updated dissemination and exploitation plan	WP6	9 - KNMI	Report	Confidential, only for members of the consortium (including the Commission Services)	6
D6.3	Policy briefings and fact sheets (month 12)	WP6	4 - CMCC	Report	Public	12
D6.4	Scientific review papers (month 12)	WP6	9 - KNMI	Report	Public	12
D6.5	State of European Earth-system modelling and Climate Services publication series releases (month 20)	WP6	11 - SMHI	Report	Public	20
D6.6	Policy briefings and fact sheets (month 30)	WP6	4 - CMCC	Report	Public	30
D6.7	Scientific review papers (month 30)	WP6	9 - KNMI	Report	Public	30
D6.8	State of European Earth-system modelling and Climate Services publication series releases (month 40)	WP6	11 - SMHI	Report	Public	40
D6.9	Policy briefings and fact sheets (month 60)	WP6	4 - CMCC	Report	Public	60

<b>Deliverable Number</b> <sup>14</sup>	<b>Deliverable Title</b>	<b>WP number</b> <sup>9</sup>	<b>Lead beneficiary</b>	<b>Type</b> <sup>15</sup>	<b>Dissemination level</b> <sup>16</sup>	<b>Due Date (in months)</b> <sup>17</sup>
D6.10	Scientific review papers (month 60)	WP6	9 - KNMI	Report	Public	60
D6.11	State of European Earth-system modelling and Climate Services publication series releases (month 60)	WP6	11 - SMHI	Report	Public	60

### 1.3.3. WT3 Work package descriptions

<b>Work package number</b> <sup>9</sup>	WP1	<b>Lead beneficiary</b> <sup>10</sup>	1 - MET OFFICE
<b>Work package title</b>	Project Management		
<b>Start month</b>	1	<b>End month</b>	60

#### Objectives

1. Undertake project management and coordination to enable objectives, deliverables and impacts to be effectively and efficiently achieved on time and within the resources budgeted
2. Establish and maintain an effective interaction and communication with the European Commission, including regular reporting on progress
3. Coordinate and facilitate relationships, collaboration and coordination between partners within ECOMS2, including sharing of information associated with project management
4. Facilitate efficient running of groups, such as Expert groups, Stakeholder group and Editorial teams

#### Description of work and role of partners

##### **WP1 - Project Management** [Months: 1-60]

##### **MET OFFICE**

This work package is led by Met Office.

The management of ECOMS2 is described in detail in Section 3.2, and summarised below through the following tasks.

##### T1.1 [M1-M60] Project Management and Coordination (Lead: Met Office)

Manage the project using effective management procedures based on PRINCE2 (Projects IN Controlled Environments) formal project management methodology. These will primarily be the responsibility of the Met Office. Managing the project includes the following (non exhaustive) activities:

- (i) Implementation and maintenance of the Grant Agreement and the preceding Consortium Agreement. The Consortium Agreement will layout the rules for participation of the partners, including agreement of ownership and access to knowledge and results (i.e., Intellectual Property Rights), the processes for making decisions, and also for resolving disputes;
- (ii) Overall legal, financial, administrative management and reporting; and
- (iii) Appropriate management of gender aspects (MS1), ethics issues (MS10), disputes/complaints and risks/issues/benefits on behalf of the General Assembly of partners.

The following coordination activities are the responsibility of the Coordinator to reinforce coordination at both strategic and technical level:

- (i) Ensuring all reports and deliverables for the European Commission are prepared, delivered on time and are of high quality;
- (ii) Controlling the overall consistency between the progress and achievements of the CSA, and compliance with the work plan and the Action's objectives;
- (iii) Monitoring and controlling the overall consistency and synthesis between the WPs' activities and outcomes – including avoiding duplication of effort and identifying any gaps in activity; and
- (iv) Endorsement of recommendations from the CSA and decisions made.

##### T1.2 [M1-M60] Liaising with, and reporting to, the European Commission (Lead: Met Office)

Maintain regular and comprehensive contact with the European Commission in Brussels. This will be partially fulfilled through the provision of regular summary reports outlining progress (D1.1). The Coordinator will be the interface between ECOMS2 and the European Commission, and will ensure that the appropriate project obligations from the Grant Agreement are carried out. The Coordinator will inform the European Commission of any significant project achievements and also any deviations from plans, and also invite the European Commission to major project-organised meetings/workshops including the festivals.

##### T1.3 [M1-M60] High level engagement with policy and decision makers (Lead: Met Office)

The coordinator will engage with policy and decision makers to communicate the impact and significance of the ECOMS2 network and reports (for example, through participation in decision making bodies, such as advisory boards and panels, executive and steering committees). The coordinator will use output from WP6 which will be specifically

written for this audience, with the aim of strengthening the science-policy interface. This will ensure that ECOMS2 remains well aligned with European and national requirements throughout the lifetime of the Horizon 2020.

**T1.4 [M1-M60] Facilitation of internal communication (Lead: Met Office)**

Sharing knowledge and information across the project partners. The project office will ensure optimal internal information exchange through regular and routine communications. Building upon the experience of the partners in a number of FP7 and Horizon 2020 projects, the Project Office will provide and manage an information sharing platform in the form of a dedicated internal project website/wiki (MS2). This will host templates, documents and tools that the project office will develop to aid management and reporting, along with contractual documents and consortium documents, calendars of future meetings. There will be space for each partner and work package in order to encourage continual conversations, dialogue and knowledge exchange amongst the partners. The wiki will host a continually updated table detailing all the dissemination activities and publications resulting from the Action. Keeping this table up to date will be the responsibility of the project office. This task will also ensure the implementation and maintenance of mailing lists for partners.

**T1.5 [M1-M60] Knowledge and innovation management (Lead: Met Office)**

This task is linked with WP2, 3, 4, 5, and 6. However, it is the responsibility of the Coordinator through this task, to take the overview and ownership of the strategies and processes around exploitation, knowledge and innovation management within this Action.

A knowledge management strategy will be kept up to date and the Coordinator will ensure that the associated protocols are adhered to. One of the specific knowledge management activities carried out under this task is the review of the project’s dissemination materials to ensure quality and adherence to European Commission guidelines.

A simple Data Management Plan (DMP) will be produced and implemented, in coordination with WP6 (D1.2). It will be drafted in compliance with the guidelines given on data management in Horizon 2020 by the European Commission. The strategy and implementation of the DMP will be continually reviewed. The DMP will be aligned to the Dissemination and Exploitation Plan (written and managed through WP6). This task will also oversee the participation in the Open Research Data Pilot, including ensuring that peer-reviewed publications will be accessed through an Open Access mechanism.

This task will oversee effective innovation management for this Action. This links strongly with WP6 in ensuring that innovative products are created and innovative communication mechanisms are used to disseminate them.

**T1.6 [M1-M60] Provide secretariat function in supporting the Expert groups, Stakeholder Group and Editorial Teams (Lead: Met Office)**

The Project Office will provide a secretariat function for the Expert Groups, the Stakeholder Group and Editorial Teams and support partners where possible. This task will ensure the implementation and maintenance of mailing lists for partners, the expert groups and stakeholders.

**Participation per Partner**

Partner number and short name	WP1 effort
1 - MET OFFICE	25.00
<b>Total</b>	25.00

**List of deliverables**

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D1.1	Summary report on project progress (month 3)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	3

List of deliverables

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D1.2	Data Management Plan	1 - MET OFFICE	Report	Public	6
D1.3	Summary report on project progress (month 9)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	9
D1.4	Summary report on project progress (month 15)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	15
D1.5	Summary report on project progress (month 21)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	21
D1.6	Summary report on project progress (month 27)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	27
D1.7	Summary report on project progress (month 33)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	33
D1.8	Summary report on project progress (month 39)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	39
D1.9	Summary report on project progress (month 45)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	45
D1.10	Summary report on project progress (month 51)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the	51

List of deliverables

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
				Commission Services)	
D1.11	Summary report on project progress (month 57)	1 - MET OFFICE	Report	Confidential, only for members of the consortium (including the Commission Services)	57

Description of deliverables

D1.1 : Summary report on project progress (month 3) [3]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 3) [Task 1.2]. Participants: all

D1.2 : Data Management Plan [6]  
 ECOMS2 has chosen to participate in the Horizon 2020 Open Data Research Pilot. Therefore a Data Management Plan will be written [Task 1.5]. Participants: all

D1.3 : Summary report on project progress (month 9) [9]  
 A one page summary report will be provided to the European Commission every six months (month 9) [Task 1.2]. Participants: all

D1.4 : Summary report on project progress (month 15) [15]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 15) [Task 1.2]. Participants: all

D1.5 : Summary report on project progress (month 21) [21]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 21) [Task 1.2]. Participants: all

D1.6 : Summary report on project progress (month 27) [27]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 27) [Task 1.2]. Participants: all

D1.7 : Summary report on project progress (month 33) [33]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 33) [Task 1.2]. Participants: all

D1.8 : Summary report on project progress (month 39) [39]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 39) [Task 1.2]. Participants: all

D1.9 : Summary report on project progress (month 45) [45]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 45) [Task 1.2]. Participants: all

D1.10 : Summary report on project progress (month 51) [51]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 51) [Task 1.2]. Participants: all

D1.11 : Summary report on project progress (month 57) [57]  
 A one page summary report will be provided to the European Commission every six months, starting at month 3 (month 57) [Task 1.2]. Participants: all

Schedule of relevant Milestones

Milestone number <sup>18</sup>	Milestone title	Lead beneficiary	Due Date (in months)	Means of verification
MS1	Gender Action Plan	1 - MET OFFICE	3	A Gender Action Plan will be produced which will detail measures and actions to contribute to meeting the Horizon 2020 gender balance objectives. The plan will be written and agreed by the partners [Task 1.1]
MS2	Design and implement internal communication platform and tools	1 - MET OFFICE	3	An internal project communication platform will support collaboration and communication between project partners. This information platform will be available for use by Month 3 [Task 1.4]
MS10	Description of process and procedures for treatment of personal data	1 - MET OFFICE	2	Procedures will be implemented for the collection, storage, protection, access, retention and destruction of any personal data. These procedures will be developed and documented through this milestone report [Task 1.1]

<b>Work package number</b> <sup>9</sup>	WP2	<b>Lead beneficiary</b> <sup>10</sup>	1 - MET OFFICE
<b>Work package title</b>	Create and manage the network		
<b>Start month</b>	1	<b>End month</b>	60

**Objectives**

1. Create a network, and ensure it evolves, to integrate and coordinate on-going and future research and innovation activities in the fields of Earth-system modelling and climate services within the EU and beyond
2. Provide forums to ensure the network is active and effective

**Description of work and role of partners**

**WP2 - Create and manage the network** [Months: 1-60]  
**MET OFFICE**, ANR, BSC, CMCC, IC, ECMWF, HZG, CNRS, KNMI  
 This work package is led by Met Office (lead) and ANR (co-lead).

WP2 will define and establish a coordination mechanism for on-going and future research and innovation activities in the fields of Earth-system modelling and climate services within the EU and beyond, including relevant existing networks. Non-research activities will also be taken into account. This will create an active community of users, providers and intermediaries throughout the duration of Horizon 2020, and will assist implementation of the Climate Services Roadmap recently launched at the European Commission.

The coordination mechanism will be created by (i) identifying, as an on-going activity, the relevant parties and establish a clear point of contact for each one; (ii) identifying and designing suitable forums where the relevant parties will network; (iii) facilitate the networking for better alignment and synergy (including through the other WPs).

This network will also coordinate, create synergies between, and better align EU initiatives (see Task 2.1 below) and nationally funded climate research and innovation actions. The network will connect the various actors around common areas of interest and action, and provide a forum to enable development of joint projects and programmes, develop international forward looking analyses on emerging needs and increase the overall attractiveness and competitiveness of the European Research Area (see Task 2.2 below).

This network will ensure the other WPs are able to access the relevant initiatives, organisations and individuals to maximise the overall impact of the European research and innovation and to increase awareness and effective use of climate science and knowledge.

**T2.1 [M1-M60] Create, manage and develop the network** (Lead: Met Office, Participants: All in WP)  
 The network will include, as far as is practically possible, on-going and future European climate modelling, climate observations and climate service infrastructure initiatives, and will engage beyond Europe. An initial list of organisations, initiatives and individuals will be created at the start of the CSA (MS3) and will constantly evolve. For each organisation and initiative, a key individual will be identified and contacted. The initial list will be consistent with the activities listed in Section 1.3. The network will also identify policy makers, businesses, industry, professional federations and funding bodies through existing contacts, and through contacts as the network evolves (D2.1). The network will be managed through specific activities detailed in WPs3-6, and those activities will also lead to an updating of the network through additional organisations, initiatives and individuals. Reports on the effectiveness of the network (D2.2) and on recommendations for the network in the future (D2.3) will also be made openly available.

**T2.2 [M1-M60] Develop international forums to ensure the network is active, attractive and effective** (Lead: ANR, Participants: All in WP)  
 Suitable forums, i.e. meetings and medium for the network to exchange ideas on particular issues, will be identified to ensure that the network is active and effective (D2.1 and MS6). Particular attention will be paid to developing suitable international forums for funders. The forums need to be designed to attract the actors identified in Task 2.1 and to bring them together effectively to ensure ECOMS2’s objectives are met. Most of the forums will be interactive, to ensure high levels of involvement and interest, and some will be more passive where appropriate.

A range of forums have already been identified as essential to the success of the CSA and have dedicated tasks and WPs, particularly the Expert groups, Stakeholder group, Festivals, interactive elements of the web-site, social media and workshops (see Table 1). WPs 5 and 6 will play particularly important roles to ensure the forums are effective. The forums in WPs 5 and 6 will be of great use in identifying ideas for improving these forums or developing new ones (D2.2 and D2.3). For example, for research funders, the forums will facilitate links between the networks of research funders of key European initiatives (such as C3S; Climate-KIC; the Joint Programming Initiatives (JPIs) for Water,

Urban, Oceans, and Climate (including the JPI Climate’s 2015 ERAnet for Climate Services) and Agriculture, Food Security and Climate Change) or international initiatives (such as GFCS, Future Earth, Belmont Forum). It will be done in close cooperation with the High Level Group on Joint Programming (GPC), the DG R&I “Climate action and resource efficiency” and the European Strategic Forum for International Cooperation (SFIC), to engage MS and EC together. The learning from the forums will be of use to all of the existing networks involved, such as the JPIs.

**Participation per Partner**

Partner number and short name	WP2 effort
1 - MET OFFICE	10.00
2 - ANR	26.00
3 - BSC	6.00
4 - CMCC	2.00
5 - IC	5.00
6 - ECMWF	1.00
7 - HZG	3.00
8 - CNRS	3.00
9 - KNMI	3.00
<b>Total</b>	<b>59.00</b>

**List of deliverables**

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D2.1	Initial list of organisations in the network and the international forums to be used to ensure network is active	2 - ANR	Report	Public	9
D2.2	The status of the network and effectiveness of integration and coordination, and future plans for the network	1 - MET OFFICE	Report	Public	30
D2.3	Potential future sustainability and improvement of the network	1 - MET OFFICE	Report	Public	54

**Description of deliverables**

D2.1 : Initial list of organisations in the network and the international forums to be used to ensure network is active  
[9]

Report documenting the initial list of organisations in the network, the international forums to be used to ensure the network is active, and the composition of the Stakeholder Group [Tasks 2.1 and 2.2]. Participants: all

D2.2 : The status of the network and effectiveness of integration and coordination, and future plans for the network [30]

A report will be produced on the status of the network and effectiveness of integration and coordination and future plans for the network [Tasks 2.1 and Tasks 2.2]. Participants: all

D2.3 : Potential future sustainability and improvement of the network [54]

Report on the potential future sustainability and improvement of the network, including recommendations for the network and the development of new forums [Task 2.1 and Task 2.2]. Participants: all

### Schedule of relevant Milestones

Milestone number <sup>18</sup>	Milestone title	Lead beneficiary	Due Date (in months)	Means of verification
MS3	Identification of the relevant parties to be involved in the network	1 - MET OFFICE	6	An initial list of organisations, initiatives and individuals will be created. General Assembly to approve list of parties [Task 2.1]
MS6	Identification of suitable forums for networking	2 - ANR	12	Suitable forums (for example, meetings and medium for the network to exchange ideas) will be identified. General Assembly to approve the planned forums [Task 2.2]

<b>Work package number</b> <sup>9</sup>	WP3	<b>Lead beneficiary</b> <sup>10</sup>	11 - SMHI
<b>Work package title</b>	Mapping and analysis of current Earth system modelling and climate service activities		
<b>Start month</b>	1	<b>End month</b>	55

**Objectives**

1. Establish procedures for creating reports on the state of Earth system modelling and climate service provision in Europe, involving expertise from Earth-system modelling, climate services and stakeholders
2. Create the content of the reports, collect feedback from all involved and write the reports

**Description of work and role of partners**

**WP3 - Mapping and analysis of current Earth system modelling and climate service activities** [Months: 1-55]  
**SMHI, MET OFFICE, BSC, CMCC, IC, ECMWF, HZG, CNRS, KNMI, RHMSS**  
 This work package is led by SMHI (lead) and BSC (co-lead).

WP3 will map, assess and analyse the state-of-the-art of European Earth system modelling for climate services and produce reports, which will form the base for forward-looking recommendations (in WP4). The WP3 reports will be of use for climate scientists, climate service developers, and a range of policy- and decision-makers. Summaries of the reports will be created targeting those different audiences. Tailor-made dissemination and editing of the reports (in WP6) will lead to an improved understanding of the current activities in Europe with the potential to foster new interactions (in WP4) between provider and users and promote the identification of new spaces for co-development and innovation. WP4 makes use of the potential with involvement of expert groups, who will feed back to WP3, and WPs 3 and 4 will be closely connected. The reports will also form the basis to identify the most relevant topics that will inspire the climate festivals (WP5).

ECOMS2 will contribute to the "European Research and Innovation Roadmap on Climate Services". The mapping in WP3 will explore the scientific foundation and definition of an envisaged market framework from the supply side. It will also identify gaps in the Roadmap that could foster the development of such a market framework.

**Tasks T3.1 [M1-M10] Quality procedure for mapping and analysis (Lead: BSC, Participants: IC, HZG, SMHI)**  
 A robust procedure will be created for mapping the European landscape of Earth-system modelling and climate services, and for creating the reports in Task 3.2 (MS4). A network of key experts from Earth system modelling and climate services institutions, as well as users' perspectives will be involved, identified in WP2. The analysis will use a wide range of particular sources including existing initiatives and projects, publications, interviews, stakeholder conferences and expert assessment.

The analysis will utilise the relevant initiatives in Earth-system modelling and climate service research, including contact points. The different initiatives will be categorised and appropriate communication channels will be established for each category. The information will be gathered by partner experts either involved in science or programming initiatives, or participating in the network activities in WP2. The added value compared to existing initiatives under FP7 and JPI-Climate is the overarching perspective covering a diverse range of climate-related research and innovation activities, thereby addressing a perceived lack of coordination between the specific activities. The "European Research and Innovation Roadmap on Climate Services" will be used as guideline, with the additional aim of identifying aspects not yet considered in the Roadmap that can help create a European climate services market.

**T3.2 [M7-M55] Mapping and analysis (Lead: SMHI, Participants: All in WP)**  
 Based on the procedure established in Task 3.1, reports will be created at months 15, 35 and 55. Expert contributors will be used. Qualified editing will be carried out by the WP partners, and a team of scientists and stakeholders will review the reports.

The reports will be print-ready integrated sources of information for Earth-system modelling and climate service professionals. The information will be disseminated to stakeholder and user audiences by WP6, which also provides an executive summary. Information gathered will be made regularly available through the ECOMS2 dissemination portal (WP6), often before the reports are finalised. Both the reports and the interim information will be offered in the context of the "European Research and Innovation Roadmap on Climate Services" and will make clear what is new with respect to other mapping exercises, such as the one carried out by the JPI-Climate.

The first report (D3.1) will focus on the state of the art of European Earth System modelling (ESM), which forms a key foundation of climate services. The ESMs' ability to perform long-term climate projections, and seasonal-to-decadal scale predictions will be scrutinized in relation to the complexity of model configurations, uncertainties and

opportunities for climate services. Stakeholder-oriented application often requires regionalization of the global climate change signal. Therefore the report will review the state of downscaling efforts in the CORDEX community. Further refinement techniques such as bias correction and selection techniques for all the type of data sources considered will be reviewed. The state of the art of the rising European climate services research and its links to the climate adaptation community will also be mapped. Currently, sector-oriented products based on climate modelling output are distributed by scattered providers before they can be bundled as European services. These products need to be mapped to fully understand the complete chain from ESM research to user-oriented services. A special focus needs to be given to the interfaces and liaisons between different products and providers, which constitute a network.

The second report (D3.2) will update the first report and provide progress on the integration of climate services and Earth-system modelling. As CMIP6 will be in a mature phase, the report will also cover opportunities in ESM applications during CMIP6, regionalization and evolving links to climate services, including a survey of marketable products as well as selection of success stories. The report will also review the process of bundling climate service products from a stakeholder perspective. As far as possible the focus will be on the identifications of the "unknown knowns" which are the subset of our Earth system knowledge that can be relevant to the users and that has not yet been identified. This will include a validation of the evolving landscape with an emphasis on usability, coordination of dissemination methods, and missing features. The status of balancing advancing user expectations with ESMs, downscaling capabilities and uncertainties will be described. The report will summarize lessons learned from the on-going convergence in climate services to serve recommendations to be issued by WP4, and dissemination to various sectors in WP6.

The third report (D3.3) will review progress compared to the second report and, in addition, assess the impact of forward-looking recommendations during the ECOMS2 project. The use of the key scientific projects CMIP6 and CORDEX for climate services will be evaluated, and the results of multi-model operational seasonal-to-decadal forecast systems will be critically analysed with respect to results and usability. Experiences with evolving climate services during the first four years of the project will need to feed back to the ESM and climate prediction community. By mapping this essential feedback, and by directly involving stakeholders, the stakeholder perspective in the report for innovation is crucially strengthened.

T3.3 [M1-M55] Interaction with outreach work packages (Lead: IC, Participants: BSC, CMCC, HZG, KNMI, SMHI)  
 The reports feed into and interact with the forward-looking recommendations (WP4), network communication festivals (WP5) and dissemination activities (WP6). The recommendations and festivals receive "ground truth" information from the reports. WP6 exploits the reports with the aim of extracting the most relevant parts of the reports for dissemination. This task will also provide a flow of current information to the outreach WPs as soon as available, e.g. in between the formal reports. This will ensure the project web site contains the latest information identified, making the project web site a live portal of network information in tune with what is being discovered for the next due reports.

**Participation per Partner**

Partner number and short name	WP3 effort
1 - MET OFFICE	6.00
3 - BSC	15.00
4 - CMCC	4.00
5 - IC	5.00
6 - ECMWF	1.00
7 - HZG	3.00
8 - CNRS	3.00
9 - KNMI	3.00
10 - RHMSS	5.00
11 - SMHI	14.00
<b>Total</b>	<b>59.00</b>

**List of deliverables**

<b>Deliverable Number</b> <sup>14</sup>	<b>Deliverable Title</b>	<b>Lead beneficiary</b>	<b>Type</b> <sup>15</sup>	<b>Dissemination level</b> <sup>16</sup>	<b>Due Date (in months)</b> <sup>17</sup>
D3.1	Report on European Earth system modelling for climate services	11 - SMHI	Report	Public	15
D3.2	Progress on the integration of climate services and Earth system modelling	3 - BSC	Report	Public	35
D3.3	Matching new demands of climate services with evolving Earth system modelling and prediction capabilities	5 - IC	Report	Public	55

**Description of deliverables**

D3.1 : Report on European Earth system modelling for climate services [15]

This first report of the work package will focus on the state of the art of European Earth-system modelling, which forms a key foundation of climate services [Tasks, 3.1, 3.2 and 3.3]. Participants: SMHI, Met Office, BSC, HZG, CNRS, KNMI

D3.2 : Progress on the integration of climate services and Earth system modelling [35]

This second report of the work package will update the first report and provide progress on the integration of climate services and Earth-system modelling [Tasks, 3.1, 3.2 and 3.3]. Participants: BSC, CMCC, IC, ECMWF, HZG, KNMI, SMHI

D3.3 : Matching new demands of climate services with evolving Earth system modelling and prediction capabilities [55]

This third report of the work package will review progress compared to the second report and, in addition, assess the impact of forward-looking recommendations during the ECOMS2 project [Tasks 3.1, 3.2 and 3.3]. Participants: IC, BSC, KNMI, RHMSS, SMHI

**Schedule of relevant Milestones**

<b>Milestone number</b> <sup>18</sup>	<b>Milestone title</b>	<b>Lead beneficiary</b>	<b>Due Date (in months)</b>	<b>Means of verification</b>
MS4	Procedure for quality reports ready	3 - BSC	10	A robust procedure will be created for creating mapping and analysis reports of the state-of-the-art of European Earth system modelling for climate services. Reports will be approved by General Assembly [Task 3.1]

<b>Work package number</b> <sup>9</sup>	WP4	<b>Lead beneficiary</b> <sup>10</sup>	8 - CNRS
<b>Work package title</b>	Forward-looking recommendations		
<b>Start month</b>	1	<b>End month</b>	55

**Objectives**

1. Assess new challenges and determine emerging needs relating to Earth system modelling and climate services, through the use of expert groups
2. Provide recommendations to the European Commission on future research and innovation priorities for Earth system modelling and climate services

**Description of work and role of partners**

**WP4 - Forward-looking recommendations** [Months: 1-55]  
**CNRS, MET OFFICE, BSC, CMCC, IC, HZG, RHMSS, SMHI**  
 This work package is led by CNRS (lead) and RHMSS (co-lead).

The WP will assess new challenges and determine emerging needs related to Earth system modelling and climate services, with a focus on Europe. The assessment will be conducted through multi-disciplinary expert groups and will use the networks created in WP2, the analysis conducted in WP3 and outcomes from the festivals. Where appropriate, the expert groups will involve end users and stakeholders. In order to secure sustained engagement of the large number of stakeholders, WP4 will rely on the network created in WP2 and the measures addressed in T6.4 by establishing cooperation and communication with identified stakeholders, including national stakeholders, and where appropriate will involve stakeholders in expert groups. WP4 will provide recommendations for future research (for example for investment under future Framework Programmes) required to fill gaps and improve the quality of climate services. It will address both research and infrastructures aspects.

Expert groups will address challenging issues and emerging needs. Expert groups will draw on the knowledge and expertise from the network created in WP2, and will be informed by WP3, the European Commission, stakeholders and users. Additional topics may also be identified during the course of the CSA.

The output of this WP will be communicated through events such as the festivals developed in WP5, reports produced by WP6, and feed back to WP3 to inform further analyses therein.

**T4.1 [M1-M36] Assess new challenges and emerging needs for Earth system modelling and climate services (Lead: RHMSS, Participants: All in WP)**  
 Expert groups will be created (drawing on expertise from ECOMS2 and other experts from the network developed in WP2 if needed). The expert groups will use information from the ECOMS2 network and from the analysis in WP3. Each expert group will produce a report that will be disseminated through WP5 and WP6. Each year will be dedicated to the production of one expert group report (D4.1, D4.2 and D4.3), each led and co-led by different participating partners. Expert groups will address in priority the following issues:

- (i) Integration between Earth system modelling and climate services, emphasizing research needs, infrastructure issues such as exchange of data beyond the research community, identification of unknown-knowns, how to enhance data usage (D4.1)
- (ii) Co-development of climate services with users, sharing experience, dealing on how to foster co-development, developing standards for user engagement and effective communication of science to stakeholders, policy-makers and users (D4.2)
- (iii) Improving the global vision of who does what in Europe on Earth system modelling and climate services based on the WP2 network and mapping of WP3 (D4.3)

**T4.2 (M35-50) Recommendations on future research needs in Earth system modelling and climate services (Lead: CNRS, Participants: All in WP)**  
 Drawing on the output from WP3, expert groups reports (Task 4.1), as well as discussions from festivals, an expert group will be convened to produce recommendations for addressing the challenges and emerging needs for Earth system modelling and climate services. A scoping workshop (MS8) involving experts from the network and Principle Investigators from relevant Horizon 2020 projects will provide a consultation on research needs and provide a first version of the D4.4. Outcome from Task 4.2 will be further discussed with the scientific community through an open forum.

**Participation per Partner**

Partner number and short name	WP4 effort
1 - MET OFFICE	6.00
3 - BSC	6.00
4 - CMCC	2.00
5 - IC	3.00
7 - HZG	3.00
8 - CNRS	15.00
10 - RHMSS	6.00
11 - SMHI	3.00
<b>Total</b>	<b>44.00</b>

**List of deliverables**

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D4.1	Integration of Earth system modelling and climate services	3 - BSC	Report	Public	12
D4.2	Lessons and practice of co-developing climate services with users	7 - HZG	Report	Public	24
D4.3	Research needs and European funding landscape	1 - MET OFFICE	Report	Public	36
D4.4	Recommendations on research needs	8 - CNRS	Report	Public	50

**Description of deliverables**

D4.1 : Integration of Earth system modelling and climate services [12]

Report on the integration between Earth-system modelling and climate services, produced by an expert group formed in WP4 and drawing on knowledge and expertise from the network, and informed by WP3. This report will emphasize research needs, infrastructure issues such as exchange of data beyond the research community, identification of 'unknown-knowns', and how to exchange data usage [Task 4.1]. Participants: BSC, RHMSS (co-lead) and all other work package partners

D4.2 : Lessons and practice of co-developing climate services with users [24]

Report produced by an expert group on the co-development of climate services with users, sharing experiences, dealing with how to foster co-development, developing standards for user engagement and effective communication of science to stakeholders, policy-makers and users [Task 4.1]. Participants: HZG, co-lead RHMSS, Met Office, IC

D4.3 : Research needs and European funding landscape [36]

Report by expert group on improving the global vision of who does what in Europe on Earth-system modelling and climate services based on the WP2 network and mapping of WP3 [Task 4.1]. Participants: all in work package

D4.4 : Recommendations on research needs [50]

Report by expert group on recommendations on future research needs will draw upon the output of WP3, the other reports from this work package, as well as discussions from the Festivals [Task 4.2]. Participants: CNRS, co-lead Met Office, and all other work package partners

**Schedule of relevant Milestones**

<b>Milestone number <sup>18</sup></b>	<b>Milestone title</b>	<b>Lead beneficiary</b>	<b>Due Date (in months)</b>	<b>Means of verification</b>
MS8	Scoping workshop to assess research needs on Earth-system modelling and climate services	8 - CNRS	38	Workshop to be held involving experts from the network and Principal Investigators from relevant H2020 projects. Successful outcomes will enable recommendations to be made on future research needs [Task 4.2]

<b>Work package number</b> <sup>9</sup>	WP5	<b>Lead beneficiary</b> <sup>10</sup>	7 - HZG
<b>Work package title</b>	Festivals		
<b>Start month</b>	1	<b>End month</b>	60

**Objectives**

WP5 will organise Festivals to:

1. Enable exchange of knowledge among the network (including users, providers, intermediaries, funders) through showcases of European climate services and Earth System modelling
2. Provide results from mapping and forward looking analyses developed in WP3 and WP4 to a larger audience
3. Strengthen science-policy and science-use interface

**Description of work and role of partners**

**WP5 - Festivals** [Months: 1-60]  
**HZG, MET OFFICE, CMCC, IC**  
 This work package is led by HZG (lead) and IC (co-lead).

This WP organises and delivers three festivals to showcase climate services and Earth System modelling within Europe, to reflect on existing gaps in those fields and to strengthen the science-policy and science-user interfaces to support the uptake of science-based services. The festivals will be an opportunity for climate service providers (including climate researchers, data re-users and data providers), users, intermediaries and funders in the EU and elsewhere to display best in class outcomes and engage in world class networking. As described in Section 2.2, the festivals are a key platform for communication and dissemination within ECOMS2.

**T5.1 [M1-M59] Planning the festivals** (Lead: HZG, Participants: All in WP)  
 Three festivals will be held during the project, in years 1, 3 and 5, each lasting 2-5 days (D5.1, 5.2, 5.3). Planning these will include identifying the key target audiences, the desired outcomes and measures of success for the festivals, choosing suitable locations, options for remote participation and designing an innovative, useful and engaging programme of festival workshops, presentations and other activities. Planning documents will be produced ahead of each festival to assist with this (MS5, MS7 and MS9). MS7 and MS9 will include lessons learned from previous festivals. The potential participants will include all of those in the network developed through WP2, for example the wider scientific community (natural sciences, social sciences and humanities), all other users, providers of climate services and Earth system modelling and funding bodies. While many of the participants will be European representatives, international organisations will be represented in the ECOMS2 network, and the intention is to attract relevant users and providers from around the world.

WP5 will ensure that the mapping activities in WP3 are used as guidelines for festival participants. A carefully developed stakeholder analysis, building on existing surveys and activities, will provide a list of key participants who should attend the festivals. The festivals need to be sufficiently large to attract and be representative of key stakeholders, and should still be able to allow efficient networking. It is anticipated that the festivals will grow in size through the project, with the first one attended by up to 100 participants and the final one by 200-300 participants. The Festivals could be structured in a flexible/rotational way, with participants varying according to the relevance of sessions on a particular day. There will be sessions on the use of climate services in the public and private sectors. Some sessions will be of general interest and some will be targeted (for example to gather key sectors together), therefore making them very applicable and attractive to different users and decision-makers. The Festival will encompass best practice and lessons learned from other successful meetings (e.g. Annual Meeting of the World Economic Forum in Davos, Switzerland) and will be of high quality. There will be a mixture of open and closed sessions, networking will be a key outcome of the festivals and will be actively facilitated. This is also true of remote participation, and technological solutions such as online streaming so that they are available to a wide audience will be used.

The festivals will be held within Europe and the location will need to have suitable facilities, be readily accessible and value for money, amongst other considerations. The location will be carefully chosen by the General Assembly.

**T5.2 [M12-M60] Successfully hold the festivals** (Lead: HZG, Participants: All in WP)  
 The festivals will be delivered professionally through HZG who will take primary responsibility for them, along with a team of professional moderators and advisors with expertise to ensure that the key aims of the festival are achieved. These will be based around the following statements.  
 The festivals will:

- demonstrate the progress of European climate service and Earth System modelling, building on the network, mapping and outreach activities in other WPs
  - offer two-way engagement to delineate the contents of the ECOMS2 reports and to present findings
  - support the uptake of services by decision and policy makers in a range of sectors, in order to improve society's resilience to climate change and to mitigate the risk of dangerous climate change
  - actively facilitate interaction between suppliers, users and funders of climate services
  - publicise the outcomes of the WP4 expert groups and the outcomes of the forward look analysis
  - develop the capabilities of participants through knowledge transfer
- The presentations, recordings and all other material from the Festivals will be made available through the project website.

T5.3 [M13-M60] Gathering Feedback (Lead: IC, Participants: All in WP)

Feedback on the festivals needs to be actively collected during and after the events to improve the quality of future events and ensure their usefulness. This will help the festivals to achieve an overarching aim, which is to better integrate and coordinate the on-going and future climate change research and innovation initiatives within the EU and beyond.

**Participation per Partner**

Partner number and short name	WP5 effort
1 - MET OFFICE	3.00
4 - CMCC	6.00
5 - IC	3.00
7 - HZG	15.00
<b>Total</b>	27.00

**List of deliverables**

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D5.1	First festival held	7 - HZG	Other	Public	12
D5.2	Second festival held	7 - HZG	Other	Public	36
D5.3	Third festival held	7 - HZG	Other	Public	60

**Description of deliverables**

D5.1 : First festival held [12]

The first Festival will be held within Europe [all Tasks]. Participants: all in work package

D5.2 : Second festival held [36]

Second Festival will be held with Europe, using lessons learnt from first Festival [all Tasks]. Participants: all work package partners

D5.3 : Third festival held [60]

The third Festival will be held near the end of the project and will be use lessons learnt from the first two festivals [all Tasks]. Participants: all work package partners

**Schedule of relevant Milestones**

<b>Milestone number <sup>18</sup></b>	<b>Milestone title</b>	<b>Lead beneficiary</b>	<b>Due Date (in months)</b>	<b>Means of verification</b>
MS5	Planning document for the first Festival (including structure, location, invitation list)	7 - HZG	10	A document will be produced ahead of the first festival to assist with coordination, planning and delivery of the event. Document written and approved by General Assembly [Task 5.1]
MS7	Planning document for the second Festival (including structure, location, invitation list)	7 - HZG	30	A document will be produced ahead of the second festival to assist with coordination, planning and delivery of the event. Will include lessons learned from first festival. Document written and approved by General Assembly [Task 5.1]
MS9	Planning document for the third Festival (including structure, location, invitation list)	7 - HZG	54	A document will be produced ahead of the third festival to assist with coordination, planning and delivery of the event. Will include lessons learned from first two festivals. Document written and approved by General Assembly [Task 5.1]

<b>Work package number</b> <sup>9</sup>	WP6	<b>Lead beneficiary</b> <sup>10</sup>	9 - KNMI
<b>Work package title</b>	Communication and dissemination		
<b>Start month</b>	1	<b>End month</b>	60

**Objectives**

1. To establish, facilitate and coordinate the dissemination, exploitation and communication strategies, processes and activities for ECOMS2
2. Produce widely accessible “State of European Earth-system modelling and climate services” publication series
3. Provide science-stakeholder communication channels which will strengthen the science-policy interface and ensure optimum information exchange amongst providers and users
4. Develop and maintain the ECOMS2 website and other innovative dissemination and communication methods

**Description of work and role of partners**

**WP6 - Communication and dissemination** [Months: 1-60]  
**KNMI, MET OFFICE, BSC, CMCC, IC, HZG, SMHI**  
 This work package is led by KNMI (lead) and CMCC (co-lead).

This WP will coordinate all dissemination (ensuring that the project results are available to the target audiences that are identified) and communication (providing information about, and promoting, ECOMS2 and the results to the identified audiences), consistent with Sections 2.2.1 and 2.2.2 respectively.

The collection, synthesis and sharing of information with stakeholders is at the heart of ECOMS2. Communication and dissemination methods are therefore not simply a “broadcasting service”, but information, knowledge and expertise is exchanged in all directions, and is targeted appropriately to audiences and information channels. For example: (i) the EC will be provided with aggregated information which illustrates the European playing field of Earth-system modelling and climate services; (ii) climates services, observations and Earth-system modelling research communities will be targeted with the aim of promoting cooperation and co-creation between different disciplines and institutions, and to accelerate exchange of knowledge and requirements between themselves and information users; (iii) the information users will benefit from aggregated information tailored to their various needs, access to users and providers through the ECOMS2 network and interaction through targeted events and existing professional networks. For detailed communication measures see Section 2.2.2.

**T6.1 [M1-M6] Preparation of updated Dissemination and Exploitation plans (Lead: KNMI, Participants: Met Office, CMCC)**  
 A Dissemination and Exploitation plan will be developed at the beginning of the project, and updated on an annual basis (D6.2). It will be based on the measures outlined in Section 2.2.1, and will provide detail on dissemination activities, audiences and deadlines and the exploitation strategy within ECOMS2. It will also contain a detailed plan for ECOMS2 communication measures, and will be an updated version of the information in Section 2.2.2.

**T6.2 [M1-M60] ECOMS2 website and Internet Communication Platform (Lead: CMCC, Participants: KNMI)**  
 This will be the central dissemination and communications hub for ECOMS2 (D6.1). It will be the official project platform and will host all relevant information about the project, project activities and its results. It will be for all target audiences and will enable engagement with those audiences. Project reports will be published here, and WP2 and 3 will utilise the website for collecting information that they require.  
 As part of the website there will also be an interactive internet communication platform. This will be the area through which the network and other stakeholders can interact with each other. This will be done via discussion forums, chat rooms and other methods. The website will be a dynamic and multimedia tool. Brief articles will be made available on the web site which will highlight the potential benefits of the project and which can be used to promote events such as the festivals (WP5). Intended content is listed in Section 2.2.1.  
 Website construction and design will be carried out by a specialised subcontractor. An ECOMS2 editorial board will be responsible for the content and functionality of the internet service.

**T6.3 [M1-M60] Other dissemination and communication activities (Lead: KNMI and CMCC, Participants: All partners)**  
 As indicated in the draft Dissemination and Exploitation plan, this WP will determine the most suitable methods of dissemination and communication with the appropriate target audiences (identified by WP2 and 3) and will carry out these activities. The list of activities that it is anticipated will take place are given in Section 2.2.1.a. These include policy briefings and factsheets (D6.3) and scientific review papers (D6.4) amongst much other targeted material.

**T6.4 [M1-M60] Stakeholder engagement (Lead: KNMI, Participants: All in WP)**

This task focuses on effective interaction and engagement with key stakeholders, and will ensure that two-way communication is established. Activities that have already been identified to enable this are; visits and interviews with stakeholders, gaining ECOMS2 representation on established stakeholder boards, online discussion sessions focusing on evaluation of scientific findings, development of European policy, tailoring and application of climate services, and targeted workshops where ECOMS2 results such as reports and fact sheets can be presented and reviewed.

**T6.5 [M1-M60] Editing, Production and Release of the “State of European Earth-system modelling and climate services” publication series. (Lead: SMHI, Participants: All in WP)**

This task is responsible for editing, producing and releasing the three reports produced in WP3. The final reports produced under this task will be publically and openly available. The publication series will also include edited versions of the recommendations from WP4 and insights that are available from the Festivals in WP5. Specific activities in this task will include; designing and editing of the report structure, in close cooperation with the content providers and agreement of the final versions; production of the reports, including implementation on various digital platforms; official release, dissemination and communication of the reports to all identified audiences (D6.5).

**Participation per Partner**

Partner number and short name	WP6 effort
1 - MET OFFICE	4.00
3 - BSC	3.00
4 - CMCC	20.00
5 - IC	4.00
7 - HZG	3.00
9 - KNMI	20.00
11 - SMHI	5.00
<b>Total</b>	59.00

**List of deliverables**

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary <sup>14</sup>	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D6.1	Website and Internet Communication Platform	4 - CMCC	Websites, patents filing, etc.	Public	4
D6.2	Updated dissemination and exploitation plan	9 - KNMI	Report	Confidential, only for members of the consortium (including the Commission Services)	6
D6.3	Policy briefings and fact sheets (month 12)	4 - CMCC	Report	Public	12
D6.4	Scientific review papers (month 12)	9 - KNMI	Report	Public	12

List of deliverables

Deliverable Number <sup>14</sup>	Deliverable Title	Lead beneficiary	Type <sup>15</sup>	Dissemination level <sup>16</sup>	Due Date (in months) <sup>17</sup>
D6.5	State of European Earth-system modelling and Climate Services publication series releases (month 20)	11 - SMHI	Report	Public	20
D6.6	Policy briefings and fact sheets (month 30)	4 - CMCC	Report	Public	30
D6.7	Scientific review papers (month 30)	9 - KNMI	Report	Public	30
D6.8	State of European Earth-system modelling and Climate Services publication series releases (month 40)	11 - SMHI	Report	Public	40
D6.9	Policy briefings and fact sheets (month 60)	4 - CMCC	Report	Public	60
D6.10	Scientific review papers (month 60)	9 - KNMI	Report	Public	60
D6.11	State of European Earth-system modelling and Climate Services publication series releases (month 60)	11 - SMHI	Report	Public	60

Description of deliverables

D6.1 : Website and Internet Communication Platform [4]  
 The ECOMS2 website and Internet Communication Platform will be the central dissemination and communication hub for ECOMS2 [Task 6.2]. Participants: all in work package

D6.2 : Updated dissemination and exploitation plan [6]  
 A Dissemination and Exploitation plan will be developed at the start of the project and updated on an annual basis [Task 6.1]. Participants: KNMI, Met Office, CMCC

D6.3 : Policy briefings and fact sheets (month 12) [12]  
 Policy briefings and fact sheets will be produced by months 12, 30 and 60 (month 12) [Task 6.3]. Participants: all work package partners

D6.4 : Scientific review papers (month 12) [12]  
 Scientific review papers will be produced by months 12, 30 and 60 (month 12) [Task 6.3]. Participants: all work package partners

D6.5 : State of European Earth-system modelling and Climate Services publication series releases (month 20) [20]  
 "State of European Earth-system modelling and climate services" publication series releases, planned for months 20, 40 and 60 (month 20) [Task 6.5]. Participants: all work package partners

D6.6 : Policy briefings and fact sheets (month 30) [30]

Policy briefings and fact sheets will be produced by months 12, 30 and 60 (month 30) [Task 6.3]. Participants: all work package partners

D6.7 : Scientific review papers (month 30) [30]

Scientific review papers will be produced by months 12, 30 and 60 (month 30) [Task 6.3]. Participants: all work package partners

D6.8 : State of European Earth-system modelling and Climate Services publication series releases (month 40) [40]

"State of European Earth-system modelling and climate services" publication series releases, planned for months 20, 40 and 60 (month 40) [Task 6.5]. Participants: all work package partners

D6.9 : Policy briefings and fact sheets (month 60) [60]

Policy briefings and fact sheets will be produced by months 12, 30 and 60 (month 60) [Task 6.3]. Participants: all work package partners

D6.10 : Scientific review papers (month 60) [60]

Scientific review papers will be produced by months 12, 30 and 60 (month 60) [Task 6.3]. Participants: all work package partners

D6.11 : State of European Earth-system modelling and Climate Services publication series releases (month 60) [60]

"State of European Earth-system modelling and climate services" publication series releases, planned for months 20, 40 and 60 (month 60) [Task 6.5]. Participants: all work package partners

#### Schedule of relevant Milestones

Milestone number <sup>18</sup>	Milestone title	Lead beneficiary	Due Date (in months)	Means of verification
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### 1.3.4. WT4 List of milestones

Milestone number <sup>18</sup>	Milestone title	WP number <sup>9</sup>	Lead beneficiary	Due Date (in months) <sup>17</sup>	Means of verification
MS1	Gender Action Plan	WP1	1 - MET OFFICE	3	A Gender Action Plan will be produced which will detail measures and actions to contribute to meeting the Horizon 2020 gender balance objectives. The plan will be written and agreed by the partners [Task 1.1]
MS2	Design and implement internal communication platform and tools	WP1	1 - MET OFFICE	3	An internal project communication platform will support collaboration and communication between project partners. This information platform will be available for use by Month 3 [Task 1.4]
MS3	Identification of the relevant parties to be involved in the network	WP2	1 - MET OFFICE	6	An initial list of organisations, initiatives and individuals will be created. General Assembly to approve list of parties [Task 2.1]
MS4	Procedure for quality reports ready	WP3	3 - BSC	10	A robust procedure will be created for creating mapping and analysis reports of the state-of-the-art of European Earth system modelling for climate services. Reports will be approved by General Assembly [Task 3.1]
MS5	Planning document for the first Festival (including structure, location, invitation list)	WP5	7 - HZG	10	A document will be produced ahead of the first festival to assist with coordination, planning and delivery of the event. Document written and approved by General Assembly [Task 5.1]
MS6	Identification of suitable forums for networking	WP2	2 - ANR	12	Suitable forums (for example, meetings and medium for the network to exchange ideas) will be identified. General Assembly to approve the planned forums [Task 2.2]
MS7	Planning document for the second Festival (including	WP5	7 - HZG	30	A document will be produced ahead of the second festival to assist with coordination, planning

Milestone number <sup>18</sup>	Milestone title	WP number <sup>9</sup>	Lead beneficiary	Due Date (in months) <sup>17</sup>	Means of verification
	structure, location, invitation list)				and delivery of the event. Will include lessons learned from first festival. Document written and approved by General Assembly [Task 5.1]
MS8	Scoping workshop to assess research needs on Earth-system modelling and climate services	WP4	8 - CNRS	38	Workshop to be held involving experts from the network and Principal Investigators from relevant H2020 projects. Successful outcomes will enable recommendations to be made on future research needs [Task 4.2]
MS9	Planning document for the third Festival (including structure, location, invitation list)	WP5	7 - HZG	54	A document will be produced ahead of the third festival to assist with coordination, planning and delivery of the event. Will include lessons learned from first two festivals. Document written and approved by General Assembly [Task 5.1]
MS10	Description of process and procedures for treatment of personal data	WP1	1 - MET OFFICE	2	Procedures will be implemented for the collection, storage, protection, access, retention and destruction of any personal data. These procedures will be developed and documented through this milestone report [Task 1.1]

### 1.3.5. WT5 Critical Implementation risks and mitigation actions

Risk number	Description of risk	WP Number	Proposed risk-mitigation measures
R1	Lack of effective involvement of key nations or regions in Europe	WP2	Ensure that the network created (WP2) includes appropriate representation from activities and organisations in key nations and regions. Consortium members, their networks, and the evolving ECOMS2 network will be drawn upon to ensure this is achieved
R2	Ineffective framework arising from stakeholder fatigue leading to lack of engagement	WP2, WP5, WP6	Ensure that the network is well managed (WP2) with compelling plans for stakeholder engagement activities (WP5 and WP6), and that feedback from the Festivals' participants is taken into account
R3	Individual partners are unable to complete tasks assigned by them	WP1, WP2, WP3, WP4, WP5, WP6	Regular communication within the work packages and with the Coordinator will ensure that any potential problems will be identified quickly, actions can be discussed, and tasks can be reassigned as required
R4	Insufficient engagement from key on-going and future European Earth-system modelling and climate service initiatives	WP1, WP2, WP3, WP4, WP5, WP6	Ensure the network is well managed (WP2), the mapping and analysis are actively undertaken with proactive engagement with the key initiatives (WP3), the Festivals (WP5) and other communication and dissemination activities (WP6) are designed to be sufficiently inspiring to ensure effective engagement
R5	Non-objectivity and partiality (personal, political or organisational)	WP1, WP2, WP3, WP4, WP5, WP6	Ensure open debate on issues allowing everyone to discuss issues as objectively and impartially as possible, and encouraging everyone to do so. General Assembly can discuss resolutions if needed

1.3.6. WT6 Summary of project effort in person-months

	WP1	WP2	WP3	WP4	WP5	WP6	Total Person/Months per Participant
1 - MET OFFICE	25	10	6	6	3	4	54
2 - ANR	0	26	0	0	0	0	26
3 - BSC	0	6	15	6	0	3	30
4 - CMCC	0	2	4	2	6	20	34
5 - IC	0	5	5	3	3	4	20
6 - ECMWF	0	1	1	0	0	0	2
7 - HZG	0	3	3	3	15	3	27
8 - CNRS	0	3	3	15	0	0	21
9 - KNMI	0	3	3	0	0	20	26
10 - RHMSS	0	0	5	6	0	0	11
11 - SMHI	0	0	14	3	0	5	22
<b>Total Person/Months</b>	25	59	59	44	27	59	273

### 1.3.7. WT7 Tentative schedule of project reviews

<b>Review number <sup>19</sup></b>	<b>Tentative timing</b>	<b>Planned venue of review</b>	<b>Comments, if any</b>
RV1	20	Bruxelles	
RV2	38	Bruxelles	
RV3	60	Bruxelles	

## 1.4. Ethics Requirements

Ethics Issue Category	Ethics Requirement Description
PROTECTION OF PERSONAL DATA	- If applicable, detailed information must be provided on the procedures that will be implemented for data collection, storage, protection, retention and destruction and confirmation that they comply with national and EU legislation before the end of month 1.
PROTECTION OF PERSONAL DATA	- If applicable, detailed information must be provided on the informed consent procedures that will be implemented before the end of month 1.
NON-EU COUNTRIES	- The applicant must confirm that the ethical standards and guidelines of Horizon2020 will be rigorously applied, regardless of the country in which the research is carried out (before grant signature) .

### **1. Project number**

The project number has been assigned by the Commission as the unique identifier for your project. It cannot be changed. The project number **should appear on each page of the grant agreement preparation documents (part A and part B)** to prevent errors during its handling.

### **2. Project acronym**

Use the project acronym as given in the submitted proposal. It can generally not be changed. The same acronym **should appear on each page of the grant agreement preparation documents (part A and part B)** to prevent errors during its handling.

### **3. Project title**

Use the title (preferably no longer than 200 characters) as indicated in the submitted proposal. Minor corrections are possible if agreed during the preparation of the grant agreement.

### **4. Starting date**

Unless a specific (fixed) starting date is duly justified and agreed upon during the preparation of the Grant Agreement, the project will start on the first day of the month following the entry into force of the Grant Agreement (NB : entry into force = signature by the Commission). Please note that if a fixed starting date is used, you will be required to provide a written justification.

### **5. Duration**

Insert the duration of the project in full months.

### **6. Call (part) identifier**

The Call (part) identifier is the reference number given in the call or part of the call you were addressing, as indicated in the publication of the call in the Official Journal of the European Union. You have to use the identifier given by the Commission in the letter inviting to prepare the grant agreement.

### **7. Abstract**

### **8. Project Entry Month**

The month at which the participant joined the consortium, month 1 marking the start date of the project, and all other start dates being relative to this start date.

### **9. Work Package number**

Work package number: WP1, WP2, WP3, ..., WPn

### **10. Lead beneficiary**

This must be one of the beneficiaries in the grant (not a third party) - Number of the beneficiary leading the work in this work package

### **11. Person-months per work package**

The total number of person-months allocated to each work package.

### **12. Start month**

Relative start date for the work in the specific work packages, month 1 marking the start date of the project, and all other start dates being relative to this start date.

### **13. End month**

Relative end date, month 1 marking the start date of the project, and all end dates being relative to this start date.

### **14. Deliverable number**

Deliverable numbers: D1 - Dn

### **15. Type**

Please indicate the type of the deliverable using one of the following codes:

- R Document, report
- DEM Demonstrator, pilot, prototype
- DEC Websites, patent filings, videos, etc.
- OTHER

### **16. Dissemination level**

Please indicate the dissemination level using one of the following codes:

- PU Public

CO Confidential, only for members of the consortium (including the Commission Services)  
EU-RES Classified Information: RESTREINT UE (Commission Decision 2005/444/EC)  
EU-CON Classified Information: CONFIDENTIEL UE (Commission Decision 2005/444/EC)  
EU-SEC Classified Information: SECRET UE (Commission Decision 2005/444/EC)

**17. Delivery date for Deliverable**

Month in which the deliverables will be available, month 1 marking the start date of the project, and all delivery dates being relative to this start date.

**18. Milestone number**

Milestone number: MS1, MS2, ..., MSn

**19. Review number**

Review number: RV1, RV2, ..., RVn

**20. Installation Number**

Number progressively the installations of a same infrastructure. An installation is a part of an infrastructure that could be used independently from the rest.

**21. Installation country**

Code of the country where the installation is located or IO if the access provider (the beneficiary or linked third party) is an international organization, an ERIC or a similar legal entity.

**22. Type of access**

VA if virtual access,  
TA-uc if trans-national access with access costs declared on the basis of unit cost,  
TA-ac if trans-national access with access costs declared as actual costs, and  
TA-cb if trans-national access with access costs declared as a combination of actual costs and costs on the basis of unit cost.

**23. Access costs**

Cost of the access provided under the project. For virtual access fill only the second column. For trans-national access fill one of the two columns or both according to the way access costs are declared. Trans-national access costs on the basis of unit cost will result from the unit cost by the quantity of access to be provided.

## ECOMS2 (689029)

European Climate Observations, Modelling and Services – 2

### History of Changes

Section	Details of changes made	Date
	Replaced Climate-KIC (Partner 5) with Imperial College (Short name, IC). Member information updated, but no change in personnel or other details	05/08/2015
Parts A & B, including 4.1 (Partners 7 [HZG], 8 [CNRS] & 11 [SMHI])	Linked third parties – confirmation that there are no linked third parties. For clarity, reference to CS2 (HZG), IPSL (CNRS) and the Rossby Centre (SMHI) have been removed from all but the member information	25/08/2016
3.2.7	Added statement that there are no plans to form an External Expert Advisory Board (EEAB), but note that the Stakeholder Group will need to be granted appropriate advisory role status and adequate composition	25/08/2015
3.4.2	Audits for Met Office and HZG added to Table 2	16/09/2015
3.4.2	HZG ‘laptop’ moved into ‘equipment’ category	22/09/2015
4.2	Additional explanation of requirement for sub-contract to KNMI	17/09/2015
3.2.10 & 5.1	Added recognition that procedures need to be implemented in association with collection of personal data, and adherence to national and EU legislation	17/09/2015
4.2	Additional clarification regarding UPC’s contribution as a third party free of charge	17/09/2015
Deliverable D6.1	Moved from Month 3 to Month 4	23/09/2015
3.4.2 & 4.2	Additional clarification regarding the other goods and services, and sub-contracting for HZG	09/10/2015
Ethics, Milestone 10	Additional milestone in WP1 associated with ethics requirements	09/10/2015
Deliverables	Addition of deliverables for progress reports, and reports under WP6	21/10/2015

# ECOMS2 (689029)

European Climate Observations, Modelling and Services – 2

## **PART B: Table of Contents**

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## 1. EXCELLENCE

### 1.1 Objectives of ECOMS2

**Mission statement:** Coordinate and support Europe's knowledge base to enable better management of climate-related risks and opportunities, thereby creating greater social and economic value

The ECOMS2 Coordination and Support Action (CSA) has four primary objectives:

1. **Develop a Europe-wide framework for Earth-system modelling and climate service activities.** This framework will be built around a managed network of European, national and international activities and organisations. The network currently does not exist but is becoming increasingly necessary, and will be cross-disciplinary.
2. **Coordinate and integrate on-going and future European climate modelling, climate observations and climate service infrastructure initiatives,** and facilitate dialogue among the relevant stakeholders, including climate science communities, funding bodies, providers and users. This will improve synergies, reduce fragmentation and promote alignment between national, European and international activities. The user communities will include public sector, businesses, industry and society.
3. **Establish multi-disciplinary expert groups to assess the state-of-the-art in Earth-system modelling and climate services in Europe, and identify existing gaps, new challenges and emerging needs,** including specific recommendations to the European Commission on future research and innovation priorities. Such assessments are desperately needed but currently do not exist.
4. **Enhance communication and dissemination activities with stakeholders,** in particular through a series of events to bring the network together and showcase progress, produce stakeholder-oriented reports on the state-of-the-art in Earth-system modelling and climate services in Europe, operate a website, and undertake additional stakeholder interactions to increase awareness and maximise project impacts.

These objectives will be met through the outputs of the CSA's Work Packages (WPs), including:

- a managed network of users, intermediaries, providers, funders and researchers (WP2);
- syntheses (in the form of periodic open reports) of the state-of-the-art in Earth-system modelling and climate services in Europe (WPs 3, 4, 6);
- syntheses (in the form of recommendations) of challenges and emerging needs for Earth-system modelling and climate services (WPs 3, 4, 6);
- regular events for ensuring the network is active and for dissemination of the syntheses (WP5).

The objectives and resulting outputs of the CSA will help deliver a range of highly beneficial impacts as listed in Section 2.1, of which two key ones are: (i) enhanced transfer of information between suppliers and users; and (ii) improved communication of trustworthy and timely science-based information for evidence-based policy, planning and adaptation decisions. The aim is to improve the resilience of European society to climate change, and mitigation of the risk of dangerous climate change through improved sharing of best practices, increased efficiency, reduced fragmentation and the creation of synergies with international research and innovation (R&I) programmes.

For clarity and consistency, the following definitions will be used throughout the proposal:

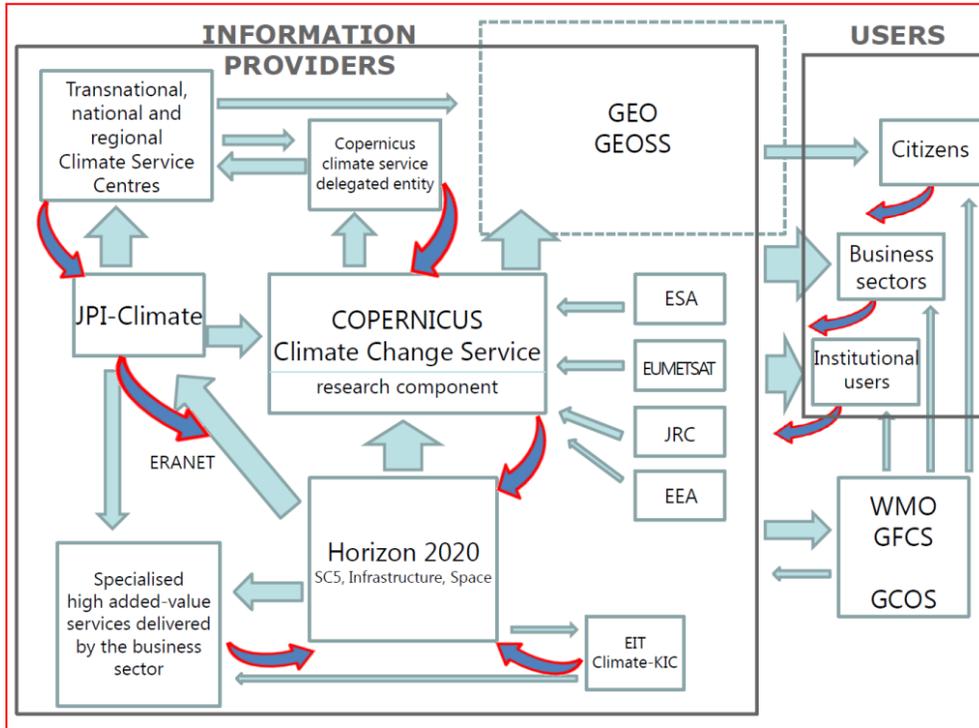
- **Network:** term to encompass everybody who the CSA will engage with, thus allowing open exchange of knowledge, expertise and data. The network will consist of the following broad cross-disciplinary categories:
  - **User communities:** Policy makers (including national and European), businesses, industry, public sector bodies (such as the European Environment Agency (EEA)), professional federations. Others will be identified once the CSA begins. These users will be at the regional, national, European and international level
  - **Scientific user communities:** Will include scientific communities beyond the Earth system modelling and climate services communities. For example, physical and natural sciences, social sciences, humanities
  - **Information providers:** Climate services, observations, Earth system modelling and research communities, research and innovation projects and programmes, existing initiatives and networks, climate service centres, National Meteorological and Hydrological Services (NMHSs), etc.
  - **International Activities:** Globally coordinated Programmes/Organisations/Initiatives. For example World Meteorological Office (WMO), World Climate Research Programme (WCRP), Global Framework for Climate Services (GFCS)
  - **Funding Bodies:** Entities providing funding for specified activities, including European Commission (EC) and governments
- **General public:** All European citizens (they are not a specific category within the network, being too broad and numerous to effectively engage in a managed network)
- **Stakeholder Group:** Subset of the network, comprising key individuals and organisations that will provide information, advice and insight which will guide and influence the direction and prioritisation of activities within the Action. Members of the Stakeholder Group will ensure there is sufficient and accurate representation from each of the categories above (apart from the general public)
- **Festival:** An extended workshop and interactive communication event, to which interested parties will be invited.

## **1.2 Relation to the work programme**

The proposed ECOMS2 CSA directly responds to the call *H2020-SC5-2015: Coordinating and supporting research and innovation for climate action; Topic 05b-2015: earth-system modelling and climate services*. ECOMS2 builds on a previous, but much smaller-scale activity (ECOMS), which ensured close coordination and cooperation across European Commission Framework Programme 7 (FP7) climate modelling and climate service projects from 2012-2016. ECOMS2 is significantly larger in scope, objectives and resources and will operate for five years through Horizon 2020 (H2020).

Sizeable and sustained investments from the European Commission, Member States, Research Councils, and the activities of a wide range of organisations involved in research, development and innovation have ensured that Europe is at the forefront of Earth-system modelling and climate service development. There is now a diverse range of climate-related research and innovation activities in Europe and beyond (Figure 1).

Some of these activities are connected with other activities (albeit to varying degrees) or are creating their own networks, for example: ECOMS linking FP7 projects relating to climate observations, modelling and services; JPI-Climate to coordinate aspects of climate research in 14 European countries; the European Institute of Innovation and Technology's (EIT) Climate-KIC to create innovation through linking business, academia and small and medium-sized enterprises; Copernicus Climate Change Service (C3S) for development and delivery of operational climate service products; the European Climate Adaptation Platform (Climate-ADAPT) hosted by the EEA to support Europe in adapting to climate change; European Climate Research Alliance (ECRA) to share national research facilities.



**Figure 1: Schematic diagram of key activities and relationships within the European climate services landscape (from presentations by Andrea Tilche, European Commission)**

However, there is no overall management and coordination of these networks to provide a framework to bring them all together and thereby exploit synergies and reduce duplication of effort. This lack of coordination can create confusion amongst users, researchers, intermediaries and funding bodies (who often see a disparate range of unconnected, sometimes competing, activities and services, rather than a set of coordinated approaches). As well as the apparent disparate nature of the activities, it is difficult for funders, researchers and users to properly assess what is underway, to effectively coordinate research and innovation programmes, and to identify future research and innovation priorities.

ECOMS2 will address the above issues, ensuring more efficient use of resources and scientific developments. ECOMS2 will create this new Europe-wide Earth-system modelling and climate service framework, with a managed network at its core, to better integrate and coordinate European climate modelling, climate observations and climate service infrastructure initiatives, and to enhance communication and dissemination activities among the relevant scientific communities, funding bodies and user communities throughout the duration of Horizon 2020.

The network will develop a close partnership with existing European initiatives, projects and organisations representing the Earth-system modelling and climate services landscape (such as JPI-Climate, Climate-KIC, C3S, and the European Network on Earth System Modelling (ENES), all of which are represented in the consortium; as well as relevant FP7 and Horizon 2020 projects, many of which are also well represented in the consortium). The network will operate at the Europe-wide scale, including key national activities, and will create strong links with related international programmes (for example the United Nation’s (UN) GFCS, as shown in Figure 1). This will enable exchange of knowledge, expertise and data between the different communities. An important outcome will be more coherent and reliable science-based climate information, structured to be of direct utility to the needs of the policy and business sectors, accompanied by significant improvements in the delivery and communication of this information and more accurate simulations of the evolution of climate.

The network will also ensure better engagement between climate science and broader communities. This is because the network will include information providers, users and specialist agencies (e.g. the WMO) as shown in Figure 1, although it should be noted that Figure 1 doesn't contain an exhaustive list of such providers, users and agencies. The network will facilitate the development of joint programmes and projects (with the JPI-Climate for example), assess and openly exchange information and research results relating to Earth-system modelling and climate services, provide forward-looking analyses to establish emerging needs for research and innovation, strengthen the interfaces between science and policy, and disseminate key research findings. In Figure 1, the ECOMS2 network is analogous to the red box around all the other activities.

The ECOMS2 framework through its network and communication and dissemination activities will enable and encourage the exchange of knowledge, expertise, and relevant data, beyond the climate science community. This will significantly increase the utility of European climate information and knowledge for decision and policy making across Europe at local, national and regional scales and increase public awareness about climate science and research results.

All of this is desperately needed and will improve European society's resilience and adaptation to climate change and mitigation of the risk of dangerous climate change, and enhance implementation of the EU 2050 Roadmap and relevant initiatives. Finally, the European Commission has recently launched the "Roadmap for Climate Services"<sup>1</sup>, and ECOMS2 will help implement elements of that Roadmap, as detailed below in Section 1.3.

### **1.3 Concept and approach of ECOMS2, quality of the coordination and support measures**

#### **Overall Concept**

Through significant and sustained investments from the European Commission and national governments, Europe is currently at the leading edge of Earth-system modelling and climate service development. This has the potential to directly improve the lives of European citizens who face the impacts of climate variability and extreme weather events and need to adapt to and mitigate a changing climate. Changes in the climate are affecting many sectors but the audience of decision- and policy-makers is so wide and varied that the requirements from each application can be quite different. There are a growing number of initiatives at the international and European level, from research networks of data providers, operational services, impact assessments, to coordination of government initiatives and provision of policy relevant recommendations; all provided on a wide range of timescales. The landscape of activities is very diverse. Users and providers of climate information currently face significant challenges in understanding this complex landscape. If we are to maximise the benefits of the investments and provide European citizens with the information and technology to develop a climate-smart society, then a mechanism is needed to coordinate the impressive and varied research and innovation effort.

The overall concept behind the proposed ECOMS2 CSA is to create and manage a framework to coordinate, integrate and support Europe's research and innovation activities in the fields of Earth-system modelling and climate services. The purpose of this concept is to create greater social and economic value for Europe through improved preparation for, and management of, climate-related risks and opportunities arising from making European world-class knowledge more useable and thus more applicable to policy- and decision-making. This value will be felt by a range of actors including the public sector, governments, business and industry. ECOMS2 will provide a comprehensive overview of all the relevant activities to ensure the society at large can take full advantage of the investment Europe is making in research and innovation and associated development of services.

#### **Approach**

Central to the success of this framework will be the development of an active Europe-wide network (WP2) and communication and dissemination activities (described in the following paragraphs). The network will engage users

<sup>1</sup> [http://bookshop.europa.eu/en/a-european-research-and-innovation-roadmap-for-climate-services-pbKI0614177/\(689029\) ECOMS2 – Part B](http://bookshop.europa.eu/en/a-european-research-and-innovation-roadmap-for-climate-services-pbKI0614177/(689029) ECOMS2 – Part B)

and providers of climate information along with intermediary organisations working at the interface between users and providers. ECOMS2 will build upon, rather than duplicate, activities that are already taking place, with an aim to increase the overall utility of these activities for Europe as a whole.

The network will coordinate and cluster activities, reduce fragmentation and increase synergies between national, European and international activities. In particular, the network will improve alignment between major European initiatives and international initiatives, as listed in the following section.

The state of the art in Earth-system modelling to support climate services will be assessed in WP3 through targeted expertise from the network, and through dialogue between users, providers and researchers. WP4 will undertake forward looking analyses through expert groups to establish emerging needs ensuring the needs of users influence research and innovation agendas, and enhance the socio-economic impact of research and innovation activities.

Festivals, as extended workshop, networking and communication events, will be organised in WP5. Openly available reports will be produced in WP6, based on the outputs of WPs 3 and 4. Communication and dissemination will also be implemented through an open web-site and the use of social media. A range of documents and newsletters will be developed, contributing to the science-stakeholder communication platform (along with other means, such as the network, Festivals and web-site) to encourage open exchange of knowledge, expertise and data, and raise awareness of climate science and services.

The first 12 months of the CSA are crucial for establishing a successful framework and by the end of the first year the CSA should have developed the network, established multi-disciplinary expert groups to assess the state-of-the-art of Earth-system modelling and climate services in Europe, and look into new challenges and emerging needs, and established effective communication and dissemination activities to a range of targeted stakeholders.

In summary, our approach is for WP2 to create the network (which will also be used by all other WPs). WP3 produces standalone reports on the state of the art in Earth-system modelling and climate services. WP4 produces forward-looking recommendations based on the expert groups and WP3 reports. WP5 organizes festivals, which will also generate further insights for WPs 3 and 4. WP6 (among other activities) publishes the WP3 reports, the WP4 recommendations and WP5 festival output.

A small (and affordable) consortium of 11 partners with the mix of skills described further in Section 3.3, and with geographic reach across all of Europe, has been formed. An alternative approach could have been to form a very large consortium representing a wide range of users, providers and intermediaries. Such a large consortium would create project management challenges and ineffective use of available funding. Our approach is to use the consortium's reach into other networks and existing partnerships, and reach out to additional users and intermediaries through our networking, communication and dissemination activities. WP1 will manage a Stakeholder Group (identified through the network created in WP2) to ensure the framework reaches to a wide range of actors through dedicated stakeholder consultation.

It should be noted that ECOMS2 will not itself directly provide climate services or Earth-system model data to policy- and decision-makers. Such services are clearly the responsibilities of the organisations, projects and activities which the network will engage with, and the CSA is not to duplicate or compete, but to coordinate and support.

### **National and international activities linked to the project**

ECOMS2 is deliberately designed to link to, and coordinate, national and international activities in the areas of Earth-system modelling and climate services. The outputs of those activities will feed into this project. The CSA will be

proactive in ensuring that its outputs are available to and used by those national and international activities, particularly through the communication and dissemination work package (WP6).

The research and innovation activities that will be linked to ECOMS2 will evolve during the life of the CSA. At the outset, key international activities include Climate-KIC (which is represented in the consortium through Imperial College); JPI-Climate (linked through ANR and several partners); Copernicus Climate Change Service, C3S (linked through ECMWF and potentially several partners who may subsequently be selected as Copernicus delivery partners); European Network for Earth System modelling, ENES (through CNRS and several partners); Coupled Model Intercomparison Project, CMIP (through several partners); World Climate Research Programme, WCRP and in particular its Working Group on Coupled Modelling, Working Group on Seasonal to Interannual Prediction, and the Working Group on Regional Climate (through several partners); European Climate Services Partnership, ECSP and international Climate Services Partnership, CSP (through Met Office and HZG); Global Framework for Climate Services, GFCS (through Met Office, KNMI, SMHI); COordinated Regional climate Downscaling Experiment, CORDEX (through SMHI); European branch of CORDEX, EUROCORDEX (through HZG); relevant EEA topic centres (through CMCC and Met Office); relevant FP7 and Horizon 2020 Earth system modelling and climate service projects (through several partners involvement, including some coordinators of key projects); ESA's Climate Modelling User Group, CMUG (through Met Office and ECMWF); Partnership for Advanced Computing in Europe, PRACE; Future Earth in Europe; European Alliance of Global Change Research Committees; the European Climate Research Alliance, ECRA; Climate-ADAPT, the European Climate Adaptation Platform of the EEA, Climate-ADAPT; IPCC; Future Earth and Belmont Forum.

The above list of international activities is already impressive, and long. The list of national activities is potentially far longer, so ECOMS2 will target key activities, to be identified by partners and the network as it evolves (WP2). At the outset, key national activities are likely to include the following: the UK's Joint Weather and Climate Research Programme with the Natural Environment Research Council (NERC); the UK Environment Agency's Climate Ready service; the German medium-term climate forecasts (MIKLIP) research project; the German Klimanavigator; the Drias Futures of Climate project in France; the Swiss National Centre for Climate Services; the Climate Change Centre Austria; the Norwegian Climate Change Adaptation Programme; the Polish Klimada project; the Dutch Knowledge for Climate Research programme.

The European Commission has recently launched the "Roadmap for Climate Services". The Roadmap contains three main challenges: *enabling market growth*; *building the market framework*; and *enhancing the quality and relevance of climate services*. 25 specific actions are proposed to meet these main activities. The CSA is well placed to help implement the Roadmap's main activities and several of the specific actions, in particular:

- Growing the climate services market – establishing the means of enhancing the awareness of and promoting climate services (action 1.2b in the Roadmap);
- Communities and infrastructure to support and grow the climate services market – developing a viable climate services community that engages users, providers, purveyors and researchers (2.1a);
- International cooperation – engaging the European climate service community internationally (2.3a);
- Strengthening the scientific basis and relevance of climate services – improving modelling and prediction capacity relevant to improving climate services (3.2a);
- Strengthening the scientific basis and relevance of climate services – identifying and evaluating the implications of scientific developments on climate processes in terms of improving climate services (3.2c);
- Climate information and end-user needs: innovation and products – making better use of available climate information and knowledge (3.3a).

### **Sex and/or gender analysis**

ECOMS2 does not have a gender dimension explicitly integrated into it. The consortium does recognise however, the obligation under Horizon 2020 to promote gender equality. ECOMS2 will take measures to address the following gender equality objectives in the implementation of this Action:

‘Gender balance in decision making’ – The consortium will be proactive in ensuring there is gender balance amongst individuals who are on any evaluation panels and Expert groups within the Action (obviously taking into account the situation in the specific subject field of the CSA). ECOMS2 will encourage equality in the involvement in decision making processes within the Action itself (i.e., decisions of the General Assembly). One way, for example, that this will be facilitated is through the adoption of family friendly mechanisms for meetings, such as the availability of tele- or e-conferencing facilities, thus negating the need to travel.

‘Gender balance in research teams at all levels’ – ECOMS2 will aim for a balanced participation of women and men in the consortium activities within the Action (again taking into account the situation in the field of the CSA and complying with legislation concerning gender equality). Positive and equal working practises will be adopted and there will be an action to raise awareness of gender equality within the consortium.

‘Gender dimension in research and innovation content’ – ECOMS2 will consider the mechanisms that it adopts when identifying the relevant parties to be in the network and Stakeholder group, thus ensuring that there is no gender bias in selection and in the forums where the relevant parties will network. Also, gender considerations can be highly relevant when communicating; therefore consideration will be given to the Action’s communication and dissemination activities, and the design of communication material; for example, avoiding stereotypes and avoid using inclusive language. There will be a focus on the Festivals, ensuring that there is no accessibility bias.

A Gender Strategy and Action Plan (Milestone 1 (MS1)) will be produced and updated detailing how gender considerations will be managed within the Action.

## 2. IMPACT

### 2.1 Expected impacts of ECOMS2

The ECOMS2 objectives are designed to answer the expected impacts of the call. These impacts are listed below and the corresponding objectives from Section 1.1 are referenced.

- i) *“Evidence-based policy and appropriate, cost-effective management, planning and adaptation decisions by the public sector, businesses, industry and society through the provision and effective communication of trustworthy and timely science-based information”*

The CSA will develop a Europe-wide framework based on a managed network, and associated communication and dissemination activities. The framework will involve a range of actors from the public sector, business, industry and society. The network and its communication and dissemination activities will ensure the actors have access to trustworthy and timely science-based information for the development of evidence-based policy-making and decision-making. This will be achieved through existing Earth-system modelling and climate service activities, the reports produced by ECOMS2, the Festivals and the web-site, which will be oriented to satisfy the evolving requirements of the users concerned by climate vulnerable policy, planning and adaptation. This activity is linked to all four objectives.

- ii) *“Enhanced impact of research and innovation activities through better identification of climate change research and innovation priorities”*

Expert Groups will be formed, drawing on expertise and knowledge from the Europe-wide network, to map and analyse the current Earth-system modelling and climate service activities. This analysis will identify gaps, assess new challenges and emerging needs to enable the better identification of R&I priorities. The findings will be communicated and disseminated via reports and the Festivals. As well as identifying priorities, this activity will also enhance the impact of current initiatives through better integration and raised awareness of climate science and research results to the wide range of stakeholders. This impact will be outcomes from objectives 2, 3 and 4.

- iii) *“Improved coordination of European, Member States’ research and innovation programmes and funded activities, and synergies with international research and innovation programmes and actions”*

The Europe-wide framework (developed under objective 1) and the managed network that will be developed within it (objective 2) will ensure a coordination of existing R&I activities, something that is currently lacking. The network will also engage with international R&I programmes and actions, as described in Section 1.3. The communication and dissemination activities described in Section 2.2 (as part of objective 4) will be key to ensuring the coordination is useful, and to developing synergies within Europe and beyond.

- iv) *“Better coordination of relevant research and innovation in the EU, including cooperation with the European Institute of Innovation and Technology (EIT)”*

The scene of European research and innovation in Earth-system modelling and climate services is complex, as described in Section 2.1, spreading through a myriad of scientific disciplines and professional communities. In addition to the coordination of relevant European R&I described above, cooperation with the EIT will be ensured through the Climate-KIC representatives in the consortium (the Climate-KIC is supported by the EIT). The Climate-KIC will facilitate the cooperation of the more business-oriented EIT with European and national research, developing links with relevant aspects of international research and innovation. This impact will be possible through the tasks addressing objectives 1, 2 and 4.

- v) *“Enhanced implementation of the EU 2050 Roadmap and relevant initiatives through improved dissemination of key research findings”*

Objective 3 includes issuing specific recommendations to the European Commission on future research and innovation priorities through, among other tasks, the establishment of multi-disciplinary expert groups. Such groups will be

encouraged, in the same way as the ECOMS2 partners will, to consider the EU 2050 Roadmap in their recommendations to determine new challenges and emerging needs. This will allow the recommendations formulated by the ECOMS2 partners to be relevant to address the priorities identified by the Roadmap. The communication and dissemination activities (under objective 4) will also enhance implementation of the EU 2050 Roadmap and relevant initiatives, in particular those listed in Section 1.3.

*vi) European society's improved resilience to climate change and mitigation of the risk of dangerous climate change*

The vulnerability of European society to climate change and variability is multi-faceted, as are the measures to assess and mitigate the risk of dangerous climate change. Improving resilience and mitigation are crucially dependent on access to the best available climate information targeted to the specific application. This impact could also be indirectly achieved by increased collaboration and knowledge sharing from involvement in the ECOMS2 network leading to improvements in the research community's ability to accurately simulate climate evolution. This will lead to improved reliability of science-based climate information at local, regional and global scales, therefore improving society's resilience. Objectives 1, 2 and 4 will make a significant difference in the European context because, for the first time, they will bring together and disseminate information from the wide range of initiatives described in Section 1.3.

In addition to the expected impacts in the call, ECOMS2 also expects to contribute to the implementation of elements of the European Commission's "Roadmap for Climate Services". This is providing useful guidelines to European research on engaging in the fast-developing climate services field. However, the Roadmap appears to be focussing on the climate observations, modelling and services communities. The ECOMS2 objectives 3 and 4 offer a unique opportunity to enlarge the sectors that are familiar with the Roadmap and can engage in the creation of a society sensitive to the risks of climate change and variability, while fostering a more resilient and green economy that can make Europe more competitive in the international scene.

In summary; through open and transparent working practices, including making information available on the methodologies used, ECOMS2 will engender trust within the communities that it engages with. The CSA will be of much interest to a range of users, so this approach should act to improve the relationship between the scientific community, and policy- and decision-makers from across society. All of these impacts will improve European society's resilience and adaptation to climate change and mitigation of the risk of dangerous climate change.

### **Barriers and obstacles to achieving impacts**

The benefits listed above have some dependence on factors external to ECOMS2's scope, influence and objectives, and so the impacts could be lessened as a result. Some of the potential barriers are:

- The usefulness and/or value of the climate information that the network draws on is insufficient for user communities to actively engage in the network and ECOMS2's activities;
- Insufficient future funding available to properly resource the identified research and innovation priorities;
- Synergies will only be fully realised if the international programmes and activities engage sufficiently;
- The "Roadmap for Climate Services" was only launched in March 2015, so it is unknown at this stage how, or if, it will be implemented; and
- The complex nature of the landscape could prevent ECOMS2 meeting all expectations regarding increasing transparency and access to available climate information.

While these barriers could exist, the interactions with stakeholders throughout the CSA will provide an open space for exchange of ideas and information which will afford the opportunity to decrease the impacts of such barriers.

## **2.2 Measures to maximise impact**

For ECOMS2 to achieve all of the expected impacts, effective engagement will be established with the target audiences both within and beyond the network. Making dissemination, communication and exploitation measures integral to the way in which ECOMS2 will operate will ensure maximum coordination of the relevant research and innovation, as well as maximum societal benefit. WP6 will have responsibility for ensuring effective communication and dissemination, and WP1 will oversee this as part of the Coordinator role, as well as specifically taking responsibility for communicating with the EC and with policy and decision makers.

### **2.2.1 Dissemination and Exploitation of Results**

The draft 'Plan for dissemination and exploitation' is given below. During the project, WP6 will use this as the basis on which to further develop the Dissemination and Exploitation Plan. The first version of this plan (Deliverable 6.2 (D6.2)) will be delivered in month 6 of the project and there will be annual updates thereafter. This updated Plan will also include the communication strategy and plan. Once the project is underway, specific audiences for dissemination and communication will be identified and more detail will be given about specific requirements, deadlines, methods, procedures and evaluation measures. These will then be used as working documents to ensure effective management of these activities and their integration into the project as a whole. The evaluation measures will be reported against when updates are provided to EC as part of the periodic reports.

Since ECOMS2 will not be producing or providing climate services or Earth-system model data, the nature of the results to be disseminated is different to a traditional research project. What ECOMS2 will provide is open-access aggregated information on current and recommended Earth-system modelling and climate service activities, and an effective science-stakeholder communication platform, which will take the form of the wide-reaching network of stakeholders through which information and expertise can be exchanged, the ECOMS2 website and the associated internet communication platform. The types of ECOMS2 results are listed in turn below, and the draft plan indicates how they will be disseminated and exploited, and how this will lead to ECOMS2 achieving the Expected Impacts.

#### **a. Draft Plan for the dissemination and exploitation of ECOMS2 results**

##### **Network**

The ECOMS2 consortium involves representatives from major European Earth-system modelling and climate service network organisations, including research and modelling communities, operational climate service organisations, and business networks. Reaching far beyond the consortium, ECOMS2 will identify stakeholders interested in climate services and earth-system modelling and will involve them in the ECOMS2 network.

ECOMS2 partners are well placed to use existing connections and establish new ones to ensure inclusion of relevant stakeholders, and to use existing dissemination channels. An important aspect of the network will be engaging with communities beyond Europe to ensure international dissemination of information. Membership of the network will grow as the project progresses.

There will be opportunities to meet (face to face and remotely) through workshops and forums that will be established through WP2 (Task 2.2). The network will enable access to relevant stakeholder panels, boards and meetings linked to ongoing activities organised by C3S, JPI-climate, Climate-KIC, the European Commission and the individual research and innovation projects. ECOMS2 will utilise this network to gather information, and the network will also be the audience of this aggregated information when it is disseminated.

The large number of stakeholders who will be engaged with the project through the network should lead to maximum exploitation of ECOMS2 results because they will be aware of the need for this aggregated information and will have helped to produce it. The network will mean that stakeholders also become aware of other stakeholders that will be useful to them – for example in a similar research area and requiring or producing similar data. The network will be

able to match providers with users and will allow cross-disciplinary visibility of ongoing activities. This will benefit work in the future – aiding collaboration and helping to avoid duplication, therefore improving the rate of exploitation of future work done within Europe. It may also increase the exploitation of previous and existing research – as different stakeholders become aware of available information that they weren't before. Even if the network does not continue in its managed form beyond the life of ECOMS2, the relationships built and links identified should be enduring and help ongoing awareness of activities and therefore exploitation of results.

The network will help to achieve expected impacts *i, iii, iv and v* through enabling more efficient communication between all stakeholders and therefore improved dissemination of research findings, increased cooperation and better coordination. There will also be better understanding of limitations and requirements between users and providers which should lead to the information provided being more useful and timely.

### **Reports on current and recommended products, services and activities**

WP3 will gather information into reports on European Earth System Modelling for Climate Services (D3.1), Progress on the Integration of Climate Services and Earth System Modelling (D3.2) and Matching New Demands of Climate Services with Evolving Earth System Modelling and Prediction Capabilities (D3.3). WP4 will produce reports on integration of Earth system modelling and climate (D4.1), lessons and practice of co-developing climate services with users (D4.2), research needs and European funding landscape (D4.3) and recommendations on research needs (D4.4). These will then be edited into the “State of European Earth-system modelling and climate services” publication series by WP6, which will be released in Months 20, 40 and 60 of the project (D6.5, D6.8 and D6.11).

The WP6 reports will be disseminated to all stakeholders in the network, and will be openly accessible. They will be promoted, made available on the ECOMS2 website and in various dissemination formats to be determined by WP6.

These WP6 reports are key deliverables of ECOMS2 as they present the aggregated information which currently does not exist. They will present what has been disparate information in a coherent way, which will aid exploitation of existing and future work by making all audiences aware of ongoing research and available climate information.

The reports will help to achieve expected impacts *i, ii and v* by synthesising ongoing activities and clearly explaining current research and innovation activities, highlighting gaps and making recommendations for the future.

### **Targeted products, materials and engagement activities**

WP6 will produce a range of multimedia materials and organise various engagement activities. Each will have a different purpose and will be intended for different target audiences. WP6 will determine the most appropriate dissemination methods for each audience. They are likely to include: factsheets and summary reports; e-newsletters; internal project wiki for use within the consortium; press briefings; policy briefings; materials for participation at user specific workshops and events; scientific review papers; visits and interviews with key stakeholders; representation on stakeholder advisory boards; online discussion sessions; use of social media networks; targeted workshops and events. These dissemination methods will use the ECOMS2 website, and be disseminated directly to relevant audiences within the network and promoted as per the communications strategy to audiences outside of the network.

WP6 will identify the needs of each audience and tailor the dissemination and communication of the findings of ECOMS2 into targeted content and language which is suitable for their specific needs. The attention and care that will be taken over dissemination and communication will ensure that the audiences will be able to exploit the information provided to its maximum potential. Exploitation will also be aided by the interactive communication measures listed above. WP6 will gather information and will feed this back to all other WPs. Visits and interviews with key

stakeholders, targeted workshops and social media networks, amongst others will also assist in exploitation by allowing active engagement with audiences.

The expected impacts directly achieved by targeted materials and activities are (*i and vi*) as these will be designed to be as beneficial as possible to their intended audiences. The intention is that each audience can make better informed decisions, which will in turn lead to European society's improved resilience to climate change.

### **Platforms**

Platforms are results of ECOMS2 in themselves which enable dissemination and communication to take place. ECOMS2 will produce two key platforms, the Festivals and the website which are described below.

The ECOMS2 website will be the central communications hub. It will host all relevant information for stakeholders allowing dissemination and communication of project progress and results, as well as being the portal through which all of the target audiences can engage. It will be regularly updated and representative of project identity and activities. Anticipated content includes; information about ECOMS2, all public (i.e. unrestricted) deliverables, details of current work within the project, and an overview of the network. It will have multimedia content and a corresponding internet communication platform which will be interactive – including discussion forums and social media links. There will also be an area specifically for the media/press audience.

By ensuring that the website is at the centre of all dissemination and communication activities, all those interested in project results will know immediately where to find information. The variety of tools and information that the website will host, mean that there will be content suitable for a wide range of audiences, including the public. The website will be openly accessible.

There will be three festivals held during ECOMS2 (D5.1, 5.2, 5.3) which will be promoted across and beyond the network. The festivals will be one of the key ways in which ECOMS2 ensures exploitation of its findings. The work of the project will be showcased, explained and its usefulness demonstrated. The festivals will also be a key networking event for stakeholders, and will allow exchange of knowledge and development of lasting working relationships.

Festivals and the associated literature and presentations will be made available on the project website. They can therefore benefit those not able to attend and be of use after the project has finished. It is hoped that relationships and contacts established at the festivals will be maintained beyond the life of the project.

These platforms will help to achieve impacts (*i, ii, iii, iv and v*) through their ability to provide information and opportunities for interaction to so many stakeholders.

### **Approach to Innovation**

ECOMS2 has great innovation potential. The network and the outcomes that ECOMS2 will produce do not currently exist, but will be welcomed by stakeholders. The availability of aggregated information will mean that innovation based on previously unknown research or untried collaborations will be possible.

Partners will use innovative methods to develop and maintain a successful network in WP2, and to engage, disseminate and communicate with the wide ranging target audiences (WP6). The consortium have also identified three key areas of the project which will be subcontracted to experts in event management, communications and web design to ensure a state of the art and innovative approach to the project. Further details on innovation management can be found in Section 3.2.9.

## **Open Data Research Pilot**

Although data creation and management is not a key or central component to the CSA, ECOMS2 will provide aggregated information and therefore will take part in the Horizon 2020 Open Data Research Pilot. A Data Management Plan (DMP) has been included as a deliverable in Work Package 1 (D1.2) and will be provided in month 6. The strategy and implementation of the DMP will be continually reviewed. The DMP will be aligned to the Dissemination and Exploitation Plan.

The following data management aspects have been considered, and will be expanded upon in the DMP:

- Types of data that the project will generate: as detailed above, project results will be in the form of a network, aggregated information in the form of reports and targeted materials and facilitating platforms.
- Data standards that will be used: due to the type of data being collected and generated, this is not considered to be applicable. This will be reconsidered for the DMP (D1.2) and monitored throughout the project.
- How will this data be exploited and/or shared/made accessible for verification and re-use? If data cannot be made available, explain why: ECOMS2 will make its results openly available, therefore they will be available for re-use and through the network this will be encouraged. ECOMS2 will gather data from a variety of stakeholders. Only organisational data will be collected as opposed to any personal data. Commercially sensitive data will be identified and withheld as appropriate and as requested by the stakeholder concerned.
- Curation and preservation of the data: results and information relevant to ECOMS2 will be available on the website, throughout and beyond the life of the project. It will remain available for use by future coordination actions, but will not be actively updated by ECOMS2 after the project has ended.

## **b. Outline strategy for knowledge management and protection**

### **Knowledge management**

ECOMS2 will adopt a strategy for knowledge management that encapsulates the guiding principles of Horizon 2020 on Intellectual Property (IP) management and will define a range of effective management protocols. It will be managed by the Met Office through WP1 and a suitable strategy will be developed (Task 1.5). All results and outcomes of ECOMS2 will be openly disseminated at the appropriate time. The Project Office will ensure that ECOMS2 complies with the Grant Agreement and fulfils any requirements with regards to knowledge management and protection.

Achieving the ECOMS2 objectives will involve the sharing of information on ongoing and future work, capabilities of climate services and modelling, as well as user needs and requirements. It is expected that the majority of this information will be openly available, however for the circumstances in which it isn't, suitable identification and recording processes will be put in place to log all background that is brought to the project. The Consortium Agreement will then describe how this background is protected and may be used within the project. It will also describe how the results will be used, and will clarify procedures for arrangements such as joint ownership.

### **Open access to peer-reviewed scientific publications**

ECOMS2 will adopt the “gold” model for open access to peer-reviewed journal articles where possible. In parallel, “green” open access will also be adopted by using the institutional and subject-based repositories made available through the partners. Authors will endeavour to avoid entering into any copyright agreements with publishers that will not allow them to fulfil the EC Open Access requirement. The Project Office will be involved in the process, and these publications will be advertised and logged through the project website. All published material will contain an acknowledgement to the research funding from the European Union and Horizon 2020.

### **Protection**

The protection of the knowledge/IP that the partners bring to the project and then the subsequent knowledge generated will be regulated through the project Consortium Agreement (CA), and aligned with the specific requirements from the Horizon 2020 Model Grant Agreement. Specific procedures for governing access and use of IP, plus the type of IP right, will also be included in the CA.

Each of the partners will have the right to exclude specific pre-existing knowledge (background IP) from the other partners' access, as far as the restrictions are announced before the signature of the Grant and Consortium Agreements or before the effective joining of a new partner.

Foreground IP will be identified at the point of creation and steps taken to ensure its protection. Partners will respect their own, and each others, protection protocols/IP Rights (IPR). In the event the creation of a new piece of knowledge as a result of the work of a single partner of the project and solely the result of individual intrinsic skills rather than shared knowledge, this partner will be the exclusive owner of the results, subject to granting access rights to the other partners where necessary for their execution of the project or to the use of their own results. For the case in which the designated owner of the results waives its option to start registration proceedings the coordinator will follow a procedure outlined in the CA to allow other project partners the opportunity to obtain or maintain such protection.

Access rights will be considered on a case by case basis and where appropriate after consultation with the partners concerned, to ensure that a partner's legitimate interests are not compromised. IP awareness training will be available through the Met Office for personnel working on the project; and the partners' legal teams will be engaged to provide support and advice on IPR matters. However, the overall aim of the knowledge management strategy and protection will be to maximise the chances of effective exploitation of the project's research results.

### **2.2.2 Communication activities**

In order to successfully communicate about ECOMS2, and its progress, findings and achievements, it is important to identify suitable communication measures. The intention of these is to promote ECOMS2 and to provide information for all the stakeholders. Not only will this be beneficial for the project, but it will also illustrate what successful collaboration across Europe has achieved, and will highlight the relevance and benefits of European research to society.

The central narrative and messages for communication will be defined very early on in the project. Based on the concept of ECOMS2 which is described in Section 1.3, it will encompass this message: "Europe is currently at the leading edge of Earth-system modelling and climate service development. This has the potential to directly improve the lives of European citizens who today face the impacts of climate variability and extreme weather events and need to adapt to and mitigate a changing climate. The landscape of activities is very diverse, covering research, operational services, impact assessments, policy relevant recommendations and training activities, on a wide range of time scales. ECOMS2 will provide a comprehensive overview of all these activities to ensure the society at large can take full advantage of the investment Europe is making in research and innovation and associated development of services".

WP6 will provide an update to the outline below as part of the Project Dissemination and Exploitation Plan in month six of the project; and in annual updates thereafter. The Communications Strategy within this will identify the challenges of communication that ECOMS2 will face. It will identify the audiences and suitable communication methods in more detail.

ECOMS2 may be of interest to the media, and so in co-ordination with the Press Offices of the partner institutions and in line with Open Data principles, the project will decide how to manage ad hoc media enquiries, FOI requests, routine communication of progress and negative media coverage, amongst other things. The Coordinating institute (Met Office) also has an experienced Communications department who will be able to support ECOMS2 with social media and other public communication activities. Another part of the plan will specifically focus on successful communications with policy and decision makers. This is a specific task under WP1 (Task 1.5). Initially a number of distinct target audiences have been identified and the proposed communication activities are outlined below.

**Table 1: ECOMS2 Communication measures**

<b>Target Audience</b>	<b>Objectives</b>	<b>Material/content (and responsibility)</b>	<b>Method/Communication Measures</b>	<b>Frequency</b>
ECOMS2 partners	<ul style="list-style-type: none"> <li>•Ensure an effective and integrated project</li> </ul>	<ul style="list-style-type: none"> <li>•Progress and results (WP1)</li> <li>•Risks/benefits/issues (WP1)</li> <li>•Queries/questions (WP1)</li> </ul>	<ul style="list-style-type: none"> <li>•Internal project wiki</li> <li>•General Assemblies</li> <li>•Email, Web and teleconferencing</li> </ul>	<ul style="list-style-type: none"> <li>•Regular updates of wiki</li> <li>•Regular General Assemblies</li> </ul>
Stakeholder Group	<ul style="list-style-type: none"> <li>•Ensure Stakeholder Group is fully informed of progress</li> </ul>	<ul style="list-style-type: none"> <li>•Progress and results of ECOMS2 (WPs1, 5 and 6)</li> <li>•Aggregated information on Earth-system modelling and climate services (WPs3, 4, 6)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website</li> <li>•Festivals</li> <li>•Workshops at dedicated events</li> <li>•Fact sheets and summary reports</li> <li>•ECOMS2 members on advisory boards</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Festivals in years 1, 3, 5</li> <li>•Publications as per deliverable schedule</li> <li>•Regular use of social media</li> </ul>
EC project officer	<ul style="list-style-type: none"> <li>•Ensure EC is fully informed of project progress</li> </ul>	<ul style="list-style-type: none"> <li>•Overall project progress (WP1)</li> <li>•Issues (WP1)</li> <li>•Deliverable progress (WP1)</li> </ul>	<ul style="list-style-type: none"> <li>•One page progress reports/summaries</li> <li>•Deliverable reports</li> <li>•Periodic reports</li> <li>•ECOMS2 website</li> </ul>	<ul style="list-style-type: none"> <li>•Quarterly throughout project</li> <li>•As per deliverable dates</li> <li>•As per reporting periods</li> </ul>
EC	<ul style="list-style-type: none"> <li>•Provide advice on existing gaps and planned research and innovation activities</li> <li>•Ensure EC is informed of CSA progress and findings</li> </ul>	<ul style="list-style-type: none"> <li>•Progress and results of ECOMS2 (WP1)</li> <li>•Aggregated information on Earth-system modelling and climate services (WPs3, 4, 6)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website with news items</li> <li>•Brochures of the major European activities in the field of Earth-system modelling and climate services</li> <li>•Synthesis of recommendations on future R&amp;D of European Earth-system modelling and climate services</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Festivals in years 1, 3, 5</li> <li>•Publications as per deliverable schedule</li> </ul>
Businesses, industry, public sector and professional federations	<ul style="list-style-type: none"> <li>•Appropriate and cost-effective management, planning and adaptation decisions</li> <li>•Engagement with expert network</li> </ul>	<ul style="list-style-type: none"> <li>•Progress and results of ECOMS2 (WPs5, 6)</li> <li>•Aggregated information on Earth-system modelling and climate services (WPs3, 4, 6)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website</li> <li>•Festivals</li> <li>•Workshops at dedicated events</li> <li>•Fact sheets and summary reports</li> <li>•Periodic reports on “State of European Earth-system modelling and climate services”</li> <li>•ECOMS2 members on advisory boards</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Festivals in years 1, 3, 5</li> <li>•Publications as per deliverable schedule</li> <li>•Regular activity on social media</li> </ul>
National and European policy and decision makers	<ul style="list-style-type: none"> <li>•Improved evidence-based policy</li> <li>•Provide policy makers with a better understanding of relevant activities.</li> </ul>	<ul style="list-style-type: none"> <li>•Progress and results of ECOMS2 (WPs5, 6)</li> <li>•Aggregated information on Earth-system modelling and climate services (WPs3, 4, 6)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website</li> <li>•Policy briefings and press briefings</li> <li>•Festivals</li> <li>•Workshop events organised at targeted conferences</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Festivals in years 1, 3, 5</li> <li>•Publications as per deliverable schedule</li> </ul>

	<ul style="list-style-type: none"> <li>•Engagement with expert network</li> </ul>		<ul style="list-style-type: none"> <li>•Fact sheets and summary reports</li> <li>•Periodic reports on “State of European Earth-system modelling and climate services”</li> </ul>	
Scientific community	<ul style="list-style-type: none"> <li>•Share knowledge, expertise and data across disciplines</li> <li>•Maximise impact and exploitation</li> <li>•Integration of groups and projects</li> </ul>	<ul style="list-style-type: none"> <li>•Progress and results of ECOMS2 (WPs5, 6)</li> <li>•Knowledge, expertise and data gathered by ECOMS2 (WP6)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website</li> <li>•Festivals</li> <li>•Scientific conferences and presentations</li> <li>•Multimedia content</li> <li>•Project factsheets and e-newsletters</li> <li>•Regular social media updates</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Regular communication with the network</li> <li>•Festivals in years 1, 3, 5</li> </ul>
Existing initiatives and networks, and funding bodies	<ul style="list-style-type: none"> <li>•Shared understanding and awareness of ECOMS2</li> <li>•Involvement in ECOMS2 network</li> <li>•Share knowledge, expertise and data between groups</li> <li>•Maximise impact and exploitation</li> </ul>	<ul style="list-style-type: none"> <li>•Progress and results of ECOMS2 (WPs5, 6)</li> <li>•Knowledge, expertise and data of all in the network (WP6)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website</li> <li>•Festivals</li> <li>•Multimedia content</li> <li>•Project factsheets and e-newsletters</li> <li>•Regular social media updates</li> <li>•Reviews of Earth-system modelling and services</li> <li>•Knowledge exchange and collaboration from different groups through workshops and conferences</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Regular communication with the network</li> <li>•Festivals in years 1, 3, 5</li> </ul>
Public and Wider Society	<ul style="list-style-type: none"> <li>•Ensure project is visible and raise public awareness of climate science and results</li> <li>•Provision of credible information on research</li> <li>•Engagement with scientists</li> </ul>	<ul style="list-style-type: none"> <li>•Relevant results and their implications (WPs1, 6)</li> <li>•FAQs (WPs1, 6)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website</li> <li>•Multimedia content</li> <li>•Social media</li> <li>•Links through other web portals</li> <li>•Project e-newsletters and flyers</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Proactive media activity, social media updates and e-newsletters/flyers publication</li> </ul>
Media	<ul style="list-style-type: none"> <li>•Ensure project is visible to public</li> <li>•Ensure project is reliably communicated</li> </ul>	<ul style="list-style-type: none"> <li>•Project progress and results (WP6)</li> <li>•Significance of results and impacts (WP6)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website – media area</li> <li>•Press briefs and media contacts</li> <li>•Multimedia content</li> <li>•Project factsheets and e-newsletters</li> <li>•Regular social media updates</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Regular press briefs, as required</li> <li>•Invitations to relevant events</li> </ul>
Education/ training	<ul style="list-style-type: none"> <li>•Ensure knowledge is passed on through education</li> </ul>	<ul style="list-style-type: none"> <li>•Project progress, impacts and results (WP1, WP6)</li> <li>•ECOMS2 methodologies (WP1)</li> </ul>	<ul style="list-style-type: none"> <li>•ECOMS2 website</li> <li>•Factsheets and e-newsletters</li> </ul>	<ul style="list-style-type: none"> <li>•Regular website updates</li> <li>•Fact sheets and e-newsletters</li> </ul>

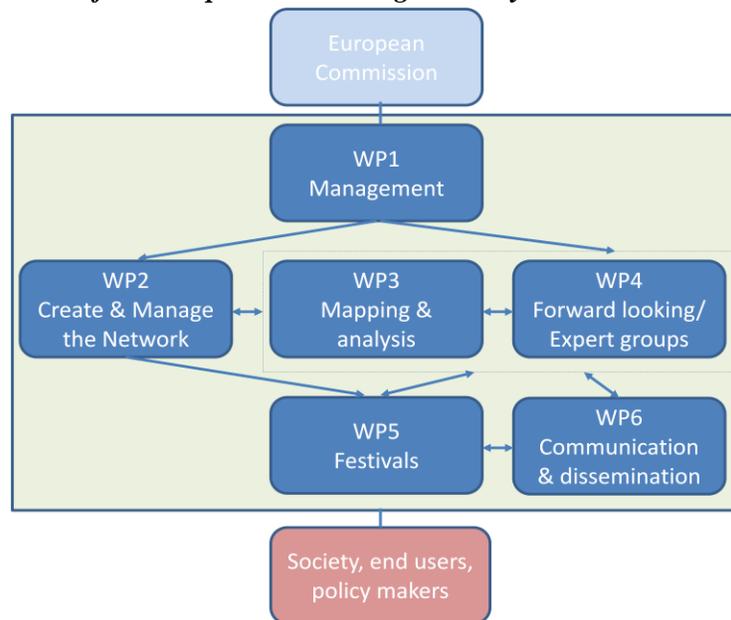
### 3. IMPLEMENTATION

#### 3.1 Work plan – Work packages, deliverables and milestones

The work plan is structured around the following six interconnected Work Packages as shown in Figure 2:

- WP1 is the management work package (WP); for project management, monitoring, and administration and reporting. This WP will also coordinate and facilitate collaboration and coordination between partners within ECOMS2, and facilitate efficient running of Expert groups, Stakeholder group and Editorial teams. It will also be responsible for the high level engagement with the European Commission.
- WP2 will create and manage the network, and ensure it evolves, in order to integrate and coordinate ongoing and future climate change research and innovation initiatives within the EU and beyond. It will provide forums to ensure that the network is active and effective. Key experts and key activities will be identified to support mapping (in WP3), assessment of new challenges (WP4) and outreach (WP5 and WP6).
- WP3 will set up procedures for creating reports on the state of Earth system modelling and climate service provision in Europe, involving expertise from these communities and a range of stakeholders. The WP will undertake a mapping and analysis of the relevant current activities, create the content of the reports, collect feedback from all involved and take responsibility for the contents of the reports.
- WP4 will assess new challenges and determine emerging needs relating to Earth system modelling and climate services, through the use of expert groups and the reports from WP3. The WP will provide recommendations to the European Commission on future research and innovation priorities for Earth system modelling and climate services.
- WP5 will support a two-way communication process between different communities. WP5 will enable exchange of knowledge among providers and users through showcases (Festivals) of European climate services and Earth system modelling. The Festivals will also present the results from the mapping and forward looking analyses of WP3 and WP4.
- WP6 will undertake communication and dissemination activities. This will include producing the “State of European Earth-system modelling and climate services” publication series, based on the mapping and reports in WP3, the recommendations in WP4 and WP5 festival output; providing communication channels to strengthen the science-policy interface and ensure optimum information exchange with other users; developing and maintaining a website and other outreach platforms, and incorporating outcomes from the networking activities.

Figure 2: Graphical presentation of the components showing how they inter-relate



### Timing of the work packages and their components

Below is a Gantt chart detailing the timings of the work packages and their components:

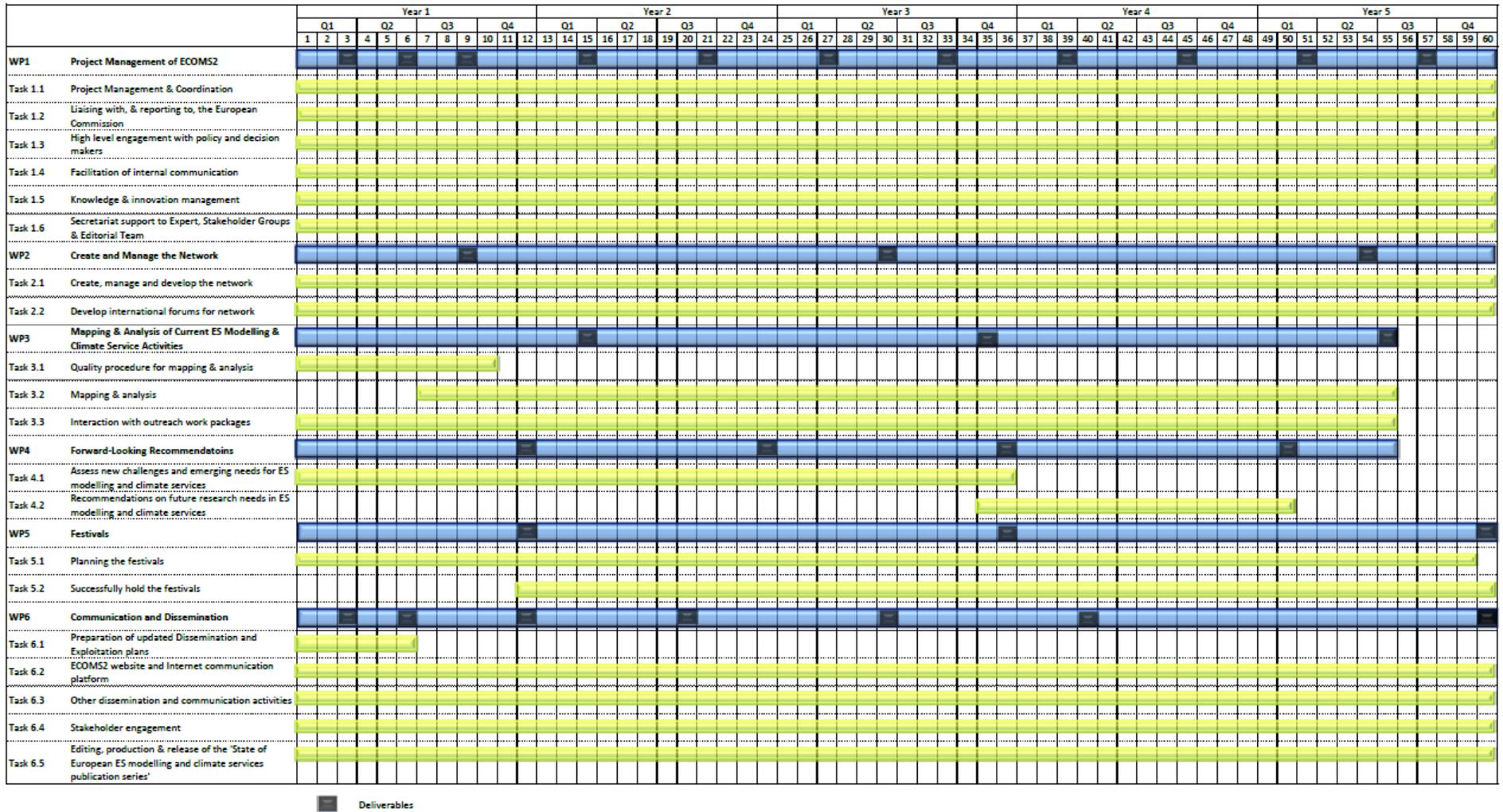
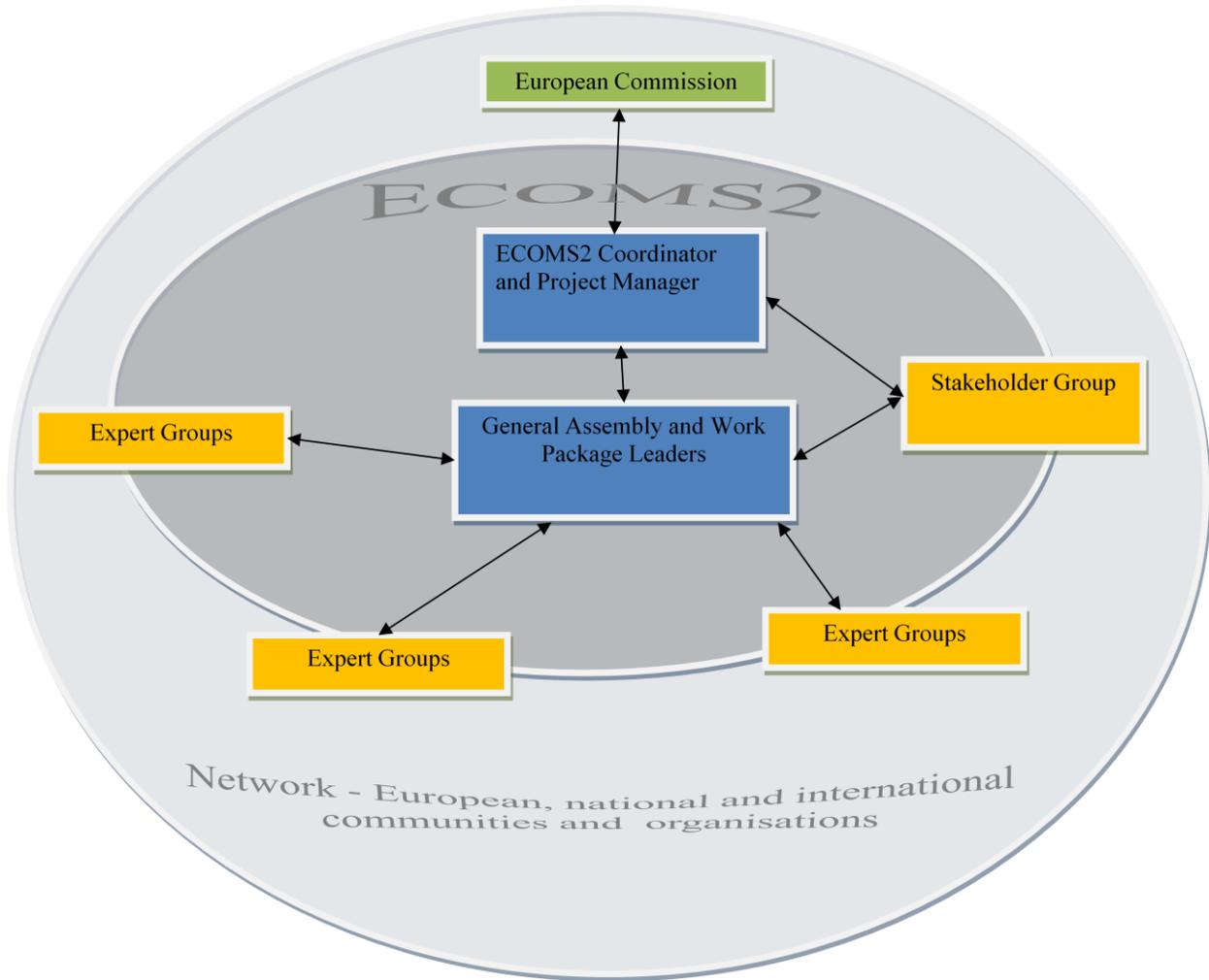


Figure 3: Timings of the work packages and their components

**3.2 Management structure and procedures**

The ECOMS2 Coordination and Support Action brings together 11 European partners, and will be managed through a management Work Package (WP1) which has been explicitly included in the project. Top level formal management of the project will be provided and this includes facilitating the use of mechanisms to support internal project communication. Individuals’ responsibilities and decision making delegations will be clearly defined.

The project will be led and coordinated by Dr Chris Hewitt, who has considerable experience in leading projects within large climate research and climate service work programmes, including European Commission funded projects such as ENSEMBLES under FP6 and EUPORIAS under FP7, as well as experience and leadership in European and global climate service initiatives.



*Figure 4: ECOMS2 Management Structure*

**3.2.1 Overview of structure and decision-making bodies/mechanisms**

Details of the components of the management structure, identified in Figure 4, are given in the sections below, together with the specific roles and decision making responsibilities of individuals associated with each group. In summary:

- The General Assembly is the overall decision making body for this Action and will be the supervisory body ensuring a successful execution of the project. It constitutes representatives from all 11 institutions, and will be

chaired by the Coordinator. It is the arbitration body for managing any associated project issues (such as ethics, intellectual property, disputes and complaints);

- The Coordinator is responsible for the overall coordination of the Action, acting as point of contact for the European Commission. The Coordinator has ultimate responsibility for delivering the Action;
- The Project Office will conduct the day-to-day management of the project on behalf of the General Assembly and the Coordinator;
- The Work Package Leaders (and their co-leads) have responsibility to ensure delivery of their work package's tasks and deliverables, but also to work closely with the Coordinator to provide support for delivering against the overall objectives of the Action;
- A number of Expert groups, comprised of multi-disciplinary experts from the ECOMS2 partners and network, will form for finite periods of time during the Action;
- The Stakeholder Group will influence and advise on activities and priorities of the Action from a stakeholder (including user) perspective.

### **3.2.2 General Assembly**

The General Assembly consists of all of the partner institutions, and will have oversight of the entire Action. It will be chaired by the Coordinator. The purpose of the General Assembly will be to:

- Act as the overall decision-making body for the Action and be responsible for agreeing on how to implement these decisions;
- Ensure delivery of the objectives, deliverables and milestones of the Action;
- Oversee political and strategic orientation of the Action;
- Share and disseminate knowledge as widely as possible across and beyond the Action;
- Agree the work plan and any changes to the plan, and monitor its implementation
- Ensure the proper operation of the consortium, including financial management, reporting and liaison with the European Commission;
- Make and approve recommendations in the event of changes to the consortium composition or budget allocations;
- Act on any necessary alterations to the Consortium Agreement (agreement which specifies the relationship amongst the partners), including changes in intellectual property rights;
- Recommend any resolutions of any disputes and complaints between partners
- Oversee and manage risks, benefits and issues (including any ethical issues) of ECOMS2
- Oversee the cross-cutting theme of gender balance.

The General Assembly will delegate the management of some of its responsibilities to other bodies within the management structure.

General Assembly meetings will be held remotely (i.e., via video-conferencing/Skype/WebEx) as opposed to face to face. These will be every 6-12 months; with the European Commission in attendance if they wish. Due to the nature of the work plan, and the nature of the activities this action links to, there will be plenty of opportunities for the partners to meet physically at the meetings and events they attend, thus allowing informal face-to-face discussions.

In principal, formal approval by the General Assembly to any decisions taken outside of the core General Assembly meetings, shall be given by e-mail vote. The framework for these voting procedures will be laid down in the Consortium Agreement.

No launch event is planned for the start of ECOMS2; however, WP6 will ensure that there is an appropriate level of communication associated with the start of ECOMS2. A physical meeting at the start of the Action can be arranged at the request of the European Commission if deemed essential.

### **3.2.3 Coordinator and Project Office**

The ECOMS2 CSA will be coordinated in all the administrative, financial and management aspects by the Met Office. This is at the delegation of the General Assembly. Day-to-day management tasks are listed below:

i) Implementation and maintenance of the Grant Agreement and the preceding Consortium Agreement. The Consortium Agreement will layout the rules for participation of the 11 partners, including agreement of ownership and access to knowledge and results (i.e., Intellectual Property Rights), the processes for making decisions, and also for resolving disputes;

(ii) Overall legal, financial, administrative management and reporting, including:

- Designing and maintaining partner specific templates for collecting inputs into the required European Commission documents;
- Implementing and maintaining a project-specific process for reporting (internal reporting in order to monitor progress and activities, and external reporting to the European Commission through periodic reports);
- Preparing, and collecting the information required for, the periodic reports to the European Commission;
- Reporting all publications and dissemination activities resulting from this Action to the European Commission;
- Preparing for, and post-processing, the reviews from the European Commission including support in the implementation of recommendations;
- Handling of day-to-day requests from partners and external bodies, and project correspondence;
- Financial management – including transfer of project funds to partners, providing clarification on any financial issues, monitoring and controlling the project budget;
- Adaptation of project and management structure after changes to the work plan and/or consortium;
- Scheduling, organisation, chairing and recording of meetings relating to the management of the project, plus ensuring all actions and outcomes are taken forward.

(iii) Appropriate management of gender aspects, ethics issues, disputes/complaints and risks/issues/benefits on behalf of the General Assembly of partners;

#### **Coordinator**

The Coordinator will be responsible for the overall coordination of the Action; ensuring consistency across the CSA, managing progress and ensuring compliance with the work plan and objectives. Other coordination activities include ensuring synthesis between the work packages so that activities are aligned, avoiding duplication of effort and identifying any gaps. The Coordinator will act as the intermediary between the European Commission and the Action, including communicating any significant achievements and proposed deviations from agreed plans; will coordinate and monitor the gender balance strategy, the knowledge and innovation management strategy and oversee participation in the Open Research Data Pilot. The Coordinator will have overall responsibility for the management of the risks within the Action; will chair the Stakeholder Group and represent it at the General Assembly; provide formal reports to the European Commission and will be assisted by the project manager.

#### **Project Manager**

Responsible for facilitating internal communication within the project; providing support and planning tools for work package management; scheduling and organising meetings of the project including providing agendas and minutes; managing, monitoring and reporting of project finances and budget; management of the risks, benefits and issues registers; production of Gender Action Report; providing administrative support to the Coordinator. The project

manager reports to the General Assembly. Specialist support (e.g. finance, legal and communications) will be provided to the Project Manager by the appropriate Met Office departments (who have extensive experience of European research programmes and climate service initiatives); and other partner institutes when necessary.

### **3.2.4 Work Package Leaders**

Work Package Leaders (WPL) and Co-Leaders have been appointed. WPLs will have the autonomous responsibility for coordinating the tasks within their work package to contribute to the delivery of the Action's goals and deliverables. The WPLs will ensure that: the work and activities at work package level are carried out according to plan and budget; deliverables are produced and milestones are attained on time; and decisions taken at the General Assembly level are implemented at work package level. They will make sure that the progress of their work package is monitored and reported on, including highlighting any departure from the work plan, disputes or difficulties as early as possible to the Coordinator.

### **3.2.5 Expert Groups**

A number of Expert groups will form for finite periods of time during the Action. These will be small groups comprising of multi-disciplinary experts from the network and ECOMS2 partners. These groups will be coordinated through WP4, drawing from the network coordinated through WP2, and they will assess and address new challenges and emerging needs relating to Earth System modelling and climate services.

### **3.2.6 Stakeholder Group**

A number of stakeholders will be identified and invited to form the Stakeholder Group through the network identified in WP2, ensuring appropriate representation across sectors, regions, activities and initiatives. As with the methodology to identify and form the network, a process will be developed to identify the entities that will form the Stakeholder Group. The Coordinator will chair the Stakeholder Group and will represent them at General Assemblies, communicating any concerns or points that they wish to raise. All stakeholders will be engaged in the network through the relevant activities and tasks in the WPs, in particular through WP6.

### **3.2.7 External Expert Advisory Board (EEAB)**

The nature of the CSA is such that finding independent external advisors who are not part of the network is not necessary. Anyone identified to be on the Board would also be a natural addition to the network. An EEAB has therefore not been formed, but the Stakeholder Group will be granted appropriate advisory role and adequate composition, to facilitate linking up with the working group on the Climate Services Roadmap implementation to be set up by DG RTD.

### **3.2.8 How the organisational structure is appropriate to ECOMS2**

ECOMS2 brings together a small number of European partners and comprises only six work packages. This means that the management structure can be kept simple and efficient to reflect these small numbers, and also optimise important interactions between all parties. Each partner (apart from ECMWF) is either a work package leader or co-leader. So ECOMS2 only has one management body, which is its General Assembly.

ECOMS2 aims to facilitate networking, coordination, dialogue and dissemination within the complex landscape of European and international Earth-system modelling and climate services. The internal structure therefore has many linkages and there are a vast number of external interactions planned. It is therefore important that all partners are kept well involved at all times. All partners will be involved in major decisions that need to be made.

The General Assembly will delegate some responsibilities and decisions to specific subsets of the General Assembly. For example, the management of specific areas of importance such as gender, ethics and IPR will be carried out centrally through the Project Manager and Coordinator.

As the Stakeholder Group formed from the network is central to this action, it is important that these stakeholders are represented consistently at all levels. Hence the Coordinator will be responsible for ensuring that the stakeholders are represented at the General Assembly and thus considered in any relevant decisions.

The management structure has been designed to ensure efficient communication channels exist between the ECOMS2 partners, Expert groups, Stakeholder Group, network and the European Commission.

### **3.2.9 Innovation Management**

The Coordinator will be responsible for ensuring an effective process for innovation management within this Action, which will require a complete overview of activities. By nature of the structure of the consortium and the work packages within the project, both the technical and market aspects of innovation will be addressed and combined. There is both technical expertise, and user expertise within the consortium. Through the Coordinator these elements will be brought together and will ensure that innovative approaches are taken, a set of clear principles are adopted, and that the partners have an environment within ECOMS2 where innovation is encouraged.

The goal is to use creativity and innovation within each of the work package tasks in order to meet ECOMS2's objectives. At each stage of the action, innovation will be used in slightly different ways. Within WP2 the focus will be on the creation of the network and will look at innovative ways to create the required relationships to engage with this network, and ensure that they remain in place beyond their initial formation. Enhancing effective communication and dissemination activities (all carried out by WP3, 4, 5 and 6) will involve innovative methods and ideas, so that outreach and engagement is optimised. For example, the festivals will be organised in such a way that they will be attractive to targeted attendees. The internet communication platform developed in WP6 will be designed by experts in IT and communications to encourage optimal use by a variety of target audiences.

The work packages are designed so that there will be close interactions, and feedbacks, between them. To ensure that the action responds to the information gained and feedback from the network in the most efficient way, the timings of the deliverables and milestones of the work packages have been planned to allow sufficient time to incorporate feedback. This ensures the action is responsive to the valuable insight that will be provided, and ensure that the outcomes are of clear value to the European Commission and Earth-system modelling and climate service communities.

Several partners (including the Met Office) have established innovation management processes in place and innovation specialists. ECOMS2 will be able to draw on the experience that it has in successfully integrating new ideas and ways of working into its activities and outcomes.

### **3.2.10 Further Management Considerations**

#### **Gender Balance**

The promotion and monitoring of gender equality throughout the Action will be the responsibility of the Coordinator, with support from the Project Manager. The ECOMS2 consortium is committed to meeting the Horizon 2020 gender balance objectives as fully as possible. Therefore, a Gender Strategy and Action Plan will be produced by month three, and updated during the Action. This will ensure that gender aspects of the Action are fully considered within the activities that are being carried out, and that ECOMS2 acts to promote gender equality wherever possible. In ECOMS2,

eight of the 27 (30%) named individuals to work on ECOMS2 are female, and two of work package leaders/co-leaders are female.

### **Ethics**

The Ethics criteria have been considered. However, the nature of the activities proposed under ECOMS2 means that there are no ethical concerns.

Consideration has been given to the external groups and organisations who will be involved in the Action. Mainly organisational data will be collected. On occasions where any personal data is collected, procedures will be followed for the collection, storage, protection, retention and destruction of such data. Where commercially sensitive data is concerned, this will be identified and the relevant information will be withheld accordingly. All information will be gathered in accordance with guidelines laid down by the European Commission, and national legal requirements.

### **Knowledge Management**

The partners have a collective responsibility to ensure that any knowledge collected, generated and disseminated by this Action, is appropriately protected and shared (intellectual property). At the heart of ECOMS2 is the collection of research information, and ECOMS2 will synthesise this knowledge and disseminate it. KNMI and CMCC will play a key role in this through WP6. However, the Coordinator is responsible for the action's knowledge management strategy and ensuring it is kept up to date and that the associated protocols are adhered to.

#### **3.2.11 Critical Risks for Implementation**

The General Assembly will be responsible for dealing with the risks, issues and benefits realisation of the Action. The Coordinator will be responsible for management of these risks, including mitigating the risks, and proposing preventative and corrective solutions in case of their occurrence. Day-to-day maintenance of the risk register will be undertaken by the Project Manager.

Critical risks to the Action's implementation, which have the potential to impact the objectives being achieved, have been identified and described. These risks will be actively managed and monitored throughout the period of the Action, as will any new risks that arise. Where there are risks that exist specifically within individual WPs, these have been identified already and the design of the WPs has taken account of preventative measures for each.

### **3.3 Consortium as a whole**

The ECOMS2 consortium, consisting of 11 partners from across Europe, is a combination of leading figures and institutions who are involved in Earth system modelling and climate services. The consortium brings together a critical mass of expertise. It was decided to form a small (and affordable) consortium of partners with the appropriate mix of skills, with geographic reach across Europe and strong engagement, networking and reach in this arena.

The consortium brings together a critical mass of expertise in an effective way, as highlighted in the following bullet points:

- The consortium is not too large to become unmanageable, and is efficiently sized to properly utilise the funding and resources available to the CSA;  
An alternative approach could have been to form a very large consortium representing a wide range of users, information providers and international activities. Such a large consortium would create project management challenges and ineffective use of available funding;
- Organisations and key people in the consortium are representatives of key initiatives and projects in the European arena of Earth-system modelling and climate services;

- ECOMS2 has representatives and coordinators of existing key European projects and initiatives. Details about the consortium’s current key activities are presented in Section 1.3;
- ECOMS2 has very strong engagement and networking into national, European and international activities; The consortium has been deliberately chosen as it has existing engagement at each of the national, European and international level. Again details are provided in Section 1.3 under “*National and international activities linked to the project*”. Key examples are:
  - National level: There are three National Met Services (NMSs) within the consortium (Met Office, KNMI and SMHI) which are at the heart of national activities for Earth-system modelling and climate services. Other consortium members are in similar positions within their countries. Consortium members are closely involved in a multitude of programmes at national level. For example, the Met Office, in partnership with the UK’s Natural Environment Research Council (NERC) coordinates a Joint Weather and Climate Research Partnership. One of the primary areas of focus of this programme is the UK Earth System Model project.
  - European level: For example, Climate-KIC is the largest public-private innovation partnership focusing on climate change challenges and RHMSS has established the sub-regional South-East European Virtual Climate Change Centre (SEEVCCC).
  - International activities: Globally coordinated programmes are represented; with some primary examples being links to WCRP, the UN’s Global Framework for Climate Services (through Met Office, KNMI, SMHI) and Climate Services Partnership (Met Office, HZG).
- The consortium has locations spread across Europe, thus maximising its geographic reach across Europe;
- The consortium has a mix of skills covering networking, research and innovation, service development and delivery, user understanding and engagement, communication and dissemination. The cross-disciplinary mix of skills that the partners bring to ECOMS2 ensures that all categories within the network are represented by the consortium; from the user communities (i.e. European Environment Agency through CMCC; national governments through the NMSs and Climate Services Centres) to information providers (i.e., CMIP). Communication and dissemination expertise was also considered when forming the consortium. KNMI and CMCC have specific communications teams and IT experts who will be involved in ensuring optimal outreach.

All of the above bullet points demonstrate that the consortium provides the solid foundation and starting point for carrying out the activities planned under this Action. There is a wealth of existing knowledge and networks represented by the partners across all categories of the proposed CSA network. Careful consideration was given to the combination of partners and appropriate mix of expertise, so that the optimal set of consortium partners chosen gives fair representation of the current landscape and optimal outreach capacity.

The resulting consortium is a renowned, work-leading set of respected partners; who will bring credibility to ECOMS2. This will therefore command trust from all entities that ECOMS2 links with, so that they are more likely to engage with the activities of the Action.

The core consortium is represented by:

- Dr Chris Hewitt and Dr Carlo Buontempo at Met Office as coordinator, key climate modelling and service centre in Europe, coordinator of relevant FP7 and Horizon 2020 projects
- Dr Patrick Monfray at ANR as senior nominated JPI-Climate representative
- Prof Francisco Doblas-Reyes at BSC as a key climate modelling and service centre in Europe
- Dr Silvio Gualdi and Dr Antonio Navarra at CMCC, as a key climate modelling and service centre in Europe, especially for the Mediterranean Region, and leading the EEA topic centre on climate change adaptation
- Prof Ralf Toumi and Harilaos Loukos at Imperial College as a core partner of Climate-KIC (supported by the EIT)
- Dr Jean-Noel Thepault at ECMWF as Copernicus Climate Change Service operator

- Dr Daniela Jacob and Prof Maria Manez at HZG, as a key climate modelling and service centre in Europe
- Dr Sylvie Joussaume and Dr Eric Guilyardi at CNRS as a key climate modelling centre in Europe, and as representative of ENES and IS-ENES, key infrastructure activities
- Prof Bart van den Hurk at KNMI as a key climate modelling and service centre in Europe, coordinator of relevant Horizon 2020 projects
- Dr Slobodan Nickovic at RMHSS as a key climate modelling and service centre particularly in south-east Europe where RHMSS has established the sub-regional South-East European Virtual Climate Change Centre (SEEVCCC)
- Ralf Doescher at SMHI as a key climate modelling and service centre in Europe, host of the CORDEX office, coordinator of relevant Horizon 2020 projects

As of 1<sup>st</sup> January 2014, Serbia became an Associated Country to Horizon 2020. Therefore, RHMSS is now eligible for funding under the Horizon 2020 Programme.

We believe the ECOMS2 consortium contains the necessary expertise to realise the Action's objectives.

### **3.4 Resources to be committed**

The total requested European Commission contribution for ECOMS2 is 2,994,373 €. The 11 partners have offered 273 person months to the Action.

#### **3.4.1 Financial planning approach**

The largest percentage of the funding for ECOMS2 is required for personnel costs, as the project will rely on the skills and many years of expertise of the partner organisations and key personnel involved. Therefore it was key that the budget was calculated using an estimation of the costs associated with these experts that have been identified to deliver the action's objectives. As tasks and the scope and description of ECOMS2 developed; the associated estimate of personnel resources developed. This iterative approach to calculating the required budget will ensure a good estimate of the resources required; and associated funding required.

Partners assessed their own 'other direct cost' items (travel budget, costs for hosting workshops, meetings, festivals etc.) after the work packages and associated travel and meeting plans were drafted. These budgets were then challenged and compared to ensure consistency. It is appreciated that as this is a coordinating action, there will be a substantial amount of travel required. However, all unnecessary travel will be avoided, and alternative forms of communication will be used if possible (i.e., teleconference/Skype); certainly in the case of internal meetings and discussions.

#### **3.4.2 Distribution and breakdown of resources**

##### **a. Personnel costs**

Personnel costs represent 75% (including associated indirect cost) of the budget. WP2 has approximately 22% of the budget as it is a core activity to create, manage and engage with the vast network. Whilst WPs 2, 3, and 4 carry out all of the coordination, facilitation and support activities of the CSA, directed dissemination and communication of the methodologies and outcomes from these activities is key. Therefore, another 22% of the budgeted number of person months will be linked to dissemination activities.

**Management activities** – 25 person months (PM) are allocated to project management and the coordination of ECOMS2. These are allocated to the Met Office. All partners will undertake some (relatively minor) activities relating to project management but this has not been itemised under WP1, but will be conducted through their activities across the CSA. ECOMS2 is aiming for some flexibility around allocation of budget to allow for these activities by partners (specifically CMCC and KNMI, who will be involved in developing the Data Management Plan).

**b. Other direct costs**

**Travel budget** – Each partner drafted a meeting/conference plan and associated budget. 12% of the CSA’s budget (including associated indirect cost) has been put aside for travel. This includes a small allocation for some members of the Stakeholder Group and Expert groups who may require travel funds, including funds to attend the festivals.

**Others** – In addition to attending externally organised meetings/events, there will be meetings organised by the partners themselves. For example, WP4 plans two large foresight meetings in order to discuss future research requirements, with the appropriate expert groups in attendance. The three festivals in WP5 will showcase the outcomes, activities and status of the CSA. In order for these festivals to be successful, adequate funding needs to be provided for their organisation and running. Technical and logistical support in organising/hosting the three festivals, includes: venue and facility rental; rental and installation of technical equipment; catering; technically simple print material, promotion and press material; and travel arrangements for invitees and support for reporting and evaluation of the meetings. This support will be implemented via both in-house capacities within HZG and various external service contracts. The value of these other goods and services is estimated at 70,000 €. The budget calculated for the organisation of the festivals was based on experience with running other major events of this size. The draft dissemination and exploitation plan detailed in Section 2.2.1.a details a host of reports and targeted material that will be published open access. Therefore, 58,000 € has been put aside for associated publication and printing costs. Two partners (Met Office and HZG) will require **external audits** (for certification of financial statements).

Nine of the partners have other direct costs budgets that are greater than 15% of their personnel costs. It is not surprising that this is a large proportion of the partners, as central to the CSA is the requirement to attend and host appropriate meetings, workshops, conferences etc. Table 2 provides the breakdown in detail of these other direct costs.

**Table 2: Summary of other direct costs for participants (all excluding IC and SMHI)**

<b>1/ Met Office</b>	<b>Cost (euros)</b>	<b>Justification</b>
Travel	17,000	Travel/subsistence associated with management, coordination & high level engagement (WP1)
	14,500	Travel/subsistence to WP meetings and events (WP2, 3, 4, 6)
	18,000	Travel/subsistence to Festivals (WP5)
	10,000	Travel/subsistence to Festivals (WP5)
Equipment	0	None
Other goods/services	7,000	Logistical support for organising management & other 'project' meetings
	3,000	Technical support for setting up & managing e-mail lists and internal WIKI
	7,000	Publication/open access & printing charges (WP6)
	4,750	External audit
<b>Total</b>	<b>81,250</b>	

<b>2/ ANR</b>	<b>Cost (euros)</b>	<b>Justification</b>
Travel	30,000	Travel/subsistence to WP meetings, and events which will facilitate creation and management of network (WP2)
Equipment	0	None
Other goods/services	0	None
<b>Total</b>	<b>30,000</b>	

<b>3/ BSC</b>	Cost (euros)	Justification
Travel	22,000	Travel/subsistence to WP meetings and events (WP2, 3, 4, 6)
Equipment	0	None
Other goods/services	2,000 6,000	Logistical support for organising/hosting management meetings Publication/open access & printing charges (WP6)
<b>Total</b>	<b>30,000</b>	

<b>4/ CMCC</b>	Cost (euros)	Justification
Travel	8,000 3,000 18,000	Travel/subsistence to WP meetings and events (WP2, 3, 4) Travel/subsistence to Festivals (WP5) Travel/subsistence in association with dissemination and communication in capacity as WP6 co-leader
Equipment	0	None
Other goods/services	20,000	Publication/open access & printing charges (WP6)
<b>Total</b>	<b>49,000</b>	

<b>6/ ECMWF</b>	Cost (euros)	Justification
Travel	15,400	Travel/subsistence to WP meetings and events (WP2, 3)
Equipment	0	None
Other goods/services	0	None
<b>Total</b>	<b>15,400</b>	

<b>7/ HZG</b>	Cost (euros)	Justification
Travel	13,600 24,400	Travel/subsistence to WP meetings and events (WP2, 3, 4, 6) Travel/subsistence for festival attendees (WP5)
Equipment	2,000	Laptop
Other goods/services	70,000 5,000 3,000	Technical and logistical support in organising/hosting the three festivals Publication/open access & printing charges (WP6) External audit
<b>Total</b>	<b>118,000</b>	

<b>8/ CNRS</b>	Cost (euros)	Justification
Travel	10,000 20,000	Travel/subsistence to WP meetings and events (WP2, 3, 4) Travel/subsistence for members of Expert groups (WP4)
Equipment	0	None
Other goods/services	20,000	Costs for small expert meetings and two large foresight meetings (WP4)
<b>Total</b>	<b>50,000</b>	

9/ KNMI	Cost (euros)	Justification
Travel	20,000	Travel/subsistence to WP meetings and events (WP2, 3, 6), mainly in association with dissemination in capacity as WP6 leader
Equipment	0	None
Other goods/services	20,000	Publication/open access & printing charges (WP6)
<b>Total</b>	40,000	

10/ RHMSS	Cost (euros)	Justification
Travel	35,000	Travel/subsistence to WP meetings and events (WP3, 4)
Equipment	0	None
Other goods/services	0	None
<b>Total</b>	35,000	

**Large research infrastructure** – None of the participants will be declaring costs of large research infrastructure under Article 6.2 of the General Model Grant Agreement.

**Sub-contracts** – CMCC, HZG and KNMI are planning to sub-contract discrete elements of the ECOMS2 work. These partners will comply with applicable national law on public procurement procedures and the rules for sub-contracting as laid out in the Horizon 2020 General Model Grant Agreement (Article 13). This includes awarding the sub-contracts under conditions of transparency and equal treatment and ensuring best value for money. See Section 4.2 for further details of the planned three sub-contracts.

### 3.4.3 Contributions from beneficiaries

ECMWF is contributing two person months of effort to this CSA, but is not requesting any EU funding. This is in their capacity as Copernicus Climate Change Service (C3S) operator, thus ensuring that ECOMS2 is intrinsically connected to the strategies and activities of C3S. Their costs have been estimated, but will not be reimbursed and will not be taken into account for the calculation of the grant (in accordance with Article 9 of the General Model Grant Agreement).

## 4. MEMBERS OF THE CONSORTIUM

### 4.1 Participants

#### **Participant 1: Met Office (Met Office)**

The Met Office was founded in 1854 and has been the UK's National Meteorological Service (NMS) since then. Throughout its long history, the Met Office has been at the forefront of meteorological scientific advance and in the last few decades has become one of the recognised world leading organisations in the fields of climate science and climate services through its Met Office Hadley Centre. There are over 500 people actively involved in all areas of weather and climate science, including observational research, weather/climate model development and assessment on all timescales from days to centuries, as well as climate impacts and consultancy for both governmental and industry partners.

The Met Office has strong connections with Earth-system modelling and climate service organisations in Europe and world-wide, through extensive and numerous collaborations on research projects and programmes, and involvement in a wide-range of international activities (such as CMIP, CORDEX, Intergovernmental Panel on Climate Change (IPCC) and WCRP). The Met Office has strong engagement with a range of actors including the European Commission, public sector and private sector organisations, often through contracted work as well as through personal and organisational collaboration. The Met Office also plays a central role in several key networks such as the European Climate Services Partnership. These connections, collaboration and experience will be used in the Met Office's role as WP2 leader as overall Coordinator and contributor to all WPs.

The Met Office will project manage this Action. There is a team of experienced project managers, who hold formal project management qualifications. This team has much experience in managing projects involving multiple partners and users. The Met Office has coordinated projects such as the FP6 ENSEMBLES project, FP7 EUPORIAS and EUCLEIA, and H2020 EUSTACE; and will coordinate H2020 PRIMAVERA which will begin in November 2015.

#### **Short profile of key personnel involved:**

**Dr Chris Hewitt (male), Head of Climate Service Development [Coordinator and Co-leader WP2]:** Chris is responsible for developing strategic partnerships and networks in Europe and worldwide to improve, and maximise the use of, climate service capabilities. He has over 20 years experience covering climate research, team leader, project manager and senior manager. He was the Science Coordinator for the EC's FP6 ENSEMBLES project on climate change and climate change impacts, and is currently the overall coordinator for the FP7 EUPORIAS project on climate services. He has considerable international networking experience through research collaborations, project and programme management, international panels, as a lead writer for the Global Framework for Climate Services, Chair of the WMO Expert Team on User Interfaces, a founding member of the international Climate Services Partnership, co-chair of the European Climate Services Partnership, and chair of ECOMS.

**Dr Carlo Buontempo (male), Manager European Climate Service Development:** After leading the Climate Adaptation team at the Met Office, Carlo is now leading the Climate Service team for Europe. His role is to develop new tools that help decision makers manage their climate risk portfolio. In this capacity Carlo is the scientific coordinator of EUPORIAS ([www.euporias.eu](http://www.euporias.eu)), and the team leader for BRACED (UK Government funded programme focussing on building resilience and adaptation to climate extremes and disasters in the sub-Saharan and south Asian regions). He is also contributing to a number of other European-funded projects on climate services, such as H2020 IMPREX.

Carlo has extensive experience in generating regional climate scenarios through regional climate modelling and in developing numerical and statistical models to derive climate related information.

**Relevant publications, and/or products, services, achievements:**

**Hewitt, C. D.**, S. Mason and D. Walland, 2012: The global framework for climate services, *Nature Climate Change*, DOI:10.1038/nclimate1745.

**Hewitt, C. D.**, **C. Buontempo**, **P. C. Newton**, 2013: Using climate predictions to better serve society's needs. *Eos*, 94, 105--107, DOI:10.1002/2013EO110002.

**Hewitt, C.D.**, lead writer of the Implementation plan for the Global Framework for Climate Services, World Meteorological Organization, 2014, [http://www.gfcs-climate.org/sites/default/files/implementation-plan//GFCS-IMPLEMENTATION-PLAN-FINAL-14211\\_en.pdf](http://www.gfcs-climate.org/sites/default/files/implementation-plan//GFCS-IMPLEMENTATION-PLAN-FINAL-14211_en.pdf)

Jancloes, M., M. Thomson, M. M. Costa, **C. D. Hewitt**, C. Corvalan, T. Dinku, R. Lowe and M. Hayden, 2014: Climate services to improve public health. *Int. J. Environ. Res. Public Health*, 11. 4555—4559

**Buontempo, C.**, **C.D. Hewitt**, **F.J. Doblás-Reyes** and S. Dessai (2014). Climate service development, delivery and use in Europe at monthly to inter-annual timescales. *Climate Risk Management*, 6, 1-5, doi:10.1016/j.crm.2014.10.002.

**Relevant previous projects or activities:**

Chair of current **ECOMS** coordination across EU FP7 climate modelling and climate service projects.

Lead writer (Dr Chris Hewitt) of the UN's Global Framework for Climate Services (**GFCS**) and ongoing ad-hoc secondee to **WMO** for GFCS.

Dr Chris Hewitt is a founding member of the international **Climate Services Partnership** (CSP) and co-chair of the **European Climate Services Partnership** (ECSP).

FP7 **EUPORIAS** project on climate services. Dr Hewitt is the Coordinator, and Dr Buontempo is the Science leader. EUPORIAS aims to develop end-to-end climate impact prediction services, operating on seasonal to decadal timescales, and demonstrating their value in informing decision making. Working closely with several European stakeholders, including those from the energy, health, forestry, agriculture, transport and water sectors, EUPORIAS is developing prototype climate services, thus the project will have many social and economic benefits for regional and national authorities and businesses.

FP7 **EUCLEIA** project (Met Office, Coordinator) focussing on the development and testing of attribution products with the aim of developing a quasi-operational attribution system. This will provide well verified assessments of how the risk of extreme weather events has changed in Europe due to human-caused climate change. EUCLEIA will deliver user-relevant information in the aftermath of extreme events and will work closely with targeted stakeholder groups, including the insurance industry, regional managers and policy makers, general public and the legal field.

**Relevant significant infrastructure and/or any major items of technical equipment:**

Not applicable.

## **Participant 2: National Research Agency, France (ANR)**

ANR was established by the French government in 2005 to fund research projects based on competitive schemes, giving researchers the best opportunities to carry out their projects and paving the way for ground-breaking new knowledge. The main mission of ANR is to fund the best basic research but also targeted and applied research, in particular through partnerships between companies and public sector laboratories. It is also ANR's mission to strengthen international cooperation by contributing to the funding of international consortia in partnership with other funding agencies in Europe and beyond.

In the context of climate research, ANR has funded research projects through thematic programmes (2006-2008 “Vulnerability: Environment, Climate & Societies”; 2009-2011 “Global Environmental Changes & Societies”; 2012-2013 “Facing Societal, Climate & Environmental Changes”), as well as through its Blue Sky programme since 2005. Since 2014, climate-related issues are addressed mostly through the ANR Societal Challenge “Efficient resource management and adaptation to climate change”. Between 2005 and 2014, over 300 research projects related to climate research have been funded with a budget circa 150 M€. Furthermore at transnational level, ANR has participated in Belmont Forum joint calls (2012, 2013, 2014 and 2015) and had initiated the first calls of JPI Climate in 2013 as call secretariat, then again in 2015 through a joint Belmont Forum-JPI Climate call.

ANR is strongly involved in international climate programming, by vice-chairing the European JPI Climate GB and co-chairing the international Belmont Forum, a network of main research funders in environment and climate fields involving post-industrialised countries (G7), European Commission (DG R&I) and emergent countries (BICS). These capacities demonstrate why ANR is best positioned to co-lead WP2, in particular Task 2.2 associated with the development of an international fora to ensure an effective network.

### **Short profile of key personnel involved:**

**Dr Patrick Monfray (male), Deputy Head of “Environment, Biological Resources, Ecology, Earth Science and Astronomy” Department at ANR [Co-leader WP2]:** As Research Director of CNRS (Centre Nationale de la Recherche Scientifique), in the 1990's he developed the French WMO atmospheric CO<sub>2</sub> monitoring network and innovative coupled climate-carbon simulations, now a reference for IPCC. Patrick co-founded the Integrated Marine Biogeochemistry and Ecosystem Research within ICSU/IGBP (International Council for Science/International Geosphere-Biosphere Programme) and ICSU/SCOR (Scientific Committee on Oceanic Research). In the 2000's, he headed the Laboratory of Space Geophysics and Oceanography (Toulouse), and then the Ocean-Atmosphere Department at CNRS/INSU (Paris), supervising 30 French laboratories. In 2010, he joined ANR to supervise global environmental change programmes. He has been vice-chair of the European JPI Climate since 2013, and also co-chair of Belmont Forum and member of Future Earth Governing Board (2012-2015).

### **Relevant publications, and/or products, services, achievements:**

Friedlingstein P., L. Bopp, P. Ciais, J.-L. Dufresne, L. Fairhead, H. LeTreut, **P. Monfray**, and J. Orr, Positive feedback between future climate change and the carbon cycle, *Geophys. Res. Lett.* Vol. 28, No. 8, p. 1543-1546, 2001.

deYoung B., M. Heath, F. Werner, F. Chai, B. Megrey and **P. Monfray**, Challenges of Modelling Ocean Basin Ecosystems, *Science*, 304, 1463-1464, 2004.

Hall J., D.A. Hansell, **P. Monfray** et al., IMBER Science Plan and Implementation Strategy. IGBP Report No. 52, IGBP Secretariat, Stockholm, 76pp., 2005.

The Belmont Challenge: A Global, Environmental Research Mission for Sustainability, Belmont Forum, 17pp, 2011. <https://igfagcr.org/belmont-challenge>.

Future Earth Initial Design, Report of the Transition Team, 100pp., 2013, Paris: International Council for Science (ICSU), ISBN 978-0-930357-92-4, [http://www.futureearth.info/sites/default/files/Future-Earth-Design-Report\\_web.pdf](http://www.futureearth.info/sites/default/files/Future-Earth-Design-Report_web.pdf).

**Relevant previous projects or activities:**

*Co-organiser of the following transnational calls relevant for climate research:*

[2015 JPI Climate/Belmont Forum Call on Climate Predictability and Inter-Regional Linkages](#)

[2015 ANR Call on Societal challenge "Efficient resource management and adaptation to climate"](#)

[2013 JPI Climate Call on Societal Transformation in the Face of Climate Change](#)

[2013 ANR Call on Facing Societal, Climate & Environmental Changes](#)

[2012 G8HORCs and Belmont Forum Joint Call on Freshwater Security](#)

**Relevant significant infrastructure and/or any major items of technical equipment:**

Not applicable.

### **Participant 3: Barcelona Supercomputing Center – Centro Nacional de Supercomputación (BSC)**

BSC, formed in 2005, has a mission to research, develop and manage information technology in order to facilitate scientific progress. At the BSC, more than 350 people from 40 different countries perform and facilitate research into Computer Sciences, Life Sciences, Earth Sciences and Computational Applications in Science and Engineering. The BSC is one of the four hosting members of the European PRACE Research Infrastructure as well as one of the first eight Spanish “Severo Ochoa Centre of Excellence” awarded by the Spanish Government.

The Earth Sciences Department of the BSC (ES-BSC) was established with the objective of carrying out research in Earth system modelling. The ES-BSC conducts research on emissions, air quality, mineral dust and global and regional climate modelling and prediction. It also undertakes research on the development of dynamical and statistical methods for the prediction of global and regional climate, on time scales ranging from a few weeks to several years, with a special focus on technologies that allow high-resolution modelling. The formulation of the predictions includes the development and implementation of techniques to statistically downscale, calibrate and combine dynamical ensemble and empirical forecasts to satisfy specific user needs in the framework of the development of a climate service.

Making progress in dynamical global climate modelling with a focus on monthly-to-decadal climate prediction is one of the main objectives of the ES-BSC, for which it uses EC-Earth and develops initialisation methods that lead to improvements in different aspects of the forecast quality. The assessment of the sources of predictability and the limitations of current climate prediction systems to exploit them, especially over Europe, inspires many of the publications by the unit.

The department operates the high-resolution air quality forecasting system CALIOPE for Europe and Spain; it also maintains the BSC-DREAM8b model for daily operational mineral dust forecasts for the Euro-Mediterranean region, collaborates with the WMO and the Spanish Meteorological Agency (AEMET) to host the Regional Centre for Sand and Dust Warning System (SDS-WAS) covering Europe, Northern Africa and the Middle East and is an active member of the EC-Earth consortium, whose global climate model is widely used at ES-BSC for research and teaching purposes.

Over the years, the department has been active in numerous European Projects including, including MEDSPA-91, INCO, EUREKA, EARLINET, DEISA, EC-EARTH, EARLINET-ASOS, ACTRIC, IS-ENES and FIELD\_AC ,DENFREE (2011), IS-ENES 2 (2013), PREFACE (2013), EUCLEIA (2014) and EUPORIAS (2012), and two computing projects granted by PRACE (HighResClim and SPAITAC) focusing on high-resolution climate predictions. The Earth Science department is the coordinator of the European project SPECS (2012). We also participate and receive grants from the Spanish Government for various R&D projects: RUCSS, PICA-ICE and RESILIENCE.

The BSC is the most active actor in climate services research in Spain. It also connects with different WMO international activities (World Weather Research Programme (WWRP) through the Polar Prediction Project, World Climate Research Programme through the Working Group on Seasonal to Interannual Prediction and CLIVAR, the Global Framework for Climate Services). They are unique in southern Europe and are very active in the climate modelling community, in particular for climate prediction.

#### **Short profile of key personnel involved:**

**Prof. Francisco Doblas-Reyes (male), Head of ES-BSC [Co-leader WP3]:** Francisco is an expert in the development of seasonal-to-decadal climate prediction systems. He has been involved in the development of the EC-Earth climate forecast system since its inception. He was an IPCC lead author in the Fifth Assessment Report, serves in WCRP and WWRP scientific panels, is a member of the ENES HPC Task Force, has participated in a number of FP4 to FP7 projects and is author of more than 100 peer-reviewed papers. He is shaping BSC’s plans for the development of a weather and climate modelling service that brings the latest developments of HPC and Big Data research to the

Earth science community, increasing at the same time the resilience of the European society to weather, air quality and near-term climate extremes.

**Prof. José M<sup>a</sup> Baldasano (male), Head of the Earth Sciences Department:** José is a full Professor in Environmental Engineering in the Technical University of Catalonia (UPC). His research activities are in air quality and climate modelling. He is author of more than 320 publications, 360 communications and 200 invited lectures, 90 conferences, co-editor and author of 19 books in environmental topics, co-chairman of nine environmental international conferences, and has been advisor of more 90 companies and administrations. He is member of the Scientific Steering Committee of PRACE HPC European Initiative; and member of the IPCC. Has been member of "Steering Group of National Experts on Ambient Air Quality, European Union, Commission DG XI" for development of Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management.

**Melanie Davis (female), Head of Climate Services Group in ES Department:** Melanie is an expert in the development of climate services, with particular experience in the application of climate information in the renewable energy sector. She is responsible for the climate services group at the Department of Earth Sciences and coordinates the work of three scientists and a communications officer. She represents the BSC in the Climate Services Partnership and ensures the links of the department with a wide range of private actors.

**Relevant publications, and/or products, services, achievements:**

Kirtman, B., S. Power, J.A. Adedoyin, G.J. Boer, R. Bojariu, I. Camilloni, **F.J. Doblas-Reyes**, A.M. Fiore, M. Kimoto, G.A. Meehl, M. Prather, A. Sarr, C. Schär, R. Sutton, G.J. van Oldenborgh, G. Vecchi and H.J. Wang (2013). Near-term climate change: Projections and predictability. *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.), Cambridge University Press, Cambridge, United Kingdom and New York, USA, 953-1028, doi:10.1017/CBO9781107415324.023.

**Doblas-Reyes, F.J.**, J. García-Serrano, F. Lienert, A. Pintó Biescas and L.R.L. Rodrigues (2013). Seasonal climate predictability and forecasting: status and prospects. *WIREs Climate Change*, 4, 245-268, doi:10.1002/WCC.217.

**Doblas-Reyes, F.J.**, I. Andreu-Burillo, Y. Chikamoto, J. García-Serrano, V. Guemas, M. Kimoto, T. Mochizuki, L.R.L. Rodrigues and G.J. van Oldenborgh (2013). Initialized near-term regional climate change prediction. *Nature Communications*, 4, 1715, doi:10.1038/ncomms2704.

**Buontempo, C., C.D. Hewitt, F.J. Doblas-Reyes** and S. Dessai (2014). Climate service development, delivery and use in Europe at monthly to inter-annual timescales. *Climate Risk Management*, 6, 1-5, doi:10.1016/j.crm.2014.10.002.

Caron, L.-P., L. Hermanson and **F.J. Doblas-Reyes** (2015). Multi-annual forecasts of Atlantic U.S. tropical cyclone wind damage potential. *Geophysical Research Letters*, doi:10.1002/2015GL063303.

**Relevant previous projects or activities:**

**SPECS** (<http://www.specs-fp7.eu/>) is a project funded by the European commission under FP7 and is coordinated by **Prof. Francisco Doblas-Reyes**. SPECS aims to deliver a new generation of European climate forecast systems, with improved forecast quality and efficient regionalisation tools; therefore producing reliable, local climate information over land at seasonal-to-decadal time scales. The improved understanding and seamless predictions will offer better

estimates of the future frequency of high-impact, extreme climatic events and of the prediction uncertainty. New services to convey climate information and its quality will be used.

EU FP7 project **EUPORIAS** aims to develop end-to-end climate impact prediction services, operating on seasonal to decadal timescales, and demonstrating their value in informing decision making. Working closely with several European stakeholders, including those from the energy sector, EUPORIAS is developing prototype climate services, thus the project will have many social and economic benefits for regional and national authorities and businesses. Melanie Davis leads the energy sector user engagement activities, which are linked to the Resilience project referenced below.

**RESILIENCE** (<http://www.euporias.eu/prototype/resilience-energy>) is a nationally-funded project coordinated by **Melanie Davis**. This project aims to secure the provision of energy to society. The rapidly evolving energy system is in an increasingly vulnerable position due to the growth of highly variable wind power contributing to the total energy supply, and unusual temperatures affecting demand. Temperature and wind speed as a function of energy demand and supply are the focus.

**APPRAISAL** brings together all major activities on air quality and health assessment. Indeed the Consortium is composed of highly experienced groups working on both Air quality and Health impacts assessment and involved in the key projects related to these fields and of direct relevance to this Call. The Consortium Partners are spread over most of Europe ensuring that the review process is built on a representative set of EU information. Local/regional groups focusing their work on air pollution in EU hot spots (e.g. Po Valley, Benelux) are part of the Consortium, which guarantees that the methodologies in these non-compliant regions are directly considered in the review process and subsequent analysis. A group of stakeholders will work in close connection with the Consortium to ensure that there is a direct line of communication with the key policy makers. The main tasks for BSC in APPRAISAL are focussed on the emissions abatement strategies in Spain (national, regional and local level), modelling air quality assessment and quality assurance in air quality models.

EU FP7 **IS-ENES** and **IS-ENES2** combine expertise in climate modelling, computational science, data management and climate impacts. The BSC has two main tasks, one of them is to provide a publically available universal monitoring and scheduling solution for weather and climate modelling, whose name is Autosubmit. The other activity consists of improving the computational efficiency of climate models, such as EC-Earth and NEMO, and offering a solid link to the computational science community. This is a unique capability that no other climate modelling institution in Europe can offer.

The central point of entry to IS-ENES services, the ENES Portal, integrates information on the European climate models and provides access to models and software environments needed to run and exploit model simulations, as well as to simulation data, metadata and processing utilities. Joint research activities improve the efficient use of high-performance computers and enhance services on models and data. Networking activities increase the cohesion of the European ESM community and advance a coordinated European Network for Earth System modelling.

**Relevant significant infrastructure and/or any major items of technical equipment:**

Not applicable.

#### **Participant 4: Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC)**

CMCC is a non-profit research institution (<http://www.cmcc.it/>). Its mission is to investigate and model our climate system and its interactions with society to provide reliable, rigorous, and timely scientific results, which will in turn stimulate sustainable growth, protect the environment, and develop science-driven adaptation and mitigation policies in a changing climate. CMCC also supports policymakers in setting and assessing costs of mitigation and adaptation policies.

Within the action, CMCC will be involved in WP2, where it will contribute to creating a network which will integrate and coordinate ongoing and future climate change research and innovation initiatives. In WP3, CMCC will contribute to producing the reports mapping the “State of European climate modelling and climate services”. In WP4, it will be involved in the identification and analysis of the emerging needs related to Earth system modelling and climate services development in Europe, and in WP5, it will contribute to the organisation and delivery of the action’s festivals. Finally, CMCC will be co-leader of WP6, where it will contribute to the development of the dissemination and exploitation plan, to the activity reports and to the editorial for targeted and general audiences. Also, CMCC will lead the design, the development and the management (content and infrastructure) of the Action’s website and of the Internet Communication Platform; a digital, multimedia environment that will represent the major and official information channel of the action, providing clear information on the action’s activities and outcomes.

#### **Short profile of key personnel involved:**

**Dr Silvio Gualdi (male, Lead for CMCC), Senior Scientist at the Istituto Nazionale di Geofisica e Vulcanologia (INGV) and at CMCC [Co-Leader WP6]:** At CMCC, Silvio leads the “Climate Simulations and Predictions” Division. He holds a degree in Physics (Modena, Italy) and a PhD in Geophysics (Hamburg, Germany) and has 20 years of experience in climate modelling and simulations. He is teacher for the “Science and Management of the Climate Change” PhD Programme of the University of Venice Cà Foscari and he is author of more than 70 peer-reviewed publications.

**Dr Antonio Navarra (male), President of the CMCC:** Antonio graduated in Physics in Bologna in and got a PhD at the Geophysical Fluid Dynamics Laboratory at Princeton University. He is Dirigente di Ricerca at the INGV, where he carries out his activity in the field of the climate simulation with numerical models. Dr Navarra teaches in the PhD Programme on “Science and Management of Climate Science” at Università Ca’ Foscari, Venice. He is the author of several books and articles of general interest, and contributes to national newspapers.

**Mauro Buonocore (male), CMCC Communication and Media Officer:** Mauro coordinates the communication activities, including the development of online and offline communication strategies, the management of media contact, and the dissemination activities at the CMCC. He also coordinates the editorial activities of the magazine [Climate Science and Policy](#). In recent years, he has been focusing his activities on the research of innovative techniques to disseminate and to divulgate scientific content to a large and differentiated public. His communication efforts are directed to traditional media (contributing to national newspapers and magazines) and to digital media such as web and mobile applications. He graduated with honors in Journalism, Communication and New Media at the Roma Tre University (2001). This experience ensures that Mauro is well placed to participate in WP6.

**Andrea Russo (male) CMCC Information and Communication Technology Developer:** Andrea deals with Information and Communication Technologies (ITC), management, administration and maintenance of the technological infrastructure for information and communication activities at CMCC’s Communication Office. He is an expert developer in a variety of languages (e.g. Clojure, Common Lisp, Java, C, C++, Objective-C, Swift, JavaScript, ClojureScript, PHP). Andrea specializes in web services development (REST api, microservices), web applications

using frameworks and libraries like React.js, OpenLayers and d3.js. He is also experienced in mobile applications for iOS. Andrea will therefore be working in WP6.

**Carlo Palma (male), System Administrator:** Carlo is an ITC developer and manager at CMCC. He is a software developer and system administrator with more than ten years of experience in designing, developing, maintaining and fixing server/desktop/web and mobile software applications. In recent years he has focused his efforts on creating sophisticated, imaginative and efficient back-end and front-end software solutions for scientific and research projects at the CMCC. Carlo will be working in WP6.

**Relevant publications, and/or products, services, achievements:**

**Navarra A.** and L Tubiana (Eds), 2013: Regional assessment of Climate Change in the Mediterranean, Springer-Verlag, 965 pp.

**Gualdi S.**, and co-authors, 2013: The CIRCE Simulations: Regional Climate Change Projections with Realistic Representation of the Mediterranean Sea. *Bull. Amer. Meteo. Soc.*, **94**, 65-81.

Drobinski P.,...**Gualdi S.**, and co-authors, 2014: HyMeX, a 10-year Multidisciplinary Program on the Mediterranean Water Cycle, *Bull. Amer. Meteo. Soc.*, **95**, 1063-1082.

**Clima2014.it** – a collection of video, text and pictures to explain and disseminate the IPCC AR5 contents to the public opinion with the words of the Italian authors of the Report ([www.cmcc.it](http://www.cmcc.it))

**Relevant previous projects or activities:**

**CIRCE** (EU FP6, CMCC Coordinator): This project concentrates on the quantification of the physical impacts of climate change in the Mediterranean and assessment the consequences for the population of the region.

**ETC/CCA** (EEA, European Topic Centre on Climate Change impacts, vulnerability and Adaptation, CMCC coordinator) supports the EEA in informing policy development and implementation in the area of CCIVA by means of data, information, indicators and assessments.

**IS-ENES2** (EU FP7, Infrastructure for the European Network for Earth System modelling – Phase 2, partner) integrates the European climate modelling community, stimulates common developments of models software, fosters the execution and exploitation of high-end simulations and supports the dissemination of model results to the climate research and impact communities.

**JPI–Climate CSA** (EU FP7, Joint Programming Initiative Connecting Climate Knowledge for Europe – Coordination and Support Action, partner) contributes to highly coordinated knowledge development funded by EU Member States, connecting that knowledge with decision-making on major investments in economic and societal sectors in Europe.

**CLIPC** (EU-FP7, CLimate Information Platform for Copernicus, partner) provides access to climate information of direct relevance to a wide variety of users, from scientists to policy makers and private sector decision makers.

**Relevant significant infrastructure and/or any major items of technical equipment:**

Not applicable.

### **Participant 5: Imperial College London (IC)**

Imperial College London (legally The Imperial College of Science, Technology and Medicine) is a public research university located in London, United Kingdom. Imperial is organised into four faculties - science, engineering, medicine and business - within which there are more than 40 departments, institutes and research centres. IC is consistently included among the best universities in the world, ranking 2nd in the QS World University Rankings (2014) and 9th in the Times Higher Education World University Rankings (2014). According to a corporate study in The New York Times its graduates are among the 10 most valued in the world. IC's faculty and alumni include 15 Nobel laureates, two Fields Medalists, 70 Fellows of the Royal Society, 82 Fellows of the Royal Academy of Engineering and 78 Fellows of the Academy of Medical Sciences.

Imperial College is a founder and core partner of Climate-KIC which is Europe's largest public-private innovation partnership, working together to address the challenge of climate change. Climate-KIC drives innovation in climate change through creative partnerships large and small, local and global, between the private, public and academic sectors. All partners bring their industry experience to the community and are connected through a national or regional centre. Climate-KIC connects global and local, small and large partners from the private, public and academic sectors. The split across the three sectors is approximately 50% business, 30% academic and 20% public and not for profit.

**Professor Ralf Toumi (male), Professor of Atmospheric Physics [Co-leader WP5]:** Upon award of his PhD from the University of Cambridge, Ralf was then appointed a temporary lecturer in the Chemistry Department in Cambridge and a Fellow in Physical Chemistry at Christ's College Cambridge. In 1994 he became a Lecturer in the Physics Department at Imperial College and joined the Space and Atmospheric Physics group there. He was promoted to Professor of Atmospheric Physics in 2005 at the age of 39. He was awarded the Phillip Leverhulme Prize by the Leverhulme Trust for "scholars of outstanding distinction" (2002), a Merit Award by Imperial College for outstanding achievement in research (2004), a Royal Society Industry Fellowship with BP (2006-2010) and a NERC Knowledge Exchange Fellowship (2009-2012). He has co-authored and reviewed many international reports such as WMO Ozone Assessments, SPARC and IPCC Reports. He has served on the ESA mission advisory group and is a referee for the Earth Explorer missions. He is the European climate theme lead for the Climate KIC (Knowledge Innovation Community). He is a director of OASIS Loss Modelling Framework LTD which is providing new open source solutions to the insurance industry. He is also the Imperial Consultant fellow and industry champion in the Department of Physics.

#### **Relevant publications, and/or products, services, achievements:**

The OASIS software has come out a Climate-KIC funded project it. It is an open source tool to improve the assessment of catastrophic risk ([www.oasislmf.org/](http://www.oasislmf.org/)) by using climate services.

OASIS Palm Tree Ltd was created to support the use of the OASIS software.

OASIS LMF Ltd is not for profit company; co-funded by Ralf Toumi/Climate-KIC, to promote and develop the use of the OASIS software ([www.oasislmf.org/](http://www.oasislmf.org/)).

Extreme Event for Energy Providers web portal (<http://web.aria.fr/creator/E3P/index.php>).

5. Full research publication list (<http://www.sp.ph.ic.ac.uk/~rtoumi/pub.html>).

#### **Relevant previous projects or activities:**

Prof Toumi has through the Climate-KIC enabled several adaptation projects (details on <http://www.climate-kic.org/themes/adapting-to-climate-change/>) including:

1. Adaptation Tool for Local Authorities
2. Climate Data Factory
3. Demand Supply Mapping for Local Actors
4. Interface applications and serious games
5. Smart wiring for power grid stability.

**Relevant significant infrastructure and/or any major items of technical equipment:**

Not applicable

## **Participant 6: European Centre for Medium-Range Weather Forecasts (ECMWF)**

The European Centre for Medium-Range Weather Forecasts (ECMWF) is an independent intergovernmental organisation supported by 34 states.

ECMWF is both a research institute and a 24/7 operational service, producing and disseminating numerical weather predictions (NWP) to its Member States. This data is fully available to the national meteorological services in the Member States. The Centre also offers a catalogue of forecast data that can be purchased by businesses worldwide and other commercial customers. The supercomputer facility (and associated data archive) at ECMWF is one of the largest of its type in Europe and Member States can use 25% of its capacity for their own purposes.

The organisation was established in 1975 and now employs around 280 staff from more than 30 countries. ECMWF is one of the six members of the Co-ordinated Organisations, which also include the North Atlantic Treaty Organisation (NATO), the Council of Europe (CoE), the European Space Agency (ESA), the Organisation for Economic Co-operation and Development (OECD), and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT).

ECMWF operates the Copernicus Climate Change Service (C3S) on behalf of the European Union and will bring together expertise from across Europe to deliver the service. This Service will combine observations of the climate system with the latest science to develop authoritative, quality-assured information about the past, current and future states of the climate in Europe and worldwide. It will also provide key indicators on climate change drivers such as carbon dioxide and impacts, for example, reducing glaciers. The aim of these indicators will be to support European adaptation and mitigation policies in a number of sectors.

Having ECMWF as a partner not receiving EU funding through ECOMS2, will allow ECOMS2 to keep abreast of operational climate service activities operated under Copernicus, and to factor these activities in developing its own coordination agenda.

### **Short profile of key personnel involved:**

**Dr Jean-Noël Thépaut (male), Head of Copernicus Climate Change Service:** Until December 2014, Jean-Noël was the Head of the Data Division, and Deputy Director of the Research Department at ECMWF. His group was in charge of the development of world-class data assimilation algorithms for NWP, the exploitation of satellite observations from operational and research EO platforms; and the development and production of state-of-the-art climate reanalyses.

Jean-Noël is “ingénieur de la météorologie” from Météo-France. He received his PhD from PARIS-VI University in 1992, in the field of atmospheric data assimilation. He was involved in the early development of the 3D and 4D-Var system at ECMWF and Météo-France, for which he developed an incremental formulation that is now used operationally worldwide. He devoted part of his career to the exploitation of a wide variety of satellite data in NWP. He has served on a number of Committees, including the EUMETSAT Mission Expert Team, the NASA Global Modeling and assimilation Office Advisory Board, and the ESA Scientific Advisory Committee. Jean-Noël is currently co-chair of the WCRP JSC/CAS Working Group on Numerical Experimentation.

### **Relevant publications, and/or products, services, achievements:**

See [www.copernicus-climate.eu](http://www.copernicus-climate.eu) for a detailed description of the Copernicus Climate change Service.

See also <http://www.era-clim.eu/> for a detailed description of global reanalysis for climate monitoring activities currently running at ECMWF.

### **Relevant previous projects or activities:**

EU FP7 **ERA-Clim** and **ERA-Clim 2** ([www.era-clim.eu](http://www.era-clim.eu)), ECMWF co-ordinator.

ESA-CCI CMUG group ([www.esa-cmug-cci.org](http://www.esa-cmug-cci.org)).

**Relevant significant infrastructure and/or any major items of technical equipment:**

Not Applicable.

**Participant 7: Helmholtz-Zentrum Geesthacht Zentrum Für Material- Und Küstenforschung GmbH (HZG)**

HZG is one of 18 national research centres in Germany belonging to the Hermann von Helmholtz Association (HGF). HZG has three sites at Geesthacht, Teltow near Berlin, and Hamburg, with approximately 850 employees in total.

The Climate Service Center 2.0 (CS2) is an Institution at the Helmholtz-Zentrum Geesthacht. It was initiated by the German Government in 2009 and funded by the Federal Ministry of Education and Research. The CS2 is furthermore supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety as well as by the Federal Ministry of Transport, Building and Urban Development. It is a fundamental part of the German high tech-strategy for climate protection. The CS2 offers a wide range of science-based information and services. In doing so, it responds to the rapidly growing need for advice on climate related questions and fills a gap between science and users. The CS2 relies on a network of cooperating partners, which includes German academic and private research institutions and other climate service establishments. Involving the customers of climate-information, the CS2 works at the same time to strengthen this network and develops new partnerships with decision-makers from economy and industry.

**Short profile of key personnel involved:**

**Prof Dr María Máñez Costa (female), Senior Scientist [Leader WP5]:** Maria works for HZG in the Economics and Policy Department of the Climate Service Center 2.0, as well as being a visiting professor at the Universities of Valencia and Barcelona, Spain where she teaches Water Economics. At HZG she is responsible for economic modelling and capacity development. Maria's research explores the vulnerability and adaptive capacity of social ecological systems to climate change. Her research focuses on the development of capacities for adaptation to climate change and the development of methods for managing and communicating climate impacts. She has coordinated various projects at the national and international level, including the EC (FP6 and FP7), working on the topic of "Global environmental change".

**Dr Daniela Jacob (female), Acting Director at the Climate Service Center 2.0, HZG:** Daniela has been leading the "Climate System" department of the Climate Service Center at HZG since 2010 and has been serving as Acting Director since June 2014. As one of the primary authors of the IPCC 5th Assessment Report on Climate Change, she possesses rich experience and is well connected within the world of climate science. Daniela has extensive experience in project management and coordination within different framework programmes, including CLAVIER (2006-2009) and IMPACT2C (2011-2015). She has participated as Principal Investigator in climate change assessment, risk management and impact studies (CLARIS-LPB 2008-2012, ACQWA 2008-2013, SafeLand 2009-2012, CARBO-EXTREME 2009-2013), LAIC 2009-2011 and 'Climate for Culture' 2009-2013); adaptation and mitigation projects (CCTAME 2008-2013, HIGHNOON 2009-2012); and European climate information services (ECLISE 2011-2014).

**Relevant publications, and/or products, services, achievements:**

HZG works in the development of prototypes and climate services customising climate information for various users (private and public sector).

**Máñez Costa, M. K. Schwerdtner Manez and S Husain (2013):** Adaptation to climate change under changing urban patterns. The climatic perspective of migration. In Ruppel, Roschmann and Ruppel-Schlichting: Climate Change: International Law and Governance.

Tsanis, I.K., M.G. Grillakis, A.G. Koutroulis and **D. Jacob** (2013): Reducing uncertainty on global precipitation projections. Journal of Earth Science & Climatic Change. Vol. 5, Issue 178. DOI: 10.4172/2157- 7617.1000178.

Vautard, R., A. Gobiet, **D. Jacob**, M. Belda, A. Colette, M. Déqué, J. Fernández, M. García-Díez, K. Goergen, I. Güttler, T. Halenka, T. Karacostas, E. Katragkou, K. Keuler, S. Kotlarski, S. Mayer, E. van Meijgaard, G. Nikulin, M.

Patarčić, J. Scinocca, S. Sobolowski, M. Suklitsch, C. Teichmann, K. Warrach-Sagi, V. Wulfmeyer and P. Yiou (2013): The simulation of European heat waves from an ensemble of regional climate models within the EURO-CORDEX project. *Climate Dynamics*. Vol. 41, pp. 2555-2575. DOI: 10.1007/s00382-013-1714-z.

**Jacob, D.** et al. (2014): EURO-CORDEX: New high-resolution climate change projections for European impact research. *Regional Environmental Changes*. Vol. 14, Issue 2, pp. 563-578. DOI: 10.1007/s10113-013-0499-2

Jancloes M, Thomson M, **Máñez Costa M**, Hewitt C, Corvalan C, Dinku T, Lowe R, Hayden M. (2014) Climate Services to Improve Public Health. *International Journal of Environmental Research and Public Health* 11(5):4555-4559.

**Relevant previous projects or activities:**

EU FP7 **ENHANCE** (HZG WP4 leader, Maria is part of the scientific steering group of the project). The main goal of the ENHANCE project is to develop and analyse new ways to enhance society's resilience to catastrophic natural hazard impacts, by providing new scenarios and information in selected hazard cases, in close collaboration with stakeholders, and by contributing to the development of new Multi-Sector Partnerships (MSPs) to reduce or redistribute risk. Innovation in MSPs is essential, as ineffective cooperation between public, private and civil society institutions often leads to failures in risk management. The ENHANCE proposal is unique as it studies the potential for new MSPs for managing different catastrophic hazards, related to heat waves, forest fires, flood, drought, storm surge, and volcanic eruptions.

**EURO-CORDEX. CO**ordinated **R**egional climate **D**ownscaling **EX**periment over Europe. (European branch of WCRP CORDEX initiative). Coordinated by HZG and Wegener Center University of Graz. Within EURO-CORDEX, a unique set of high resolution climate change simulations for the 21st century for Europe on 0.11° horizontal resolution is currently established.

EU FP7 **IMPACT2C** (HZG Coordinator, Daniela Jacob). Quantifying projected impacts under 2°C warming. Enhances knowledge, quantifies climate change impacts, and adopts a clear and logical structure, with climate and impacts modelling, vulnerabilities, risks and economic costs, as well as potential responses, within a pan-European sector based analysis.

EU FP7 **ECLISE** (2011-2013). Enabling Climate Services for Europe. HZG WP7 leader. A European effort in which researchers in close cooperation with stakeholders, developed local climate services in order to support climate adaption policies. The central objective of ECLISE was to take the first step towards the realisation of a European Climate Service.

**Relevant significant infrastructure and/or any major items of technical equipment:**

Not applicable.

### **Participant 8: Centre National de la Recherche Scientifique (CNRS)**

CNRS is the main French public research institution under the responsibility of the French Ministry of Education and Research. CNRS acts here in the name of the Institut Pierre Simon Laplace (IPSL), which is a federal institute located in Paris and is composed of nine research laboratories working on global environmental and climate studies. IPSL gathers about 1,000 scientists and represents more than a third of the French research potential in atmospheric and oceanic sciences. One of the main objectives of IPSL is to understand climate variability, both natural and anthropogenic, and future evolution, at global and regional scales. IPSL's work relies on the development of Earth system models of different complexity. IPSL is strongly involved in IPCC Working Group 1. IPSL chairs the scientific board of ENES and coordinates the infrastructure projects IS-ENES and IS-ENES2. IPSL is also involved in several EU projects related to Earth system modelling.

#### **Short profile of key personnel involved:**

**Dr Sylvie Joussaume (female), Senior Scientist [Leader WP4]:** Sylvie has been a researcher at CNRS since 1983. She is an expert in climate modelling. She has coordinated IS-ENES (EU FP7) phases 1 and 2 since 2009 and is Chair of the ENES Scientific Board. She has been involved in IPCC since the Third Assessment Report. Sylvie is involved in the Management Committee of JPI Climate and chairs the module on climate science. She has also been involved in several EU committees, such as the ERC starting grants panel on Earth system science, ESFRI environmental expert group and Climate-KIC.

**Dr Eric Guilyardi (male), Senior Scientist:** has been a researcher at CNRS since 2002. He is an internationally recognised expert in tropical climate variability, climate change, in decadal predictability and in ocean-atmosphere modelling. He was a Lead Author for IPCC AR5 in the “Model Evaluation” chapter. He has coordinated the FP7 METAFOR project (through University of Reading) that established standard model and simulation descriptions for CMIP5 and now co-leads the ES-DOC international initiative to prepare the related CMIP6 metadata standards. Within the JPI-Climate, he is in charge of coordinating a roadmap: “Towards a European strategy for climate modeling: strengthening coordination and preparing the next generation of climate models”.

#### **Relevant publications, and/or products, services, achievements:**

Baker J., Duby A., Gadgil S., Haymet T., **Joussaume S.**, Kondo H., Moura A.D., Noble I., Dahe Q., Smith N., Cesarsky C., Hong Y., Alverson K., de Boois H., Cutler P., Review of the World Climate Research Program, Report from an ICSU-WMO-IOC-IGFA Review Panel, pp 44, Feb 2009.

Lawrence, B.N., Balaji, V., Bentley, P., Callaghan, S., DeLuca, C., Denvil, S., Devine, G., Elkington, M., Ford, R.W., **Guilyardi, E.**, Lautenschlager, M., Morgan, M., Moine, M.-P., Murphy, S., Pascoe, C., Ramthun, H., Slavin, P., Steenman-Clark, L., Toussaint, F., Treshansky, A. and Valcke, S. (2012) *Describing Earth system simulations with the Metafor CIM*. Geoscientific Model Development, 5 (6). pp. 1493-1500. ISSN 1991-9603 doi: 10.5194/gmd-5-1493-2012.

Mitchell J., R. Budich, **S. Joussaume**, J. Marotzke, B. Lawrence, Infrastructure strategy for the European Earth system modelling community 2012-2022, 33 pp, 2012. (<http://enes.org>).

Déandreis C., C. Pagé, P. Braconnot, L. Bärring, E. Bucchignani, W. Som de cerff, R. Hutjes, **S. Joussaume**, C. Mares, S. Planton, M. Plinger, Towards a dedicated impact portal to bridge the gap between the impact and climate communities: lessons from use cases, Climatic Change, 125, 333-347, 2014 DOI 10.1007/s10584-014-1139-7.

#### **Relevant previous projects or activities:**

Infrastructure projects: coordination of EU FP7 **IS-ENES** and **IS-ENES2**. IS-ENES, in its two phases, provides the common e-infrastructure for climate modelling in Europe, gathered within the European Network for Earth System Modelling (ENES) and promotes greater integration throughout this research community. It supports international coordinated simulations which are developed under the WCRP and which are backing the work of the IPCC. It is designed to advance the development of models, intensify the use of simulations to improve the understanding of climate and its variations, and facilitate the application of modelling to support research into climate change impacts on society. It provides services on models, tools and access to data from climate simulations and enables exchange of expertise and the development of a common strategy. After supporting data from global climate models in its first phase, IS-ENES2 now encompasses results from coordinated experiments at regional scale, with a focus on Europe and Africa.

Contribution to the EU FP7 **METAFOR** project on common metadata for climate modelling.

Contribution to other ENES projects: FP6 **ENSEMBLES**, FP7 **COMBINE**, FP7 **EUCLIPSE**, H2020 **CRESCENDO** (due to commence November 2015).

**Relevant significant infrastructure and/or any major items of technical equipment:**

See description of EU FP7 IS-ENES and IS-ENES2 above.

**Participant 9: Royal Netherlands Meteorological Institute (KNMI)**

KNMI is the national research and information centre for weather, seismology, climate and climate change in the Netherlands. KNMI has a long tradition in operational and scientific activities. Climate research at KNMI is focussed on observing, understanding and predicting changes in the climate system. KNMI produces climate scenarios to support stakeholders for developing adaptation and mitigation strategies. KNMI has initiated the development of the global climate model EC-Earth and has been a leading partner in the consortium ever since.

KNMI will co-lead WP6 of the Action, exploiting the wide expertise it has with matching user requests for climate information with scientifically based assessments of (regional) climate change, and the interplay between climate and (extreme) weather.

**Short profile of key personnel involved:**

**Prof. Bart van den Hurk (male), Head of the Modelling Research&Development division of KNMI [Co-Leader WP6]:** Bart holds a chair at VU University Amsterdam. His main expertise are in diagnosing and understanding land-atmosphere interaction, developing climate scenarios for the Netherlands, and interpretation of complex climate information for society stakeholders. He has coordinated an EU-funded project (ELDAS) and national climate research projects (Tailoring Climate Scenarios), and will coordinate H2020 IMPREX (H2020-2015 Water call, currently in Grant Agreement preparation stage, start date October 2015).

**Dr Janette Bessembinder (female), Advisor, Project leader:** Janette has worked for KNMI since 2005 on projects related to climate services development, inventories of user requirements related to climate (change) data and information, and tailoring of climate data for specific users. Since 2009 she has led several tailored climate services projects and she was work package leader of “Climate services” in Theme 6 (High quality climate projections) of the national “Knowledge for Climate” programme. She has been involved in the development of the KNMI’06 and KNMI’14 climate scenarios, in particular focusing on the communication and tailoring of climate scenarios afterwards. Currently she is involved in work packages on user interaction and dissemination in the EU-projects EUSTACE (H2020) and PRIMAVERA (H2020, due to commence November 2015).

**Bernadette Overbeek (female), Scientific communications expert:** Bernadette has worked for KNMI since 2009 on projects focusing on bridging the gap between climate scientists, users of climate information and policymakers. In 2012 she organised a three-day school for PhD students on dealing with and communicating uncertainties in climate- and socio-economic scenarios, in impact models and in the decision making process. The result of the course was a common frame of reference for the use of scenarios and dealing with uncertainties. From 2009-2014 she was working for Theme 6 (High quality climate projections) of the national “Knowledge for Climate” programme as communications officer. From 2012-2014 she was involved in the user interaction for the KNMI’14 climate scenarios. For this, she organised several workshops, a user feedback group and undertook the coordination and editing of the newsletters, brochures and website. Now she is working at the Weather- and Climate Services division on products in which weather and climate are brought together.

**Relevant publications, and/or products, services, achievements:**

**Van den Hurk, B.J.J.M.,** A.M.G. Klein Tank, G. Lenderink, A. van Ulden, G.J. van Oldenborgh, C. Katsman, H. van den Brink, F. Keller, **J. Bessembinder,** G. Burgers, G. Komen, W. Hazeleger and S. Drijfhout, 2007. New climate change scenarios for the Netherlands; *Water Science and Technology*, 56, 4, 27-33, doi:10.2166/wst.2007.533.

**Van den Hurk, B.,** A. Klein Tank, C. Katsman, G. Lenderink, and A. te Linde, 2013. Vulnerability Assessments in the Netherlands Using Climate Scenarios. *Climate Vulnerability: Understanding and Addressing Threats to Essential Resources*. Elsevier Inc., Academic Press, 257–266 pp.

Berkhout, F., B. van den Hurk, J. Bessembinder, J. de Boer, B. Bregman and M. van Drunen (2014). Framing climate uncertainty: using socio-economic and climate scenarios in assessing climate vulnerability and adaptation; Regional and Environmental Change 14 (3), 879-893.

**Van den Hurk, B.**, Geert Jan van Oldenborgh, Geert Lenderink, Wilco Hazeleger, Rein Haarsma and Hylke de Vries, 2014. Drivers of mean climate change around the Netherlands derived from CMIP5; Climate Dynamics, 42, 1683-1697; DOI: 10.1007/s00382-013-1707-y.

**Relevant previous projects or activities:**

**H2020 IMPREX** (2015), Coordinator (Bart van den Hurk). IMPREX aims to improve prediction and management of hydrological extremes.

EU FP7 **SPECS** (ongoing) and FP6 **ENSEMBLES** (finished): These projects are devoted to improving projections and predictability of climate extremes at season to decadal timescales. KNMI is participating in several work packages in both projects.

EU FP7 **EUPORIAS**: EUPORIAS is devoted to improving the interaction between climate scientists and stakeholders (including users). KNMI is responsible for a number of climate services and stakeholder interaction activities.

**RoadAPT**, Coordinator: Research project funded under the CEDR Transnational Road Research Programme focusing on climate change and estimating the consequences of these changes on transportation needs.

**Relevant significant infrastructure and/or any major items of technical equipment:**

EC-Earth (global climate modelling centre, [www.ec-earth.org](http://www.ec-earth.org))

Climate Explorer (climate data analysis tool; [www.climexp.knmi.nl](http://www.climexp.knmi.nl))

KNMI'14 (Regional climate change scenarios; [www.klimaatscenarios.nl](http://www.klimaatscenarios.nl))

**Participant 10: Republic Hydrometeorological Service of Serbia (RHMSS)**

RHMSS is the national weather service of Serbia. It is a special organisation within the framework of state administration, and it performs professional tasks and state administration activities related to systematic meteorological, climate and hydrological measurements and observations; monitoring, research, analysis and forecasting of weather, climate and water; early warning and alerts on the occurrence of extreme meteorological, climate and hydrological events and disasters and trans-boundary atmospheric transport of radioactive substances in the event of nuclear accidents; fulfillment of international commitments in the field of meteorology and hydrology, as well as other duties provided by the Law. The Republic of Serbia is a member of the WMO, IPCC, ECMWF, EUMETSAT, WCRP, GEO, and EUMETNET. RHMSS acts as the national institution which directly represents the country in these international organisations. In addition, RHMSS participates in the implementation of the United Nations Framework Convention on Climate Change (UNFCCC).

In the last couple of years, RHMSS has made significant developments within the state administration reform and capacity building process. RHMSS has established (in 2007) the SEEVCCC (sub-regional South-East European Virtual Climate Change Centre) which strengthened regional cooperation in the field of monitoring, research and forecasting of regional and local climate change. As host of SEEVCCC, RHMSS conducted all the necessary activities to include SEEVCCC into the European Network of WMO Regional Climate Centres (Regional Association VI – Europe). This has resulted in SEEVCCC beginning to perform its binding sub-regional functions related to climate monitoring, forecasting and research within the WMO’s World Climate Programme (WCP) and recently-established GFCS.

Thanks to the research and development activities that have been conducted, RHMSS/SEEVCCC has at its disposal regional climate models, a global atmospheric non-hydrostatic model, models for hydrological and dust forecasts, and state-of-the-art technologies for database management. The ongoing activities include further development of SEEVCCC through the implementation of the South East European (SEE) Research and Development Programme of regional climate modeling for 2012-2017, particularly through further development of Earth modeling system and its subsystems coupling regional climate model with ocean, hydrological and aerosol numerical components.

RHMSS has an experienced team, with knowledge and practical experience of participating in bilateral technical cooperation programmes, as well as of the realization of international projects financed through the EU’s South-East Europe Transnational Cooperation Programme and FP7.

**Short profile of key personnel involved:**

**Dr Slobodan Nickovic (male), Senior adviser for development of meteorological and climate models, RHMSS:** During his career Slobodan has been employed at the University of Belgrade, Yugoslav Federal Hydrometeorological Institute, and as a visiting scientist at Universities of Athens and Malta. He has coordinated, or participated in, more than 30 international scientific projects, including projects funded by the EU, Food and Agriculture Organisation, and NASA. He has published 48 peer reviewed articles in scientific journals, including Science, ACP, JGR, JRL, and Atmospheric Environment. He developed original research/operational modelling tools and/or numerical methods such as Dust Regional Atmospheric model (DREAM) and is a coauthor of the Hydrology Prognostic Model (HYPROM). He is Adjunct Professor at the University of Arizona, but employed by RHMSS. As the scientific officer in the WMO (2005-2013), among other duties in the mesoscale atmospheric research, he was the architect of the WMO Sand and Dust Warning Advisory and Assessment System (SDS-WAS).

**Goran Pejanovic (male), Director of National Climate Center, RHMSS and head of SEEVCCC:** Goran is responsible for regional climate monitoring and seasonal forecasting at RHMSS. He has been an employee of Yugoslav Federal Hydrometeorological Institute, Euro-Mediterranean Centre on Insular Coastal Dynamics (ICoD, Malta), Hydrometeorological Service of Montenegro and Serbian South Environment and Weather Agency (SEWA).

He has participated in a number of international projects (ORIENTGATE, CARPATCLIM, DRIHM, MEDPOL, EMMEI, MEDUSE, RAMSES, ADRICOSM-STAR, LSIEMP, etc. and NASA sponsored projects concerning dust and pollen transport: PHAIRS, EMPHASYS, etc.). Goran has over 25 years of experience in modelling of earth system dynamics (atmosphere, ocean, land water, aerosol transport, etc.) and is skilled in working with number of different numerical models for short range, and long range forecast and climate simulations. Recently he has been a co-author on several scientific peer-reviewed papers concerning numerical modelling of dust transport and overland hydrology, and a number of papers that were presented on national and international conferences concerning climate simulations, climate impact studies, aerosol and hydrology modeling.

**Aleksandra Krzic (female), Numerical programmer for regional climate scenarios [Co-leader WP4]:** Aleksandra is a graduate meteorologist. She works in the National Climate Center at RHMSS. She has participated in several international projects (ORIENTGATE, DMCSEE, SEERISK, ECRAN), and in operative and research work carried out in the RHMSS.

**Relevant publications, and/or products, services, achievements:**

**Nickovic S, G Kallos, A Papadopoulos, O Kakaliagou, 2001:** A model for prediction of desert dust cycle in the atmosphere *J. Geophys. Res.* 106, 18113-18130.

**Nickovic S, G Pejanovic, V Djurdjevic, J Roskar, and M Vujadinovic, 2010:** HYPROM hydrology surface-runoff prognostic model, *Water Resour. Res.*, 46, W11506, doi:10.1029/2010WR009195.

**Krzic A, I Tosic, V Djurdjevic, K Veljovic, B Rajković, 2011:** Changes in climate indices for Serbia according to the SRES-A1B and SRES-A2 scenarios. *Climate Research* 49:73-86.

Bellafiore D, E Bucchignani, S Gualdi, S Carniel, V Djurdjevic, G Umgiesser, 2012: Assessment of meteorological climate model inputs for coastal hydrodynamics modelling. *Ocean Dynamics*, 62/4, 555-568, doi:10.1007/s10236-011-0508-2.

Stojanovic D, **A Krzic**, B Matovic, S Orlovic, A Duputiec, V Djurdjevic, Z Galic, S Stojnic, 2013: Prediction of the European beech (*Fagus sylvatica* L.) xeric limit using a regional climate model: An example from southeast Europe, *Agric. Forest. Meteorol.* 176 (2013) 94–10, doi:10.1016/j.agrformet.2013.03.009.

**Relevant previous projects or activities:**

EU FP7 “Distributed Research Infrastructure for Hydro-Meteorology” (**DRIHM**), scientific project; with a main objective to facilitate cooperation in the field of meteorological and hydrological research and practice, including the climate change issues and flood forecasting (implementation period: 09/2011-02/2015).

EU SEE Transnational Cooperation Programme “A Structured Network for Integration of Climate Knowledge into Policy and Territorial Planning” (**ORIENTGATE**). The general objective of the project is to foster concerted and coordinated climate adaptation actions across the SEE region and to perform the analysis of the climate change effects on particular economic sectors (07/2012-12/2014).

EU SEE Transnational Cooperation Programme “Joint Disaster Management Risk Assessment and Preparedness in the Danube Region” (**SEERISK**) project. SEERISK aims to develop the unique natural hazard risk assessment methodology which will be widely applicable across the Region (07/2012-12/2014).

**“Building Resilience to Disasters in Western Balkans and Turkey”**. The UNISDR and WMO manage this project which was realised by favour of financial support of EC (IPA funds). The main objective is to facilitate regional cooperation and to build capacity within the scope of natural risk management, climate change adaptation and improving of early warning system (05/2012- 09/2014).

EU SEE Transnational Cooperation Programme “Drought Management Centre for South East Europe” (**DMCSEE**) project. The objective of DMCSEE was to improve drought preparedness - early warning system and vulnerability and risk assessment as a basis for reducing the drought impacts in SEE Region (12/2009-09/2012).

**Relevant significant infrastructure and/or any major items of technical equipment:**

Not applicable.

**Participant 11: Swedish Meteorological & Hydrological Institute (SMHI)**

SMHI is a government agency under the Swedish Ministry of Environment, offering products to support decision-making in the environmental sector. SMHI is responsible for national meteorological, hydrological and oceanographic forecasting and the production of climate change projections. The main fields of research include weather and climate modelling, data assimilation, hydrology, oceanography and air quality. Climate research is a cross departmental activity, with all six research sections contributing to the development of climate projections, impact assessments and communication with stakeholders, regional authorities and major utilities.

The Rossby Centre is part of the SMHI Research Department and is a leading centre for both regional and global model development and evaluation of data, as well as modelling applications for process studies and climate change research in support of impact and adaptation studies. This breadth of expertise, involvement in numerous national and international projects, and wide network ensures that the Rossby team have an excellent overview of both the latest earth system modelling developments and also the stakeholder landscape of the emerging climate services sector.

**Short profile of key personnel involved:**

**Ralf Döscher (male), Science Coordinator of Rossby Centre, SMHI [leader WP3]:** Ralf has a background in coupled climate modelling. He is currently chair of the EC-Earth Earth System Model consortium. Current research activities include Arctic climate processes research, climate prediction and ESM development. Ralf is involved in a range of national and international projects and networks, such as EMBRACE, CRESCENDO, IMPREX, ECRA and the Nordic ESM collaboration NORDESM.

**Lars Barring (male), Senior Research Scientist:** Lars is the IPCC contact point for Sweden, and adjunct professor at Lund University. He has considerable experience in applying climate change simulations with a range of impact assessment studies and has worked extensively in the field of communicating climate change information and associated uncertainties with stakeholder groups. He also has extensive experience of working in EU-funded projects directed towards climate impacts and services, such as FP7 ECLISE, IMPACT2C and IS-ENES.

**Prof. Erik Kjellström (male), Head of Rossby Centre, SMHI:** Erik is a member of the Bolin Centre for Climate Research at Stockholm University. Erik has a background in short term forecasting and a strong record in regional climate model analysis. Recent studies focus on high resolution representation of precipitation in regional climate models. Erik is involved in the EU FP7 projects HELIX, ECLISE and IMPACT2C.

**Dr Eleanor O'Rourke (female), Director of International Project Office for CORDEX (IPOC) and project manager of FP7 EMBRACE and SWITCH-ON:** Eleanor has a PhD in Physical Oceanography and is experienced in dissemination of scientific research to the public (initiating and contributing to public outreach events, project public websites), policy makers (including three months providing briefings on scientific issues to UK parliamentarians) and the research community (as part of FP7 project management and coordination of scientific workshops/meetings).

**Relevant publications, and/or products, services, achievements:**

**Döscher, R.** and Koenig, T. (2013): Arctic rapid sea ice loss events in regional coupled climate scenario experiments, *Ocean Sci.*, 9, 217-248, doi:10.5194/os-9-217-2013, 2013.

**Kjellström, E.**, Thejll, P., Rummukainen, M., Christensen, J. H., Boberg, F., Christensen, O. B., & Maule, C. F. (2013). Emerging regional climate change signals for Europe under varying large-scale circulation conditions. *Clim. Res.*, 56, 103-119.

Déandreis, C., Pagé, C., Braconnot, P., **Barring, L.**, Bucchignani, E., de Cerff, W. S., ... & Plieger, M. (2014). Towards a dedicated impact portal to bridge the gap between the impact and climate communities: Lessons from use cases. *Climatic Change*, 125(3-4), 333-347.

**Döscher, R.**, Vihma, T., & Maksimovich, E. (2014). Recent advances in understanding the Arctic climate system state and change from a sea ice perspective: a review. *Atmospheric Chemistry and Physics*, 14(24), 13571-13600. [www.atmos-chem-phys.net/14/13571/2014/doi:10.5194/acp-14-13571-2014](http://www.atmos-chem-phys.net/14/13571/2014/doi:10.5194/acp-14-13571-2014)

Lindstedt, D., Lind, P., **Kjellström, E.**, & Jones, C. (2015). A new regional climate model operating at the meso-gamma scale: performance over Europe. *Tellus A*, 67.

**Relevant previous projects or activities:**

Coordination of the **FP7 EMBRACE** project, which aims to make targeted improvement to key process failings in present-day Earth System Models to reduce systematic biases.

Participation in **FP7 IMPACT2C**, conducting high-resolution climate simulations focussed 2°C global warming thresholds and further in the **FP7 HELIX** project running high-resolution simulations at 2, 4 and 6°C, conducting bias correction, and supporting dissemination.

Analysis and provision of climate scenario data for the **FP7 ECLISE** project.

Host institute of the International Project Office for WCRP **CORDEX**.

**Relevant significant infrastructure and/or any major items of technical equipment:**

SMHI is the central hub for development of the current version of [EC-EARTH](#) European consortium climate model, participating in the IPCC climate change assessments and used for generating tailored (high resolution) climate information products.

SMHI operates the [Swedish ESGF data node](#) jointly with the National Supercomputing Centre.

## **4.2 Third parties involved in the project**

### **Third parties (ICREA and UPC) and their relation to ECOMS2 partner BSC**

BSC applies a Third Party modality where the third party is making its resources available to the beneficiary under Article 12 of the H2020 General Model Grant Agreement – “Use of in-kind contributions provided by third parties free of charge”.

Some of the work carried out at the Barcelona Supercomputing Center – Centro Nacional de Supercomputación (BSC-CNS) will be contributed free of charge by Third Parties: Universitat Politècnica de Catalunya (UPC) and the Institució Catalana de Recerca i Estudis Avançats/ Catalan Institution for Research and Advanced Studies (ICREA).

The BSC is a consortium that is composed of the following member institutions: Universitat Politècnica de Catalunya (UPC), Spanish Council for Scientific Research (CSIC), as well as the Spanish and the Catalan governments. Both UPC and CSIC contribute in kind by making human resources available to work on projects. The relationship between BSC and CSIC / UPC (respectively) is defined in an agreement with each institution that was established prior to the submission of this proposal. The BSC thus recognises these institutions as Third Parties for many of the EU Projects in which the BSC participates.

The UPC is a university with a consolidated worldwide reputation and an international vision that generates technological innovation and attracts talent. According to the agreement between BSC and UPC, several professors of the UPC are made available to the BSC to work on research projects. Prof. José M. Baldasano is a UPC researcher affiliated with the BSC-CNS. He carries out his research in association with the BSC-CNS on the BSC-CNS premises. Thus the contribution of UPC to the consortium is in kind by making Prof Baldasano available to work on ECOMS2. The BSC will charge the corresponding cost to the project as their own costs.

ICREA will provide resources free of charge to the BSC as a third party. ICREA is a foundation supported by the Catalan Government and guided by a Board of Trustees which aims to recruit top scientists for the Catalan Research&Development system: scientists capable of leading new research groups, strengthening existing groups, and setting up new lines of research. Following the rules of ICREA, although the salary costs of Prof. Doblás-Reyes are paid by ICREA, he is assigned to physically work at the Earth Sciences Department of the BSC and considered a full member of the BSC. The beneficiary, BSC, is free to use these resources at will. They are therefore assimilated as “own resources” of the beneficiary, and will be charged to the project without being considered as a receipt. The cost will be declared by the beneficiary and it will be recorded in the accounts of the third party. These accounts will be available for auditing if required.

In accordance with the ECOMS2 budget, the majority of the effort from BSC will be allocated to Prof Doblás-Reyes and Prof Baldasano under this arrangement.

### **Implementation of action tasks by subcontractors to CMCC, HZG and KNMI**

CMCC, HZG and KNMI are planning to subcontract discrete elements of the ECOMS2 work. These partners will comply with applicable national law on public procurement procedures and the rules for sub-contracting as laid out in the H2020 General Model Grant Agreement (Article 13):

CMCC, WP6: The website, the Internet Communication Platform and the communication tools and products will be graphically designed in a professional style which will guarantee complete consistency with the image (logo) of the entire action, in an effective and up-to-date graphic fashion. To ensure achieving this, a subcontract will be required with a professional graphic designer. 5,000 € has been put aside for this subcontract.

HZG, WP5: HZG will be responsible for the organisation of the three festivals. The festivals are large international events for the organisation of which specific expertise is needed, which is not available at HZG, and therefore external contractors will be required to carry out tasks, such as:

- Hiring of professional moderators of several panels, workshops and discussions at each festival (35,000 €);
- Simultaneous translators of at least some important panels and discussion rounds at each festival (35,000 €);
- Design, printing and distribution of technically demanding print materials in high quality (e.g., part of event promotion and dissemination actions) (21,000 €);
- Promotion of the festivals (28,000 €); and
- Visual media support – including short recorded statements (as in TED lectures) (21,000 €).

These key services are not available at HZG. The implementation of these services via sub-contracting has been a common practise at HZG, and was therefore chosen as the appropriate means of implementation. The total value of these subcontracts is estimated at 140,000 € for all three festivals.

KNMI, WP6: KNMI will subcontract editorial expertise for generating text for specific target-groups, media use and for other publication materials. The sub-contractor will be selected on its competence to provide professional guidance to the communication means of ECOMS2. The subcontract will be granted via an open tendering procedure, aiming to recruit an agency that can provide the best benefit given the contract cost, which will be maximized at 20,000 €.

## **5. ETHICS AND SECURITY**

### **5.1 Ethics**

There are no ethics issues to declare. However, we will only collect personal information that is necessary for the project, and use it exclusively for the relevant objectives of ECOMS2 (for example, sending conference or workshop invitations, user surveys, interviews). All beneficiaries will ensure that they adhere to EC legislation and their own national legislation with regard to data protection (including EU Directive 95/46/EC and any subsequent updates to this directive). RHMSS, as an entity from a non-EU country, has confirmed that it accepts the Horizon 2020 ethical standards and guidelines, and they will be rigorously applied.

Procedures will be implemented for data collection, storage, protection, access, retention and destruction (MS10). This includes an informed consent procedure, thus ensuring that all interviewees, survey responders etc will understand and agree to how the data they provide will be handled.

These procedures will be developed by the end of the second month of the project. No personal data will be collected until these procedures are in place.

### **5.2 Security**

The ECOMS2 action will NOT involve:

- Activities or results raising security issues; nor
- ‘EU-classified information’ as background or results.

## **Appendix 1: Declarations of support**

The ECOMS2 consortium has not formally approached organisations or programmes regarding their potential involvement in the CSA's activities. However, some key programmes have already committed their support to the concept, approach and combination of partners that ECOMS2 proposes. Here are extracts from the declarations of support that have been received from WCRP and CORDEX.

*William J. Gutowski, Jr, Co-chair (CORDEX Science Advisory Team)*

“We are writing as the co-chairs of the Science Advisory Team of the World Climate Research Programme’s (WCRP) Coordinated Regional Downscaling Experiment (CORDEX) to express our support for the formation of the ECOMS2 consortium in response to the European Commission call for a Coordination Support Action on Earth System Modelling and Climate Services. The choice of partners and structure of ECOMS2 will ensure an effective coordination of a large body of activities in this area, including users, providers and intermediaries. The proposal is designed to merge the networks and expertise of a large group of active European entities, including JPI-Climate, Climate-KIC, Copernicus Climate Change Service, CORDEX/CMIP6, European Climate Services Partnership and a number of ongoing and planned European and national projects in the field of climate modelling and climate services. The ambition is to reduce fragmentation and improve synergies between national, European and international activities. The consortium consists of members that have active links with other entities, and this ensures an efficient and fairly complete coordination of ongoing activities. The coordination will lead to a periodic synthesis of ongoing actions, a targeted dissemination of this synthesis to a range of stakeholder groups, and a periodic event that provides an excellent networking and dissemination opportunity.

CORDEX is a focal point of the regional climate modelling community, not just in Europe but across the globe and as such would be an important stakeholder for the potential ECOMS2 project to determine the regional climate community landscape. Further we would hope that the proposed structure of ECOMS2 would facilitate knowledge exchange between the regional and global modelling communities, which has been highlighted as a clear need.

In conclusion we feel that this proposal has both much to offer, and much to benefit from, the CORDEX community. Should it be successful we look forward to becoming a key stakeholder of ECOMS2.”

*Dr David Carlson, Director (WCRP Joint Planning Staff)*

I am writing on behalf of the World Climate Research Programme (WCRP) in support of the proposal which you are leading its preparation and submission to the EU Horizon 2020 Coordination and Support Action, in the area of earth system modeling and climate services (ECOMS2).

WCRP is very pleased with the objectives and expected outcomes of the project, aligned very nicely with WCRP work plans: to develop a synergetic Europe-wide framework for earth-system modeling and climate service activities through coordinated modeling, observations and service infrastructure initiatives; and to enhance communication and dissemination mechanisms through multi-disciplinary community efforts. Such a project will greatly contribute to address WCRP's emerging priority on providing actionable climate information for regional and global applications.

I believe the proposal will make substantial contributions to bridge our scientific knowledge to service provision, and to demonstrate the best practice for communication among the relevant climate scientific communities, funding bodies and user communities. Once the project is realized, it will directly contribute to the WCRP Coordinated Regional Climate Downscaling Experiment (CORDEX) effort, and to responding to the needs of the Vulnerability, Impact and Adaptation (VIA) community by enhanced dissemination of climate information. WCRP also recognizes the experience and strength of the proposed team and leadership, and strongly supports the international partnership as described.

In summary, I expect substantial progress and benefit from the expected project on WCRP's work programmes in delivering robust and trustworthy climate information to European researchers, policymakers and the public. We will be pleased to respond to any inquiry in the process of evaluation.

Cordially,



Dr David Carlson  
Director, WCRP Joint Planning Staff

## ESTIMATED BUDGET FOR THE ACTION (page 1 of 2)

Estimated eligible <sup>1</sup> costs (per budget category)									EU contribution			Additional information			
A. Direct personnel costs		B. Direct costs of subcontracting	[C. Direct costs of fin. support]	D. Other direct costs	E. Indirect costs <sup>2</sup>	Total costs	Reimbursement rate %	Maximum EU contribution <sup>3</sup>	Maximum grant amount <sup>4</sup>	Information for indirect costs	Information for auditors	Other information:			
A.1 Employees (or equivalent) A.2 Natural persons under direct contract A.3 Seconded persons [A.6 Personnel for providing access to research infrastructure]		A.4 SME owners without salary A.5 Beneficiaries that are natural persons without salary		D.1 Travel D.2 Equipment D.3 Other goods and services D.4 Costs of large research infrastructure						Estimated costs of in-kind contributions not used on premises	Declaration of costs under Point D.4	Estimated costs of beneficiaries/ linked third parties not receiving EU funding			
Form of costs <sup>6</sup>	Actual	Unit <sup>7</sup>	Unit <sup>8</sup>		Actual	Actual	Actual	Flat-rate <sup>9</sup>							
							25%								
	(a)	Total (b)	No hours	Total (c)	(d)	(e)	(f)	(g)=0,25x ((a)+(b)+ (c)+(f) +[(h1)+(h2)]- (m))	(i)= (a)+(b)+(c)+ (d)+(e)+(f)+ (g)+(h1)+(h2)+(h3)	(j)	(k)	(l)	(m)	Yes/No	
1. MET OFFICE	351880.00	0.00			0.00	0.00	81250.00	108282.50	541412.50	100.00	541412.50	541412.50	0.00	No	
2. ANR	130000.00	0.00			0.00	0.00	30000.00	40000.00	200000.00	100.00	200000.00	200000.00	0.00	No	
3. BSC	150000.00	0.00			0.00	0.00	30000.00	45000.00	225000.00	100.00	225000.00	225000.00	0.00	No	
4. CMCC	162000.00	0.00			5000.00	0.00	49000.00	52750.00	268750.00	100.00	268750.00	268750.00	0.00	No	
5. IC	270836.00	0.00			0.00	0.00	10000.00	70209.00	351045.00	100.00	351045.00	351045.00	0.00	No	
6. ECMWF <sup>13</sup>									58062.50						58062.50
7. HZG	182520.00	0.00			140000.00	0.00	118000.00	75130.00	515650.00	100.00	515650.00	515650.00	0.00	No	
8. CNRS	147000.00	0.00			0.00	0.00	50000.00	49250.00	246250.00	100.00	246250.00	246250.00	0.00	No	
9. KNMI	216112.00	0.00			20000.00	0.00	40000.00	64028.00	340140.00	100.00	340140.00	340140.00	0.00	No	
10. RHMSS	38500.00	0.00			0.00	0.00	35000.00	18375.00	91875.00	100.00	91875.00	91875.00	0.00	No	
11. SMHI	156400.00	0.00			0.00	0.00	15000.00	42850.00	214250.00	100.00	214250.00	214250.00	0.00	No	
Total consortium	1836298.00	0.00			165000.00	0.00	473650.00	577487.00	3052435.00		2994372.50	2994372.50	0.00		58062.50

## ESTIMATED BUDGET FOR THE ACTION (page 2 of 2)

- (1) See Article 6 for the eligibility conditions
- (2) The indirect costs covered by the operating grant (received under any EU or Euratom funding programme; see Article 6.5.(b)) are ineligible under the GA. Therefore, a beneficiary that receives an operating grant during the action's duration cannot declare indirect costs for the year(s)/reporting period(s) covered by the operating grant (see Article 6.2.E).
- (3) This is the theoretical amount of EU contribution that the system calculates automatically (by multiplying all the budgeted costs by the reimbursement rate). This theoretical amount is capped by the 'maximum grant amount' (that the Commission/Agency decided to grant for the action) (see Article 5.1).
- (4) The 'maximum grant amount' is the maximum grant amount decided by the Commission/Agency. It normally corresponds to the requested grant, but may be lower.
- (5) Depending on its type, this specific cost category will or will not cover indirect costs. Specific unit costs that include indirect costs are: costs for energy efficiency measures in buildings, access costs for providing trans-national access to research infrastructure and costs for clinical studies.
- (6) See Article 5 for the forms of costs
- (7) Unit : hours worked on the action; costs per unit (hourly rate) : calculated according to beneficiary's usual accounting practice
- (8) See Annex 2a 'Additional information on the estimated budget' for the details (costs per hour (hourly rate)).
- (9) Flat rate : 25% of eligible direct costs, from which are excluded: direct costs of subcontracting, costs of in-kind contributions not used on premises, direct costs of financial support, and unit costs declared under budget category F if they include indirect costs
- (10) See Annex 2a 'Additional information on the estimated budget' for the details (units, costs per unit).
- (11) See Annex 2a 'Additional information on the estimated budget' for the details (units, costs per unit, estimated number of units, etc)
- (12) Only specific unit costs that do not include indirect costs
- (13) See Article 9 for beneficiaries not receiving EU funding
- (14) Only for linked third parties that receive EU funding

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**AGENCE NATIONALE DE LA RECHERCHE (ANR)**, DECRET 2006 963, established in 50 avenue Daumesnil, PARIS 75012, France ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('2')

**in Grant Agreement No** 689029 ('the Agreement')

**between** MET OFFICE **and** *the Executive Agency for Small and Medium-sized Enterprises (EASME)* ('the Agency'), *under the power delegated by the European Commission ('the Commission')*,

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION (BSC)**, E4A82CE203194C3C, established in Calle Jordi Girona 31, BARCELONA 08034 , Spain, ESS0800099D ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('3')

**in Grant Agreement No 689029** ('the Agreement')

**between MET OFFICE and *the Executive Agency for Small and Medium-sized Enterprises (EASME)*** ('the Agency'), under the power delegated by the European Commission ('the Commission'),

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**CENTRO EURO-MEDITERRANEO SUI CAMBIAMENTI CLIMATICI SCARL (CMCC)** SCARL, 251549CF03873750750 , established in VIA A IMPERATORE 16, LECCE 73100, Italy, IT03873750750 ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('4')

**in Grant Agreement No** 689029 ('the Agreement')

**between MET OFFICE and *the Executive Agency for Small and Medium-sized Enterprises (EASME)*** ('the Agency'), under the power delegated by the European Commission ('the Commission'),

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE (IC)**, RC000231, established in SOUTH KENSINGTON CAMPUS EXHIBITION ROAD, LONDON SW7 2AZ, United Kingdom, GB649926678 ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('5')

**in Grant Agreement No 689029** ('the Agreement')

**between MET OFFICE and *the Executive Agency for Small and Medium-sized Enterprises (EASME)*** ('the Agency'), under the power delegated by the European Commission ('the Commission'),

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS (ECMWF)**, established in SHINFIELD PARK, READING RG2 9AX, United Kingdom ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('6')

**in Grant Agreement No 689029** ('the Agreement')

**between MET OFFICE and *the Executive Agency for Small and Medium-sized Enterprises (EASME)*** ('the Agency'), *under the power delegated by the European Commission ('the Commission')*,

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**HELMHOLTZ-ZENTRUM GEESTHACHT ZENTRUM FUR MATERIAL- UND KUSTENFORSCHUNG GMBH (HZG) GMBH**, HRB285GE, established in MAX PLANCK STRASSE 1, GEESTHACHT 21502, Germany, DE135131669 ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('7')

**in Grant Agreement No 689029** ('the Agreement')

**between MET OFFICE and *the Executive Agency for Small and Medium-sized Enterprises (EASME)*** ('the Agency'), under the power delegated by the European Commission ('the Commission'),

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)**, 180089013, established in Rue Michel -Ange 3, PARIS 75794, France, FR40180089013 ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('8')

**in Grant Agreement No** 689029 ('the Agreement')

**between** MET OFFICE **and** *the Executive Agency for Small and Medium-sized Enterprises (EASME)* ('the Agency'), *under the power delegated by the European Commission ('the Commission')*,

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**KONINKLIJK NEDERLANDS METEOROLOGISCH INSTITUUT-KNMI (KNMI)**, 30276595, established in UTRECHTSEWEG 297, DE BILT 3731 GA, Netherlands, NL821693992B01 ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('9')

**in Grant Agreement No 689029** ('the Agreement')

**between MET OFFICE and *the Executive Agency for Small and Medium-sized Enterprises (EASME)*** ('the Agency'), under the power delegated by the European Commission ('the Commission'),

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**REPUBLICKI HIDROMETEOROLOSKI ZAVODSRBIJE (RHMSS)**, 07003706, established in KNEZA VISESLAVA 66, BEOGRAD 11030, Serbia, RS102217008 ('the beneficiary'), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No ('10')

**in Grant Agreement No** 689029 ('the Agreement')

**between** MET OFFICE **and** *the Executive Agency for Small and Medium-sized Enterprises (EASME)* ('the Agency'), *under the power delegated by the European Commission ('the Commission')*,

**for the action entitled** 'European Climate Observations, Modelling and Services - 2 (ECOMS2)'.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

## ANNEX 3

### ACCESSION FORM FOR BENEFICIARIES

**SVERIGES METEOROLOGISKA OCH HYDROLOGISKA INSTITUT (SMHI)**,  
2021000696, established in Folkborgsvaegen 1, NORRKOEPING 601 76, Sweden, SE202100069601  
(‘the beneficiary’), represented for the purpose of signing this Accession Form by the undersigned,

**hereby agrees**

**to become *beneficiary*** No (‘11’)

**in Grant Agreement No** 689029 (‘the Agreement’)

**between** MET OFFICE **and** *the Executive Agency for Small and Medium-sized Enterprises (EASME)*  
(‘the Agency’), *under the power delegated by the European Commission (‘the Commission’)*,

**for the action entitled** ‘European Climate Observations, Modelling and Services - 2 (ECOMS2)’.

**and mandates**

**the *beneficiary*** to submit and sign in its name and on its behalf any **amendments** to the Agreement,  
in accordance with Article 55.

By signing this Accession Form, the beneficiary accepts the grant and agrees to implement the grant  
in accordance with the Agreement, with all the obligations and conditions it sets out.

SIGNATURE

For the beneficiary

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MODEL ANNEX 4 FOR H2020 GENERAL MGA — MULTI

FINANCIAL STATEMENT FOR [BENEFICIARY [name]/ LINKED THIRD PARTY [name]] FOR REPORTING PERIOD [reporting period]

Eligible <sup>1</sup> costs (per budget category)											Receipts	EU contribution			Additional information				
A. Direct personnel costs				B. Direct costs of subcontracting	[C. Direct costs of fin. support]	D. Other direct costs		E. Indirect costs <sup>2</sup>	[F. Costs of ... ]			Total costs	Receipts	Reimbursement rate %	Maximum EU contribution <sup>3</sup>	Requested EU contribution	Information for indirect costs :		
A.1 Employees (or equivalent)		A.4 SME owners without salary				D.1 Travel	[D.4 Costs of large research infrastructure]		[F.1 Costs of ...]				Receipts of the action, to be reported in the last reporting period, according to Article 5.3.3				Costs of in-kind contributions not used on premises		
A.2 Natural persons under direct contract		A.5 Beneficiaries that are natural persons without salary				D.2 Equipment													
A.3 Seconded persons						D.3 Other goods and services													
[A.6 Personnel for providing access to research infrastructure]																			
Form of costs <sup>4</sup>	Actual		Unit		Actual	Actual	Actual	Actual	Flat-rate <sup>5</sup>	Unit		Unit							
									25%										
	a	Total b	No hours	Total c	d	[e]	f	[g]	h=0,25 x (a+b+c+f+[g] + [i1] <sup>6</sup> + [i2] <sup>6</sup> - o)		No units	Total [i1]	Total [i2]	j = a+b+c+d+[e] + f + [g] + h+[i1] + [i2]	k	l	m	n	o
[short name beneficiary/linked third party]																			

The beneficiary/linked third party hereby confirms that:  
 The information provided is complete, reliable and true.  
 The costs declared are eligible (see Article 6).  
 The costs can be substantiated by adequate records and supporting documentation that will be produced upon request or in the context of checks, reviews, audits and investigations (see Articles 17, 18 and 22).  
 For the last reporting period: that all the receipts have been declared (see Article 5.3.3).

Please declare all eligible costs, even if they exceed the amounts indicated in the estimated budget (see Annex 2). Only amounts that were declared in your individual financial statements can be taken into account lateron, in order to replace other costs that are found to be ineligible.

<sup>1</sup> See Article 6 for the eligibility conditions  
<sup>2</sup> The indirect costs claimed must be free of any amounts covered by an operating grant (received under any EU or Euratom funding programme; see Article 6.2.E). If you have received an operating grant during this reporting period, you cannot claim any indirect costs.  
<sup>3</sup> This is the theoretical amount of EU contribution that the system calculates automatically (by multiplying the reimbursement rate by the total costs declared). The amount you request (in the column 'requested EU contribution') may have to be less (e.g. if you and the other beneficiaries are above budget, if the 90% limit (see Article 21) is reached, etc).  
<sup>4</sup> See Article 5 for the form of costs  
<sup>5</sup> Flat rate : 25% of eligible direct costs, from which are excluded: direct costs of subcontracting, costs of in-kind contributions not used on premises, direct costs of financial support, and unit costs declared under budget category F if they include indirect costs (see Article 6.2.E)  
<sup>6</sup> Only specific unit costs that do not include indirect costs

H2020 Model Grant Agreements: H2020 General MGA — Multi: September 2014

**ANNEX 5**

**MODEL FOR THE CERTIFICATE ON THE FINANCIAL STATEMENTS**

- For options [*in italics in square brackets*]: choose the applicable option. Options not chosen should be deleted.
- For fields in [grey in square brackets]: enter the appropriate data

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H2020 Model Grant Agreements: H2020 General MGA — Multi: September 2014

**Terms of Reference for an Independent Report of Factual Findings on costs declared under a Grant Agreement financed under the Horizon 2020 Research and Innovation Framework Programme**

This document sets out the **'Terms of Reference (ToR)'** under which

[OPTION 1: [insert name of the beneficiary] ('the Beneficiary')] [OPTION 2: [insert name of the linked third party] ('the Linked Third Party'), third party linked to the Beneficiary [insert name of the beneficiary] ('the Beneficiary')]

agrees to engage

[insert legal name of the auditor] ('the Auditor')

to produce an independent report of factual findings ('the Report') concerning the Financial Statement(s)<sup>1</sup> drawn up by the [Beneficiary] [Linked Third Party] for the Horizon 2020 grant agreement [insert number of the grant agreement, title of the action, acronym and duration from/to] ('the Agreement'), and

to issue a Certificate on the Financial Statements' ('CFS') referred to in Article 20.4 of the Agreement based on the compulsory reporting template stipulated by the Commission.

The Agreement has been concluded under the Horizon 2020 Research and Innovation Framework Programme (H2020) between the Beneficiary and [OPTION 1: the European Union, represented by the European Commission ('the Commission')][ OPTION 2: the European Atomic Energy Community (Euratom,) represented by the European Commission ('the Commission')][OPTION 3: the [Research Executive Agency (REA)] [European Research Council Executive Agency (ERCEA)] [Innovation and Networks Executive Agency (INEA)] [Executive Agency for Small and Medium-sized Enterprises (EASME)] ('the Agency'), under the powers delegated by the European Commission ('the Commission').]

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<sup>1</sup> By which costs under the Agreement are declared (see template 'Model Financial Statements' in Annex 4 to the Grant Agreement).

## H2020 Model Grant Agreements: H2020 General MGA — Multi: September 2014

The *[Commission]* *[Agency]* is mentioned as a signatory of the Agreement with the Beneficiary only. The *[European Union]**[Euratom]**[Agency]* is not a party to this engagement.

### 1.1 Subject of the engagement

The coordinator must submit to the *[Commission]**[Agency]* the final report within 60 days following the end of the last reporting period which should include, amongst other documents, a CFS for each beneficiary and for each linked third party that requests a total contribution of EUR 325 000 or more, as reimbursement of actual costs and unit costs calculated on the basis of its usual cost accounting practices (see Article 20.4 of the Agreement). The CFS must cover all reporting periods of the beneficiary or linked third party indicated above.

The Beneficiary must submit to the coordinator the CFS for itself and for its linked third party(ies), if the CFS must be included in the final report according to Article 20.4 of the Agreement..

The CFS is composed of two separate documents:

- The Terms of Reference ('the ToR') to be signed by the *[Beneficiary]* *[Linked Third Party]* and the Auditor;
- The Auditor's Independent Report of Factual Findings ('the Report') to be issued on the Auditor's letterhead, dated, stamped and signed by the Auditor (or the competent public officer) which includes the agreed-upon procedures ('the Procedures') to be performed by the Auditor, and the standard factual findings ('the Findings') to be confirmed by the Auditor.

If the CFS must be included in the final report according to Article 20.4 of the Agreement, the request for payment of the balance relating to the Agreement cannot be made without the CFS. However, the payment for reimbursement of costs covered by the CFS does not preclude the *[Commission]*,*[Agency]*, the European Anti-Fraud Office and the European Court of Auditors from carrying out checks, reviews, audits and investigations in accordance with Article 22 of the Agreement.

### 1.2 Responsibilities

The *[Beneficiary]* *[Linked Third Party]*:

## H2020 Model Grant Agreements: H2020 General MGA — Multi: September 2014

- must draw up the Financial Statement(s) for the action financed by the Agreement in compliance with the obligations under the Agreement. The Financial Statement(s) must be drawn up according to the *[Beneficiary's] [Linked Third Party's]* accounting and book-keeping system and the underlying accounts and records;
- must send the Financial Statement(s) to the Auditor;
- is responsible and liable for the accuracy of the Financial Statement(s);
- is responsible for the completeness and accuracy of the information provided to enable the Auditor to carry out the Procedures. It must provide the Auditor with a written representation letter supporting these statements. The written representation letter must state the period covered by the statements and must be dated;
- accepts that the Auditor cannot carry out the Procedures unless it is given full access to the *[Beneficiary's] [Linked Third Party's]* staff and accounting as well as any other relevant records and documentation.

### The Auditor:

- *[Option 1 by default: is qualified to carry out statutory audits of accounting documents in accordance with 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, amending Council Directives 78/660/EEC and 83/349/EEC and repealing Council Directive 84/253/EEC or similar national regulations].*
- *[Option 2 if the Beneficiary or Linked Third Party has an independent Public Officer: is a competent and independent Public Officer for which the relevant national authorities have established the legal capacity to audit the Beneficiary].*
- *[Option 3 if the Beneficiary or Linked Third Party is an international organisation: is an [internal] [external] auditor in accordance with the internal financial regulations and procedures of the international organisation].*

### The Auditor:

- must be independent from the Beneficiary *[and the Linked Third Party]*, in particular, it must not have been involved in preparing the *[Beneficiary's] [Linked Third Party's]* Financial Statement(s);
- must plan work so that the Procedures may be carried out and the Findings may be assessed;
- must adhere to the Procedures laid down and the compulsory report format;
- must carry out the engagement in accordance with this ToR;
- must document matters which are important to support the Report;
- must base its Report on the evidence gathered;
- must submit the Report to the *[Beneficiary] [Linked Third Party]*.

The Commission sets out the Procedures to be carried out by the Auditor. The Auditor is not responsible for their suitability or pertinence. As this engagement is not an assurance engagement, the Auditor does not provide an audit opinion or a statement of assurance.

### 1.3 Applicable Standards

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The Auditor must comply with these Terms of Reference and with<sup>2</sup>:

- the International Standard on Related Services ('ISRS') 4400 *Engagements to perform Agreed-upon Procedures regarding Financial Information* as issued by the International Auditing and Assurance Standards Board (IAASB);
- the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants (IESBA). Although ISRS 4400 states that independence is not a requirement for engagements to carry out agreed-upon procedures, the [Commission][Agency] requires that the Auditor also complies with the Code's independence requirements.

The Auditor's Report must state that there is no conflict of interests in establishing this Report between the Auditor and the Beneficiary [and the Linked Third Party], and must specify - if the service is invoiced - the total fee paid to the Auditor for providing the Report.

### 1.4 Reporting

The Report must be written in the language of the Agreement (see Article 20.7).

Under Article 22 of the Agreement, the [Commission] [Agency], the European Anti-Fraud Office and the Court of Auditors have the right to audit any work that is carried out under the action and for which costs are declared from [the European Union] [Euratom] budget. This includes work related to this engagement. The Auditor must provide access to all working papers (e.g. recalculation of hourly rates, verification of the time declared for the action) related to this assignment if the [Commission] [Agency], the European Anti-Fraud Office or the European Court of Auditors requests them.

### 1.5 Timing

The Report must be provided by [dd Month yyyy].

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<sup>2</sup> Supreme Audit Institutions applying INTOSAI-standards may carry out the Procedures according to the corresponding International Standards of Supreme Audit Institutions and code of ethics issued by INTOSAI instead of the International Standard on Related Services ('ISRS') 4400 and the Code of Ethics for Professional Accountants issued by the IAASB and the IESBA.

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**1.6 Other terms**

*[The [Beneficiary] [Linked Third Party] and the Auditor can use this section to agree other specific terms, such as the Auditor’s fees, liability, applicable law, etc. Those specific terms must not contradict the terms specified above.]*

[legal name of the Auditor]	[legal name of the [Beneficiary][Linked Third Party]]
[name & function of authorised representative]	[name & function of authorised representative]
[dd Month yyyy]	[dd Month yyyy]
Signature of the Auditor	Signature of the [Beneficiary][Linked Third Party]

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**Independent Report of Factual Findings on costs declared under Horizon 2020 Research and Innovation Framework Programme**

*(To be printed on the Auditor's letterhead)*

To

[ name of contact person(s)], [Position]

[ *Beneficiary's* ] [ *Linked Third Party's* name ]

[ Address]

[ dd Month yyyy]

Dear [Name of contact person(s)],

As agreed under the terms of reference dated [dd Month yyyy]

with [OPTION 1: *insert name of the beneficiary*] ('the Beneficiary') [OPTION 2: *insert name of the linked third party*] ('the Linked Third Party'), third party linked to the Beneficiary [*insert name of the beneficiary*] ('the Beneficiary'),

we

[name of the auditor] ('the Auditor'),

established at

[full address/city/state/province/country],

represented by

[name and function of an authorised representative],

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have carried out the procedures agreed with you regarding the costs declared in the Financial Statement(s)<sup>3</sup> of the [Beneficiary] [Linked Third Party] concerning the grant agreement

[insert grant agreement reference: number, title of the action and acronym] ('the Agreement'),

with a total cost declared of

[total amount] EUR,

and a total of actual costs and 'direct personnel costs declared as unit costs calculated in accordance with the [Beneficiary's] [Linked Third Party's] usual cost accounting practices' declared of

[sum of total actual costs and total direct personnel costs declared as unit costs calculated in accordance with the [Beneficiary's] [Linked Third Party's] usual cost accounting practices] EUR

and **hereby provide our Independent Report of Factual Findings ('the Report')** using the compulsory report format agreed with you.

### **The Report**

Our engagement was carried out in accordance with the terms of reference ('the ToR') appended to this Report. The Report includes the agreed-upon procedures ('the Procedures') carried out and the standard factual findings ('the Findings') examined.

The Procedures were carried out solely to assist the [Commission] [Agency] in evaluating whether the [Beneficiary's] [Linked Third Party's] costs in the accompanying Financial Statement(s) were declared in accordance with the Agreement. The [Commission] [Agency] draws its own conclusions from the Report and any additional information it may require.

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<sup>3</sup> By which the Beneficiary declares costs under the Agreement (see template 'Model Financial Statement' in Annex 4 to the Agreement).

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The scope of the Procedures was defined by the Commission. Therefore, the Auditor is not responsible for their suitability or pertinence. Since the Procedures carried out constitute neither an audit nor a review made in accordance with International Standards on Auditing or International Standards on Review Engagements, the Auditor does not give a statement of assurance on the Financial Statements.

Had the Auditor carried out additional procedures or an audit of the [Beneficiary's] [Linked Third Party's] Financial Statements in accordance with International Standards on Auditing or International Standards on Review Engagements, other matters might have come to its attention and would have been included in the Report.

**Not applicable Findings**

We examined the Financial Statement(s) stated above and considered the following Findings not applicable:

*Explanation (to be removed from the Report):*

*If a Finding was not applicable, it must be marked as 'N.A.' ('Not applicable') in the corresponding row on the right-hand column of the table and means that the Finding did not have to be corroborated by the Auditor and the related Procedure(s) did not have to be carried out.*

*The reasons of the non-application of a certain Finding must be obvious i.e.*

- i) if no cost was declared under a certain category then the related Finding(s) and Procedure(s) are not applicable;*
- ii) if the condition set to apply certain Procedure(s) are not met the related Finding(s) and those Procedure(s) are not applicable. For instance, for 'beneficiaries with accounts established in a currency other than euro' the Procedure and Finding related to 'beneficiaries with accounts established in euro' are not applicable. Similarly, if no additional remuneration is paid, the related Finding(s) and Procedure(s) for additional remuneration are not applicable.*

**List here all Findings considered not applicable for the present engagement and explain the reasons of the non-applicability.**

....

**Exceptions**

Apart from the exceptions listed below, the [Beneficiary] [Linked Third Party] provided the Auditor all the documentation and accounting information needed by the Auditor to carry out the requested Procedures and evaluate the Findings.

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### Explanation (to be removed from the Report):

- If the Auditor was not able to successfully complete a procedure requested, it must be marked as 'E' ('Exception') in the corresponding row on the right-hand column of the table. The reason such as the inability to reconcile key information or the unavailability of data that prevents the Auditor from carrying out the Procedure must be indicated below.
- If the Auditor cannot corroborate a standard finding after having carried out the corresponding procedure, it must also be marked as 'E' ('Exception') and, where possible, the reasons why the Finding was not fulfilled and its possible impact must be explained here below.

**List here any exceptions and add any information on the cause and possible consequences of each exception, if known. If the exception is quantifiable, include the corresponding amount.**

....

### Example (to be removed from the Report):

1. The Beneficiary was unable to substantiate the Finding number 1 on ... because ....
2. Finding number 30 was not fulfilled because the methodology used by the Beneficiary to calculate unit costs was different from the one approved by the Commission. The differences were as follows: ...
3. After carrying out the agreed procedures to confirm the Finding number 31, the Auditor found a difference of \_\_\_\_\_ EUR. The difference can be explained by ...

### Further Remarks

In addition to reporting on the results of the specific procedures carried out, the Auditor would like to make the following general remarks:

### Example (to be removed from the Report):

1. Regarding Finding number 8 the conditions for additional remuneration were considered as fulfilled because ...
2. In order to be able to confirm the Finding number 15 we carried out the following additional procedures: ....

### Use of this Report

This Report may be used only for the purpose described in the above objective. It was prepared solely for the confidential use of the [Beneficiary] [Linked Third Party] and the [Commission] [Agency], and only to be submitted to the [Commission] [Agency] in connection with the requirements set out in Article 20.4 of the Agreement. The Report may not be used by the [Beneficiary] [Linked Third Party] or by the [Commission] [Agency] for any other purpose, nor may it

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be distributed to any other parties. The [Commission] [Agency] may only disclose the Report to authorised parties, in particular to the European Anti-Fraud Office (OLAF) and the European Court of Auditors.

This Report relates only to the Financial Statement(s) submitted to the [Commission] [Agency] by the [Beneficiary] [Linked Third Party] for the Agreement. Therefore, it does not extend to any other of the [Beneficiary's] [Linked Third Party's] Financial Statement(s).

There was no conflict of interest<sup>4</sup> between the Auditor and the Beneficiary [and Linked Third Party] in establishing this Report. The total fee paid to the Auditor for providing the Report was EUR [ ] (including EUR [ ] of deductible VAT).

We look forward to discussing our Report with you and would be pleased to provide any further information or assistance.

[legal name of the Auditor]

[name and function of an authorised representative]

[dd Month yyyy]

Signature of the Auditor

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<sup>4</sup> A conflict of interest arises when the Auditor's objectivity to establish the certificate is compromised in fact or in appearance when the Auditor for instance:

- was involved in the preparation of the Financial Statements;
- stands to benefit directly should the certificate be accepted;
- has a close relationship with any person representing the beneficiary;
- is a director, trustee or partner of the beneficiary; or
- is in any other situation that compromises his or her independence or ability to establish the certificate impartially.

**Agreed-upon procedures to be performed and standard factual findings to be confirmed by the Auditor**

The European Commission reserves the right to i) provide the auditor with additional guidance regarding the procedures to be followed or the facts to be ascertained and the way in which to present them (this may include sample coverage and findings) or to ii) change the procedures, by notifying the Beneficiary in writing. The procedures carried out by the auditor to confirm the standard factual finding are listed in the table below.

If this certificate relates to a Linked Third Party, any reference here below to 'the Beneficiary' is to be considered as a reference to 'the Linked Third Party'.

The 'result' column has three different options: 'C', 'E' and 'N.A.':

- 'C' stands for 'confirmed' and means that the auditor can confirm the 'standard factual finding' and, therefore, there is no exception to be reported.
- 'E' stands for 'exception' and means that the Auditor carried out the procedures but cannot confirm the 'standard factual finding', or that the Auditor was not able to carry out a specific procedure (e.g. because it was impossible to reconcile key information or data were unavailable),
- 'N.A.' stands for 'not applicable' and means that the Finding did not have to be examined by the Auditor and the related Procedure(s) did not have to be carried out. The reasons of the non-application of a certain Finding must be obvious i.e. i) if no cost was declared under a certain category then the related Finding(s) and Procedure(s) are not applicable; ii) if the condition set to apply certain Procedure(s) are not met then the related Finding(s) and Procedure(s) are not applicable. For instance, for 'beneficiaries with accounts established in a currency other than the euro' the Procedure related to 'beneficiaries with accounts established in euro' is not applicable. Similarly, if no additional remuneration is paid, the related Finding(s) and Procedure(s) for additional remuneration are not applicable.

Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
A	<b>ACTUAL PERSONNEL COSTS AND UNIT COSTS CALCULATED BY THE BENEFICIARY IN ACCORDANCE WITH ITS USUAL COST ACCOUNTING PRACTICE</b>		

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<p>The Auditor draws a sample of persons whose costs were declared in the Financial Statement(s) to carry out the procedures indicated in the consecutive points of this section A.</p> <p><i>(The sample should be selected randomly so that it is representative. Full coverage is required if there are fewer than 10 people (including employees, natural persons working under a direct contract and personnel seconded by a third party), otherwise the sample should have a minimum of 10 people, or 10% of the total, whichever number is the highest)</i></p> <p>The Auditor sampled [ ] people out of the total of [ ] people.</p>		
<b>A.1</b>	<p><b>PERSONNEL COSTS</b></p> <p><u>For the persons included in the sample and working under an employment contract or equivalent act (general procedures for individual actual personnel costs and personnel costs declared as unit costs)</u></p> <p>To confirm standard factual findings 1-5 listed in the next column, the Auditor reviewed following information/documents provided by the Beneficiary:</p> <ul style="list-style-type: none"> <li>○ a list of the persons included in the sample indicating the period(s) during which they worked for the action, their position (classification or category) and type of contract;</li> <li>○ the payslips of the employees included in the sample;</li> <li>○ reconciliation of the personnel costs declared in the Financial Statement(s) with the accounting system (project accounting and general ledger) and payroll system;</li> <li>○ information concerning the employment status and employment conditions of personnel included in the sample, in particular their employment contracts or equivalent;</li> </ul>	<p>1) The employees were i) directly hired by the Beneficiary in accordance with its national legislation, ii) under the Beneficiary's sole technical supervision and responsibility and iii) remunerated in accordance with the Beneficiary's usual practices.</p> <p>2) Personnel costs were recorded in the Beneficiary's accounts/payroll system.</p> <p>3) Costs were adequately supported and reconciled with the accounts and payroll</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<ul style="list-style-type: none"> <li>○ the Beneficiary’s usual policy regarding payroll matters (e.g. salary policy, overtime policy, variable pay);</li> <li>○ applicable national law on taxes, labour and social security and</li> <li>○ any other document that supports the personnel costs declared.</li> </ul> <p>The Auditor also verified the eligibility of all components of the retribution (see Article 6 GA) and recalculated the personnel costs for employees included in the sample.</p>	<p>records.</p> <p>4) Personnel costs did not contain any ineligible elements.</p> <p>5) There were no discrepancies between the personnel costs charged to the action and the costs recalculated by the Auditor.</p>	
	<p><i>Further procedures if ‘additional remuneration’ is paid</i></p> <p>To confirm standard factual findings 6-9 listed in the next column, the Auditor:</p> <ul style="list-style-type: none"> <li>○ reviewed relevant documents provided by the Beneficiary (legal form, legal/statutory obligations, the Beneficiary’s usual policy on additional remuneration, criteria used for its calculation...);</li> <li>○ recalculated the amount of additional remuneration eligible for the action based on the supporting documents received (full-time or part-time work, exclusive or non-exclusive dedication to the action, etc.) to arrive at the applicable FTE/year and pro-rata rate (see data collected in the course of carrying out the procedures under A.2 ‘Productive hours’ and A.4 ‘Time recording system’).</li> </ul>	<p>6) The Beneficiary paying “additional remuneration” was a non-profit legal entity.</p> <p>7) The amount of additional remuneration paid corresponded to the Beneficiary’s usual remuneration practices and was consistently paid whenever the same kind of work or expertise was required.</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<p><i>IF ANY PART OF THE REMUNERATION PAID TO THE EMPLOYEE IS NOT MANDATORY ACCORDING TO THE NATIONAL LAW OR THE EMPLOYMENT CONTRACT ("ADDITIONAL REMUNERATION") AND IS ELIGIBLE UNDER THE PROVISIONS OF ARTICLE 6.2.A.1, THIS CAN BE CHARGED AS ELIGIBLE COST TO THE ACTION UP TO THE FOLLOWING AMOUNT:</i></p> <p><i>(A) IF THE PERSON WORKS FULL TIME AND EXCLUSIVELY ON THE ACTION DURING THE FULL YEAR: UP TO EUR 8 000/YEAR;</i></p> <p><i>(B) IF THE PERSON WORKS EXCLUSIVELY ON THE ACTION BUT NOT FULL-TIME OR NOT FOR THE FULL YEAR: UP TO THE CORRESPONDING PRO-RATA AMOUNT OF EUR 8 000, OR</i></p> <p><i>(C) IF THE PERSON DOES NOT WORK EXCLUSIVELY ON THE ACTION: UP TO A PRO-RATA AMOUNT CALCULATED IN ACCORDANCE TO ARTICLE 6.2.A.1.</i></p>	<p>8) The criteria used to calculate the additional remuneration were objective and generally applied by the Beneficiary regardless of the source of funding used.</p>	
		<p>9) The amount of additional remuneration included in the personnel costs charged to the action was capped at EUR 8,000 per FTE/year (up to the equivalent pro-rata amount if the person did not work on the action full-time during the year or did not work exclusively on the action).</p>	
	<p><i>Additional procedures in case “unit costs calculated by the Beneficiary in accordance with its usual cost accounting practices” is applied:</i></p> <p>Apart from carrying out the procedures indicated above to confirm standard factual findings 1-5 and, if applicable, also 6-9, the Auditor carried out following procedures to confirm standard factual findings 10-13 listed in the next column:</p>	<p>10) The personnel costs included in the Financial Statement were calculated in accordance with the Beneficiary's usual cost accounting practice. This methodology was consistently used in all H2020 actions.</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<ul style="list-style-type: none"> <li>○ obtained a description of the Beneficiary's usual cost accounting practice to calculate unit costs;</li> <li>○ reviewed whether the Beneficiary's usual cost accounting practice was applied for the Financial Statements subject of the present CFS;</li> <li>○ verified the employees included in the sample were charged under the correct category (in accordance with the criteria used by the Beneficiary to establish personnel categories) by reviewing the contract/HR-record or analytical accounting records;</li> <li>○ verified that there is no difference between the total amount of personnel costs used in calculating the cost per unit and the total amount of personnel costs recorded in the statutory accounts;</li> <li>○ verified whether actual personnel costs were adjusted on the basis of budgeted or estimated elements and, if so, verified whether those elements used are actually relevant for the calculation, objective and supported by documents.</li> </ul>	11) The employees were charged under the correct category.	
		12) Total personnel costs used in calculating the unit costs were consistent with the expenses recorded in the statutory accounts.	
		13) Any estimated or budgeted element used by the Beneficiary in its unit-cost calculation were relevant for calculating personnel costs and corresponded to objective and verifiable information.	
	<p><u>For natural persons included in the sample and working with the Beneficiary under a direct contract other than an employment contract, such as consultants (no subcontractors).</u></p> <p>To confirm standard factual findings 14-18 listed in the next column the Auditor reviewed following information/documents provided by the Beneficiary:</p> <ul style="list-style-type: none"> <li>○ the contracts, especially the cost, contract duration, work description, place of work, ownership of the results and reporting obligations to the Beneficiary;</li> </ul>	14) The natural persons reported to the Beneficiary (worked under the Beneficiary's instructions).	
		15) They worked on the Beneficiary's premises (unless otherwise agreed with the Beneficiary).	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<ul style="list-style-type: none"> <li>○ the employment conditions of staff in the same category to compare costs and;</li> <li>○ any other document that supports the costs declared and its registration (e.g. invoices, accounting records, etc.).</li> </ul>	16) The results of work carried out belong to the Beneficiary.	
		17) Their costs were not significantly different from those for staff who performed similar tasks under an employment contract with the Beneficiary.	
		18) The costs were supported by audit evidence and registered in the accounts.	
	<p><u>For personnel seconded by a third party and included in the sample (not subcontractors)</u></p> <p>To confirm standard factual findings 19-22 listed in the next column, the Auditor reviewed following information/documents provided by the Beneficiary:</p> <ul style="list-style-type: none"> <li>○ their secondment contract(s) notably regarding costs, duration, work description, place of work and ownership of the results;</li> <li>○ if there is reimbursement by the Beneficiary to the third party for the resource made available (in-kind contribution against payment): any documentation that supports the costs declared (e.g. contract, invoice, bank payment, and proof of registration in its accounting/payroll, etc.) and reconciliation of the Financial Statement(s) with the accounting system (project accounting and general ledger) as well as any proof that the amount invoiced by the third party did not include any profit;</li> </ul>	19) Seconded personnel reported to the Beneficiary and worked on the Beneficiary’s premises (unless otherwise agreed with the Beneficiary).	
		20) The results of work carried out belong to the Beneficiary.	
		<p><i>If personnel is seconded against payment:</i></p> <p>21) The costs declared were supported with documentation and recorded in the</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<ul style="list-style-type: none"> <li>○ if there is no reimbursement by the Beneficiary to the third party for the resource made available (in-kind contribution free of charge): a proof of the actual cost borne by the Third Party for the resource made available free of charge to the Beneficiary such as a statement of costs incurred by the Third Party and proof of the registration in the Third Party's accounting/payroll;</li> <li>○ any other document that supports the costs declared (e.g. invoices, etc.).</li> </ul>	<p>Beneficiary's accounts. The third party did not include any profit.</p> <p><i>If personnel is seconded free of charge:</i></p> <p>22) The costs declared did not exceed the third party's cost as recorded in the accounts of the third party and were supported with documentation.</p>	
<b>A.2</b>	<p><b>PRODUCTIVE HOURS</b></p> <p>To confirm standard factual findings 23-28 listed in the next column, the Auditor reviewed relevant documents, especially national legislation, labour agreements and contracts and time records of the persons included in the sample, to verify that:</p> <ul style="list-style-type: none"> <li>○ the annual productive hours applied were calculated in accordance with one of the methods described below,</li> <li>○ the full-time equivalent (FTEs) ratios for employees not working full-time were correctly calculated.</li> </ul>	<p>23) The Beneficiary applied method [<i>choose one option and delete the others</i>]</p> <p>[A: 1720 hours]</p> <p>[B: the 'total number of hours worked']</p> <p>[C: 'annual productive hours' used correspond to usual accounting practices]</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<p>If the Beneficiary applied method B, the auditor verified that the correctness in which the total number of hours worked was calculated and that the contracts specified the annual workable hours.</p> <p>If the Beneficiary applied method C, the auditor verified that the ‘annual productive hours’ applied when calculating the hourly rate were equivalent to at least 90 % of the ‘standard annual workable hours’. The Auditor can only do this if the calculation of the standard annual workable hours can be supported by records, such as national legislation, labour agreements, and contracts.</p> <p><i>BENEFICIARY’S PRODUCTIVE HOURS’ FOR PERSONS WORKING FULL TIME SHALL BE ONE OF THE FOLLOWING METHODS:</i></p> <p><i>A. 1720 ANNUAL PRODUCTIVE HOURS (PRO-RATA FOR PERSONS NOT WORKING FULL-TIME)</i></p> <p><i>B. THE TOTAL NUMBER OF HOURS WORKED BY THE PERSON FOR THE BENEFICIARY IN THE YEAR (THIS METHOD IS ALSO REFERRED TO AS ‘TOTAL NUMBER OF HOURS WORKED’ IN THE NEXT COLUMN). THE CALCULATION OF THE TOTAL NUMBER OF HOURS WORKED WAS DONE AS FOLLOWS: ANNUAL WORKABLE HOURS OF THE PERSON ACCORDING TO THE EMPLOYMENT CONTRACT, APPLICABLE LABOUR AGREEMENT OR NATIONAL LAW PLUS OVERTIME WORKED MINUS ABSENCES (SUCH AS SICK LEAVE OR SPECIAL LEAVE).</i></p>	<p>24) Productive hours were calculated annually.</p> <p>25) For employees not working full-time the full-time equivalent (FTE) ratio was correctly applied.</p> <p><i>If the Beneficiary applied method B.</i></p> <p>26) The calculation of the number of ‘annual workable hours’, overtime and absences was verifiable based on the documents provided by the Beneficiary.</p> <p><i>If the Beneficiary applied method C.</i></p> <p>27) The calculation of the number of ‘standard annual workable hours’ was verifiable based on the documents provided by the Beneficiary.</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<p><i>C. THE STANDARD NUMBER OF ANNUAL HOURS GENERALLY APPLIED BY THE BENEFICIARY FOR ITS PERSONNEL IN ACCORDANCE WITH ITS USUAL COST ACCOUNTING PRACTICES (THIS METHOD IS ALSO REFERRED TO AS 'TOTAL ANNUAL PRODUCTIVE HOURS' IN THE NEXT COLUMN). THIS NUMBER MUST BE AT LEAST 90% OF THE STANDARD ANNUAL WORKABLE HOURS.</i></p> <p><i>'ANNUAL WORKABLE HOURS' MEANS THE PERIOD DURING WHICH THE PERSONNEL MUST BE WORKING, AT THE EMPLOYER'S DISPOSAL AND CARRYING OUT HIS/HER ACTIVITY OR DUTIES UNDER THE EMPLOYMENT CONTRACT, APPLICABLE COLLECTIVE LABOUR AGREEMENT OR NATIONAL WORKING TIME LEGISLATION.</i></p>	<p>28) The 'annual productive hours' used for calculating the hourly rate were consistent with the usual cost accounting practices of the Beneficiary and were equivalent to at least 90 % of the 'annual workable hours'.</p>	
<p><b>A.3</b></p>	<p><b>HOURLY PERSONNEL RATES</b></p> <p><u>l) For unit costs calculated in accordance to the Beneficiary's usual cost accounting practice (unit costs):</u></p> <p>If the Beneficiary has a "Certificate on Methodology to calculate unit costs " (CoMUC) approved by the Commission, the Beneficiary provides the Auditor with a description of the approved methodology and the Commission's letter of acceptance. The Auditor verified that the Beneficiary has indeed used the methodology approved. If so, no further verification is necessary.</p> <p>If the Beneficiary does not have a "Certificate on Methodology" (CoMUC) approved by the</p>	<p>29) The Beneficiary applied [choose one option and delete the other]:</p> <p>[Option I: "Unit costs (hourly rates) were calculated in accordance with the Beneficiary's usual cost accounting practices"]</p> <p>[Option II: Individual hourly rates were applied]</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<p>Commission, or if the methodology approved was not applied, then the Auditor:</p> <ul style="list-style-type: none"> <li>○ reviewed the documentation provided by the Beneficiary, including manuals and internal guidelines that explain how to calculate hourly rates;</li> <li>○ recalculated the unit costs (hourly rates) of staff included in the sample following the results of the procedures carried out in A.1 and A.2.</li> </ul> <p><u>II) For individual hourly rates:</u></p> <p>The Auditor:</p> <ul style="list-style-type: none"> <li>○ reviewed the documentation provided by the Beneficiary, including manuals and internal guidelines that explain how to calculate hourly rates;</li> <li>○ recalculated the hourly rates of staff included in the sample following the results of the procedures carried out in A.1 and A.2.</li> </ul> <p><u>“UNIT COSTS CALCULATED BY THE BENEFICIARY IN ACCORDANCE WITH ITS USUAL COST ACCOUNTING PRACTICES”:</u></p> <p><i>IT IS CALCULATED BY DIVIDING THE TOTAL AMOUNT OF PERSONNEL COSTS OF THE CATEGORY TO WHICH THE EMPLOYEE BELONGS VERIFIED IN LINE WITH PROCEDURE A.1 BY THE NUMBER OF FTE AND THE ANNUAL TOTAL PRODUCTIVE HOURS OF THE SAME CATEGORY CALCULATED BY THE BENEFICIARY IN ACCORDANCE WITH PROCEDURE A.2.</i></p> <p><u>HOURLY RATE FOR INDIVIDUAL ACTUAL PERSONAL COSTS:</u></p> <p><i>IT IS CALCULATED BY DIVIDING THE TOTAL AMOUNT OF PERSONNEL COSTS OF AN EMPLOYEE VERIFIED IN LINE WITH</i></p>	<p><i>For option I concerning unit costs and if the Beneficiary applies the methodology approved by the Commission (CoMUC):</i></p> <p>30) The Beneficiary used the Commission-approved methodology to calculate hourly rates. It corresponded to the organisation's usual cost accounting practices and was applied consistently for all activities irrespective of the source of funding.</p> <p><i>For option I concerning unit costs and if the Beneficiary applies a methodology not approved by the Commission:</i></p> <p>31) The unit costs re-calculated by the Auditor were the same as the rates applied by the Beneficiary.</p> <p><i>For option II concerning individual hourly rates:</i></p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<i>PROCEDURE A.1 BY THE NUMBER OF ANNUAL PRODUCTIVE HOURS VERIFIED IN LINE WITH PROCEDURE A.2.</i>	32) The individual rates re-calculated by the Auditor were the same as the rates applied by the Beneficiary.	
<b>A.4</b>	<p><b>TIME RECORDING SYSTEM</b></p> <p>To verify that the time recording system ensures the fulfilment of all minimum requirements and that the hours declared for the action were correct, accurate and properly authorised and supported by documentation, the Auditor made the following checks for the persons included in the sample that declare time as worked for the action on the basis of time records:</p> <ul style="list-style-type: none"> <li>○ description of the time recording system provided by the Beneficiary (registration, authorisation, processing in the HR-system);</li> <li>○ its actual implementation;</li> <li>○ time records were signed at least monthly by the employees (on paper or electronically) and authorised by the project manager or another manager;</li> <li>○ the hours declared were worked within the project period;</li> <li>○ there were no hours declared as worked for the action if HR-records showed absence due to holidays or sickness (further cross-checks with travels are carried out in B.1 below) ;</li> </ul>	<p>33) All persons recorded their time dedicated to the action on a <b>daily/ weekly/ monthly</b> basis using a <b>paper/computer-based</b> system. <i>(delete the answers that are not applicable)</i></p> <p>34) Their time-records were authorised at least monthly by the project manager or other superior.</p> <p>35) Hours declared were worked within the project period and were consistent with the presences/absences recorded in HR-records.</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<p>○ the hours charged to the action matched those in the time recording system.</p> <p><i>ONLY THE HOURS WORKED ON THE ACTION CAN BE CHARGED. ALL WORKING TIME TO BE CHARGED SHOULD BE RECORDED THROUGHOUT THE DURATION OF THE PROJECT, ADEQUATELY SUPPORTED BY EVIDENCE OF THEIR REALITY AND RELIABILITY (SEE SPECIFIC PROVISIONS BELOW FOR PERSONS WORKING EXCLUSIVELY FOR THE ACTION WITHOUT TIME RECORDS).</i></p>	<p>36) There were no discrepancies between the number of hours charged to the action and the number of hours recorded.</p>	
	<p><u>If the persons are working exclusively for the action and without time records</u></p> <p>For the persons selected that worked exclusively for the action without time records, the Auditor verified evidence available demonstrating that they were in reality exclusively dedicated to the action and that the Beneficiary signed a declaration confirming that they have worked exclusively for the action.</p>	<p>37) The exclusive dedication is supported by a declaration signed by the Beneficiary's and by any other evidence gathered.</p>	
<b>B</b>	<b>COSTS OF SUBCONTRACTING</b>		
<b>B.1</b>	<p><b>The Auditor obtained the detail/breakdown of subcontracting costs and sampled _____ cost items selected randomly</b> <i>(full coverage is required if there are fewer than 10 items, otherwise the sample should have a minimum of 10 item, or 10% of the total, whichever number is highest).</i></p> <p>To confirm standard factual findings 38-42 listed in the next column, the Auditor reviewed the</p>	<p>38) The use of claimed subcontracting costs was foreseen in Annex 1 and costs were declared in the Financial Statements under the subcontracting category.</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<p>following for the items included in the sample:</p> <ul style="list-style-type: none"> <li>○ the use of subcontractors was foreseen in Annex 1;</li> <li>○ subcontracting costs were declared in the subcontracting category of the Financial Statement;</li> <li>○ supporting documents on the selection and award procedure were followed;</li> <li>○ the Beneficiary ensured best value for money (key elements to appreciate the respect of this principle are the award of the subcontract to the bid offering best price-quality ratio, under conditions of transparency and equal treatment. In case an existing framework contract was used the Beneficiary ensured it was established on the basis of the principle of best value for money under conditions of transparency and equal treatment).</li> </ul> <p>In particular,</p> <ol style="list-style-type: none"> <li>i. if the Beneficiary acted as a contracting authority within the meaning of Directive 2004/18/EC or of Directive 2004/17/EC, the Auditor verified that the applicable national law on public procurement was followed and that the subcontracting complied with the Terms and Conditions of the Agreement.</li> <li>ii. if the Beneficiary did not fall under the above-mentioned category the Auditor verified that the Beneficiary followed their usual procurement rules and respected the Terms and Conditions of the Agreement..</li> </ol> <p>For the items included in the sample the Auditor also verified that:</p> <ul style="list-style-type: none"> <li>○ the subcontracts were not awarded to other Beneficiaries in the consortium;</li> </ul>	<p>39) There were documents of requests to different providers, different offers and assessment of the offers before selection of the provider in line with internal procedures and procurement rules. Subcontracts were awarded in accordance with the principle of best value for money.</p> <p><i>(When different offers were not collected the Auditor explains the reasons provided by the Beneficiary under the caption “Exceptions” of the Report. The Commission will analyse this information to evaluate whether these costs might be accepted as eligible)</i></p> <p>40) The subcontracts were not awarded to other Beneficiaries of the consortium.</p>	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	<ul style="list-style-type: none"> <li>○ there were signed agreements between the Beneficiary and the subcontractor;</li> <li>○ there was evidence that the services were provided by subcontractor;</li> </ul>	41) All subcontracts were supported by signed agreements between the Beneficiary and the subcontractor.	
		42) There was evidence that the services were provided by the subcontractors.	
<b>C</b>	<b>COSTS OF PROVIDING FINANCIAL SUPPORT TO THIRD PARTIES</b>		
<b>C.1</b>	<p><b>The Auditor obtained the detail/breakdown of the costs of providing financial support to third parties and sampled [redacted] cost items selected randomly (full coverage is required if there are fewer than 10 items, otherwise the sample should have a minimum of 10 item, or 10% of the total, whichever number is highest).</b></p> <p>The Auditor verified that the following minimum conditions were met:</p> <ul style="list-style-type: none"> <li>a) the maximum amount of financial support for each third party did not exceed EUR 60 000, unless explicitly mentioned in Annex 1;</li> <li>b) the financial support to third parties was agreed in Annex 1 of the Agreement and the other provisions on financial support to third parties included in Annex 1 were</li> </ul>	43) All minimum conditions were met	

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Ref	Procedures	Standard factual finding	Result (C / E / N.A.)
	respected.		

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D	OTHER ACTUAL DIRECT COSTS		
D.1	<p><b>COSTS OF TRAVEL AND RELATED SUBSISTENCE ALLOWANCES</b></p> <p><b>The Auditor sampled [ ] cost items selected randomly</b> <i>(full coverage is required if there are fewer than 10 items, otherwise the sample should have a minimum of 10 item, or 10% of the total, whichever number is the highest).</i></p> <p>The Auditor inspected the sample and verified that:</p> <ul style="list-style-type: none"> <li>○ travel and subsistence costs were consistent with the Beneficiary's usual policy for travel. In this context, the Beneficiary provided evidence of its normal policy for travel costs (e.g. use of first class tickets, reimbursement by the Beneficiary on the basis of actual costs, a lump sum or per diem) to enable the Auditor to compare the travel costs charged with this policy;</li> <li>○ travel costs are correctly identified and allocated to the action (e.g. trips are directly linked to the action) by reviewing relevant supporting documents such as minutes of meetings, workshops or conferences, their registration in the correct project account, their consistency with time records or with the dates/duration of the workshop/conference;</li> <li>○ no ineligible costs or excessive or reckless expenditure was declared.</li> </ul>	44) Costs were incurred, approved and reimbursed in line with the Beneficiary's usual policy for travels.	
		45) There was a link between the trip and the action.	
		46) The supporting documents were consistent with each other regarding subject of the trip, dates, duration and reconciled with time records and accounting.	
		47) No ineligible costs or excessive or reckless expenditure was declared.	
D.2	<p><b>DEPRECIATION COSTS FOR EQUIPMENT, INFRASTRUCTURE OR OTHER ASSETS</b></p> <p><b>The Auditor sampled [ ] cost items selected randomly</b> <i>(full coverage is required if there are fewer than 10 items, otherwise the sample should have a minimum of 10 item, or 10% of the total, whichever number is the highest).</i></p> <p>For “equipment, infrastructure or other assets” [from now on called “asset(s)”] selected in the</p>	48) Procurement rules, principles and guides were followed.	
		49) There was a link between the grant agreement and the asset charged to the action.	

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	<p>sample the Auditor verified that:</p> <ul style="list-style-type: none"> <li>○ the assets were acquired in conformity with the Beneficiary's internal guidelines and procedures;</li> <li>○ they were correctly allocated to the action (with supporting documents such as delivery note invoice or any other proof demonstrating the link to the action)</li> <li>○ they were entered in the accounting system;</li> <li>○ the extent to which the assets were used for the action (as a percentage) was supported by reliable documentation (e.g. usage overview table);</li> </ul> <p>The Auditor recalculated the depreciation costs and verified that they were in line with the applicable rules in the Beneficiary's country and with the Beneficiary's usual accounting policy (e.g. depreciation calculated on the acquisition value).</p> <p>The Auditor verified that no ineligible costs such as deductible VAT, exchange rate losses, excessive or reckless expenditure were declared (see Article 6.5 GA).</p>	<p>50) The asset charged to the action was traceable to the accounting records and the underlying documents.</p>	
		<p>51) The depreciation method used to charge the asset to the action was in line with the applicable rules of the Beneficiary's country and the Beneficiary's usual accounting policy.</p>	
		<p>52) The amount charged corresponded to the actual usage for the action.</p>	
		<p>53) No ineligible costs or excessive or reckless expenditure were declared.</p>	
<p><b>D.3</b></p>	<p><b>COSTS OF OTHER GOODS AND SERVICES</b></p> <p><b>The Auditor sampled [redacted] cost items selected randomly</b> (<i>full coverage is required if there are fewer than 10 items, otherwise the sample should have a minimum of 10 item, or 10% of the total, whichever number is highest</i>).</p> <p>For the purchase of goods, works or services included in the sample the Auditor verified that:</p> <ul style="list-style-type: none"> <li>○ the contracts did not cover tasks described in Annex 1;</li> </ul>	<p>54) Contracts for works or services did not cover tasks described in Annex 1.</p>	
		<p>55) Costs were allocated to the correct action and the goods were not placed in the inventory of durable equipment.</p>	

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<ul style="list-style-type: none"> <li>○ they were correctly identified, allocated to the proper action, entered in the accounting system (traceable to underlying documents such as purchase orders, invoices and accounting);</li> <li>○ the goods were not placed in the inventory of durable equipment;</li> <li>○ the costs charged to the action were accounted in line with the Beneficiary's usual accounting practices;</li> <li>○ no ineligible costs or excessive or reckless expenditure were declared (see Article 6 GA).</li> </ul> <p>In addition, the Auditor verified that these goods and services were acquired in conformity with the Beneficiary's internal guidelines and procedures, in particular:</p> <ul style="list-style-type: none"> <li>○ if Beneficiary acted as a contracting authority within the meaning of Directive 2004/18/EC or of Directive 2004/17/EC, the Auditor verified that the applicable national law on public procurement was followed and that the procurement contract complied with the Terms and Conditions of the Agreement.</li> <li>○ if the Beneficiary did not fall into the category above, the Auditor verified that the Beneficiary followed their usual procurement rules and respected the Terms and Conditions of the Agreement.</li> </ul> <p>For the items included in the sample the Auditor also verified that:</p> <ul style="list-style-type: none"> <li>○ the Beneficiary ensured best value for money (key elements to appreciate the respect of this principle are the award of the contract to the bid offering best price-quality ratio, under conditions of transparency and equal treatment. In case an existing framework contract was used the Auditor also verified that the Beneficiary ensured it was established on the basis of the principle of best value for money under conditions of transparency and equal treatment);</li> </ul> <p><i>SUCH GOODS AND SERVICES INCLUDE, FOR INSTANCE, CONSUMABLES AND SUPPLIES, DISSEMINATION (INCLUDING OPEN ACCESS), PROTECTION OF RESULTS, SPECIFIC EVALUATION OF THE ACTION IF IT IS REQUIRED BY THE</i></p>	<p>56) The costs were charged in line with the Beneficiary's accounting policy and were adequately supported.</p>	
	<p>57) No ineligible costs or excessive or reckless expenditure were declared. For internal invoices/charges only the cost element was charged, without any mark-ups.</p>	
	<p>58) Procurement rules, principles and guides were followed. There were documents of requests to different providers, different offers and assessment of the offers before selection of the provider in line with internal procedures and procurement rules. The purchases were made in accordance with the principle of best value for money.</p> <p><i>(When different offers were not collected the Auditor explains the reasons provided by the Beneficiary under the</i></p>	

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	<p><i>AGREEMENT, CERTIFICATES ON THE FINANCIAL STATEMENTS IF THEY ARE REQUIRED BY THE AGREEMENT AND CERTIFICATES ON THE METHODOLOGY, TRANSLATIONS, REPRODUCTION.</i></p>	<p><i>caption “Exceptions” of the Report. The Commission will analyse this information to evaluate whether these costs might be accepted as eligible)</i></p>	
<p><b>D.4</b></p>	<p><b>AGGREGATED CAPITALISED AND OPERATING COSTS OF RESEARCH INFRASTRUCTURE</b></p> <p>The Auditor ensured the existence of a positive ex-ante assessment (issued by the EC Services) of the cost accounting methodology of the Beneficiary allowing it to apply the guidelines on direct costing for large research infrastructures in Horizon 2020.</p> <p><i><b>In the cases that a positive ex-ante assessment has been issued (see the standard factual findings 59-60 on the next column),</b></i></p> <p>The Auditor ensured that the beneficiary has applied consistently the methodology that is explained and approved in the positive ex ante assessment;</p> <p><i><b>In the cases that a positive ex-ante assessment has NOT been issued (see the standard factual findings 61 on the next column),</b></i></p> <p>The Auditor verified that no costs of Large Research Infrastructure have been charged as direct costs in any costs category;</p>	<p>59) The costs declared as direct costs for Large Research Infrastructures (in the appropriate line of the Financial Statement) comply with the methodology described in the positive ex-ante assessment report.</p>	
		<p>60) Any difference between the methodology applied and the one positively assessed was extensively described and adjusted accordingly.</p>	
		<p>61) The direct costs declared were free from any indirect costs items related to the Large Research Infrastructure.</p>	

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	<p><b><i>In the cases that a draft ex-ante assessment report has been issued with recommendation for further changes (see the standard factual findings 61 on the next column),</i></b></p> <ul style="list-style-type: none"> <li>The Auditor followed the same procedure as above (when a positive ex-ante assessment has NOT yet been issued) and paid particular attention (testing reinforced) to the cost items for which the draft ex-ante assessment either rejected the inclusion as direct costs for Large Research Infrastructures or issued recommendations.</li> </ul>		
<b>E</b>	<b>USE OF EXCHANGE RATES</b>		
<b>E.1</b>	<p><u>a) For Beneficiaries with accounts established in a currency other than euros</u></p> <p><b>The Auditor sampled [redacted] cost items selected randomly and verified that the exchange rates used for converting other currencies into euros were in accordance with the following rules established in the Agreement ( full coverage is required if there are fewer than 10 items, otherwise the sample should have a minimum of 10 item, or 10% of the total, whichever number is highest):</b></p> <p><i>COSTS INCURRED IN ANOTHER CURRENCY SHALL BE CONVERTED INTO EURO AT THE AVERAGE OF THE DAILY EXCHANGE RATES PUBLISHED IN THE C SERIES OF OFFICIAL JOURNAL OF THE EUROPEAN UNION (<a href="https://www.ecb.int/stats/exchange/eurofxref/html/index.en.html">https://www.ecb.int/stats/exchange/eurofxref/html/index.en.html</a> ), DETERMINED OVER THE CORRESPONDING REPORTING PERIOD.</i></p> <p><i>IF NO DAILY EURO EXCHANGE RATE IS PUBLISHED IN THE OFFICIAL JOURNAL OF THE EUROPEAN UNION FOR THE CURRENCY IN QUESTION, CONVERSION SHALL BE MADE AT THE AVERAGE OF THE MONTHLY ACCOUNTING RATES ESTABLISHED BY THE COMMISSION AND PUBLISHED ON ITS WEBSITE (<a href="http://ec.europa.eu/budget/contracts_grants/info_contracts/inforeuro/inforeuro_en.cfm">http://ec.europa.eu/budget/contracts_grants/info_contracts/inforeuro/inforeuro_en.cfm</a> ),</i></p>	62) The exchange rates used to convert other currencies into Euros were in accordance with the rules established of the Grant Agreement and there was no difference in the final figures.	

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	<p>DETERMINED OVER THE CORRESPONDING REPORTING PERIOD.</p>		
	<p>b) For Beneficiaries with accounts established in euros</p> <p><b>The Auditor sampled [redacted] cost items selected randomly and verified that the exchange rates used for converting other currencies into euros were in accordance with the following rules established in the Agreement ( full coverage is required if there are fewer than 10 items, otherwise the sample should have a minimum of 10 item, or 10% of the total, whichever number is highest):</b></p> <p><i>COSTS INCURRED IN ANOTHER CURRENCY SHALL BE CONVERTED INTO EURO BY APPLYING THE BENEFICIARY’S USUAL ACCOUNTING PRACTICES.</i></p>	<p>63) The Beneficiary applied its usual accounting practices.</p>	

***[legal name of the audit firm]***

***[name and function of an authorised representative]***

***[dd Month yyyy]***

***<Signature of the Auditor>***

**ANNEX 6**

**MODEL FOR THE CERTIFICATE ON THE METHODOLOGY**

- For options [*in italics in square brackets*]: choose the applicable option. Options not chosen should be deleted.
- For fields in [grey in square brackets]: enter the appropriate data.

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**Terms of reference for an audit engagement for a methodology certificate in connection with one or more grant agreements financed under the Horizon 2020 Research and Innovation Framework Programme**

This document sets out the **'Terms of Reference (ToR)'** under which

*[OPTION 1: [insert name of the beneficiary] ('the Beneficiary')] [OPTION 2: [insert name of the linked third party] ('the Linked Third Party'), third party linked to the Beneficiary [insert name of the beneficiary] ('the Beneficiary')]*

agrees to engage

**[insert legal name of the auditor]** ('the Auditor')

to produce an independent report of factual findings ('the Report') concerning the *[Beneficiary's]* *[Linked Third Party's]* usual accounting practices for calculating and claiming direct personnel costs declared as unit costs ('the Methodology') in connection with grant agreements financed under the Horizon 2020 Research and Innovation Framework Programme.

The procedures to be carried out for the assessment of the methodology will be based on the grant agreement(s) detailed below:

**[title and number of the grant agreement(s)]** ('the Agreement(s)')

The Agreement(s) has(have) been concluded between the Beneficiary and *[OPTION 1: the European Union, represented by the European Commission ('the Commission')]* *[OPTION 2: the European Atomic Energy Community (Euratom), represented by the European Commission ('the Commission')]* *[OPTION 3: the [Research Executive Agency (REA)] [European Research Council Executive Agency (ERCEA)] [Innovation and Networks Executive Agency (INEA)] [Executive Agency for Small and Medium-sized Enterprises (EASME)] ('the Agency'), under the powers delegated by the European Commission ('the Commission').]*

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The *[Commission] [Agency]* is mentioned as a signatory of the Agreement with the Beneficiary only. The *[European Union] [Euratom] [Agency]* is not a party to this engagement.

### 1.1 Subject of the engagement

According to Article 18.1.2 of the Agreement, beneficiaries *[and linked third parties]* that declare direct personnel costs as unit costs calculated in accordance with their usual cost accounting practices may submit to the *[Commission] [Agency]*, for approval, a certificate on the methodology ('CoMUC') stating that there are adequate records and documentation to prove that their cost accounting practices used comply with the conditions set out in Point A of Article 6.2.

The subject of this engagement is the CoMUC which is composed of two separate documents:

- the Terms of Reference ('the ToR') to be signed by the *[Beneficiary] [Linked Third Party]* and the Auditor;
- the Auditor's Independent Report of Factual Findings ('the Report') issued on the Auditor's letterhead, dated, stamped and signed by the Auditor which includes; the standard statements ('the Statements') evaluated and signed by the *[Beneficiary] [Linked Third Party]*, the agreed-upon procedures ('the Procedures') performed by the Auditor and the standard factual findings ('the Findings') assessed by the Auditor. The Statements, Procedures and Findings are summarised in the table that forms part of the Report.

The information provided through the Statements, the Procedures and the Findings will enable the Commission to draw conclusions regarding the existence of the *[Beneficiary's] [Linked Third Party's]* usual cost accounting practice and its suitability to ensure that direct personnel costs claimed on that basis comply with the provisions of the Agreement. The Commission draws its own conclusions from the Report and any additional information it may require.

### 1.2 Responsibilities

The parties to this agreement are the *[Beneficiary] [Linked Third Party]* and the Auditor.

The *[Beneficiary] [Linked Third Party]*:

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- is responsible for preparing financial statements for the Agreement(s) ('the Financial Statements') in compliance with those Agreements;
- is responsible for providing the Financial Statement(s) to the Auditor and enabling the Auditor to reconcile them with the [Beneficiary's] [Linked Third Party's] accounting and bookkeeping system and the underlying accounts and records. The Financial Statement(s) will be used as a basis for the procedures which the Auditor will carry out under this ToR;
- is responsible for its Methodology and liable for the accuracy of the Financial Statement(s);
- is responsible for endorsing or refuting the Statements indicated under the heading 'Statements to be made by the Beneficiary/ Linked Third Party' in the first column of the table that forms part of the Report;
- must provide the Auditor with a signed and dated representation letter;
- accepts that the ability of the Auditor to carry out the Procedures effectively depends upon the [Beneficiary] [Linked Third Party] providing full and free access to the [Beneficiary's] [Linked Third Party's] staff and to its accounting and other relevant records.

The Auditor:

- *[Option 1 by default: is qualified to carry out statutory audits of accounting documents in accordance with 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, amending Council Directives 78/660/EEC and 83/349/EEC and repealing Council Directive 84/253/EEC or similar national regulations].*
- *[Option 2 if the Beneficiary or Linked Third Party has an independent Public Officer: is a competent and independent Public Officer for which the relevant national authorities have established the legal capacity to audit the Beneficiary].*
- *[Option 3 if the Beneficiary or Linked Third Party is an international organisation: is an [internal] [external] auditor in accordance with the internal financial regulations and procedures of the international organisation].*

The Auditor:

- must be independent from the Beneficiary [and the Linked Third Party], in particular, it must not have been involved in preparing the Beneficiary's [and Linked Third Party's] Financial Statement(s);
- must plan work so that the Procedures may be carried out and the Findings may be assessed;
- must adhere to the Procedures laid down and the compulsory report format;
- must carry out the engagement in accordance with these ToR;
- must document matters which are important to support the Report;
- must base its Report on the evidence gathered;
- must submit the Report to the [Beneficiary] [Linked Third Party].

The Commission sets out the Procedures to be carried out and the Findings to be endorsed by the Auditor. The Auditor is not responsible for their suitability or pertinence. As this engagement is not an assurance engagement the Auditor does not provide an audit opinion or a statement of assurance.

### 1.3 Applicable Standards

The Auditor must comply with these Terms of Reference and with<sup>1</sup>:

- the International Standard on Related Services ('ISRS') 4400 *Engagements to perform Agreed-upon Procedures regarding Financial Information* as issued by the International Auditing and Assurance Standards Board (IAASB);
- the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants (IESBA). Although ISRS 4400 states that independence is not a requirement for engagements to carry out agreed-upon procedures, the Commission requires that the Auditor also complies with the Code's independence requirements.

The Auditor's Report must state that there was no conflict of interests in establishing this Report between the Auditor and the Beneficiary [*and the Linked Third Party*] that could have a bearing on the Report, and must specify – if the service is invoiced - the total fee paid to the Auditor for providing the Report.

### 1.4 Reporting

The Report must be written in the language of the Agreement (see Article 20.7 of the Agreement).

Under Article 22 of the Agreement, the Commission, [*the Agency*], the European Anti-Fraud Office and the Court of Auditors have the right to audit any work that is carried out under the action and for which costs are claimed from [*the European Union*] [*Euratom*] budget. This includes work related to this engagement. The Auditor must provide access to all working papers related to this assignment if the Commission, [*the Agency*], the European Anti-Fraud Office or the European Court of Auditors requests them.

### 1.5 Timing

The Report must be provided by [dd Month yyyy].

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<sup>1</sup> Supreme Audit Institutions applying INTOSAI-standards may carry out the Procedures according to the corresponding International Standards of Supreme Audit Institutions and code of ethics issued by INTOSAI instead of the International Standard on Related Services ('ISRS') 4400 and the Code of Ethics for Professional Accountants issued by the IAASB and the IESBA.

**1.6 Other Terms**

*[The [Beneficiary] [Linked Third Party] and the Auditor can use this section to agree other specific terms, such as the Auditor’s fees, liability, applicable law, etc. Those specific terms must not contradict the terms specified above.]*

[legal name of the Auditor]	[legal name of the [Beneficiary] [Linked Third Party]]
[name & title of authorised representative]	[name & title of authorised representative]
[dd Month yyyy]	[dd Month yyyy]
Signature of the Auditor	Signature of the [Beneficiary] [Linked Third Party]

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**Independent report of factual findings on the methodology concerning grant agreements financed under the Horizon 2020 Research and Innovation Framework Programme**

*(To be printed on letterhead paper of the auditor)*

To

[ name of contact person(s)], [Position]

[[Beneficiary's] [Linked Third Party's] name]

[ Address]

[ dd Month yyyy]

Dear [Name of contact person(s)],

As agreed under the terms of reference dated [dd Month yyyy]

with [OPTION 1: [insert name of the beneficiary] ('the Beneficiary')] [OPTION 2: [insert name of the linked third party] ('the Linked Third Party'), third party linked to the Beneficiary [insert name of the beneficiary] ('the Beneficiary')],

we

[ name of the auditor] ('the Auditor'),

established at

[full address/city/state/province/country],

represented by

[name and function of an authorised representative],

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have carried out the agreed-upon procedures ('the Procedures') and provide hereby our Independent Report of Factual Findings ('the Report'), concerning the *[Beneficiary's] [Linked Third Party's]* usual accounting practices for calculating and declaring direct personnel costs declared as unit costs ('the Methodology').

You requested certain procedures to be carried out in connection with the grant(s)

[title and number of the grant agreement(s)] ('the Agreement(s)').

## The Report

Our engagement was carried out in accordance with the terms of reference ('the ToR') appended to this Report. The Report includes: the standard statements ('the Statements') made by the *[Beneficiary] [Linked Third Party]*, the agreed-upon procedures ('the Procedures') carried out and the standard factual findings ('the Findings') confirmed by us.

The engagement involved carrying out the Procedures and assessing the Findings and the documentation requested appended to this Report, the results of which the Commission uses to draw conclusions regarding the acceptability of the Methodology applied by the *[Beneficiary] [Linked Third Party]*.

The Report covers the methodology used from [dd Month yyyy]. In the event that the *[Beneficiary] [Linked Third Party]* changes this methodology, the Report will not be applicable to any Financial Statement<sup>2</sup> submitted thereafter.

The scope of the Procedures and the definition of the standard statements and findings were determined solely by the Commission. Therefore, the Auditor is not responsible for their suitability or pertinence.

Since the Procedures carried out constitute neither an audit nor a review made in accordance with International Standards on Auditing or International Standards on Review Engagements, we do not

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<sup>2</sup> Financial Statement in this context refers solely to Annex 4 of the Agreement by which the Beneficiary declares costs under the Agreement.

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give a statement of assurance on the costs declared on the basis of the [Beneficiary's] [Linked Third Party's] Methodology. Had we carried out additional procedures or had we performed an audit or review in accordance with these standards, other matters might have come to its attention and would have been included in the Report.

### Exceptions

Apart from the exceptions listed below, the [Beneficiary] [Linked Third Party] agreed with the standard Statements and provided the Auditor all the documentation and accounting information needed by the Auditor to carry out the requested Procedures and corroborate the standard Findings.

**List here any exception and add any information on the cause and possible consequences of each exception, if known. If the exception is quantifiable, also indicate the corresponding amount.**

.....

*Explanation of possible exceptions in the form of examples (to be removed from the Report):*

- i. the [Beneficiary] [Linked Third Party] did not agree with the standard Statement number ... because...;*
- ii. the Auditor could not carry out the procedure ... established because .... (e.g. due to the inability to reconcile key information or the unavailability or inconsistency of data);*
- iii. the Auditor could not confirm or corroborate the standard Finding number ... because ....*

### Remarks

We would like to add the following remarks relevant for the proper understanding of the Methodology applied by the [Beneficiary] [Linked Third Party] or the results reported:

*Example (to be removed from the Report):*

*Regarding the methodology applied to calculate hourly rates ...*

*Regarding standard Finding 15 it has to be noted that ...*

*The [Beneficiary] [Linked Third Party] explained the deviation from the benchmark statement XXIV concerning time recording for personnel with no exclusive dedication to the action in the following manner:*

...

### Annexes

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Please provide the following documents to the auditor and annex them to the report when submitting this CoMUC to the Commission:

1. Brief description of the methodology for calculating personnel costs, productive hours and hourly rates;
2. Brief description of the time recording system in place;
3. An example of the time records used by the [Beneficiary] [Linked Third Party];
4. Description of any budgeted or estimated elements applied, together with an explanation as to why they are relevant for calculating the personnel costs and how they are based on objective and verifiable information;
5. A summary sheet with the hourly rate for direct personnel declared by the [Beneficiary] [Linked Third Party] and recalculated by the Auditor for each staff member included in the sample (the names do not need to be reported);
6. A comparative table summarising for each person selected in the sample a) the time claimed by the [Beneficiary] [Linked Third Party] in the Financial Statement(s) and b) the time according to the time record verified by the Auditor;
7. A copy of the letter of representation provided to the Auditor.

### Use of this Report

This Report has been drawn up solely for the purpose given under Point 1.1 Reasons for the engagement.

### The Report:

- is confidential and is intended to be submitted to the Commission by the [Beneficiary] [Linked Third Party] in connection with Article 18.1.2 of the Agreement;
- may not be used by the [Beneficiary] [Linked Third Party] or by the Commission for any other purpose, nor distributed to any other parties;
- may be disclosed by the Commission only to authorised parties, in particular the European Anti-Fraud Office (OLAF) and the European Court of Auditors.
- relates only to the usual cost accounting practices specified above and does not constitute a report on the Financial Statements of the [Beneficiary] [Linked Third Party].

No conflict of interest<sup>3</sup> exists between the Auditor and the Beneficiary [and the Linked Third Party] that could have a bearing on the Report. The total fee paid to the Auditor for producing the Report was EUR [ ] (including EUR [ ] of deductible VAT).

<sup>3</sup> A conflict of interest arises when the Auditor's objectivity to establish the certificate is compromised in fact or in appearance when the Auditor for instance:

- was involved in the preparation of the Financial Statements;

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We look forward to discussing our Report with you and would be pleased to provide any further information or assistance which may be required.

Yours sincerely

[legal name of the Auditor]

[name and title of the authorised representative]

[dd Month yyyy]

Signature of the Auditor

- 
- stands to benefit directly should the certificate be accepted;
  - has a close relationship with any person representing the beneficiary;
  - is a director, trustee or partner of the beneficiary; or
  - is in any other situation that compromises his or her independence or ability to establish the certificate impartially.

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**Statements to be made by the Beneficiary/Linked Third Party ('the Statements') and Procedures to be carried out by the Auditor ('the Procedures') and standard factual findings ('the Findings') to be confirmed by the Auditor**

The Commission reserves the right to provide the auditor with guidance regarding the Statements to be made, the Procedures to be carried out or the Findings to be ascertained and the way in which to present them. The Commission reserves the right to vary the Statements, Procedures or Findings by written notification to the Beneficiary/Linked Third Party to adapt the procedures to changes in the grant agreement(s) or to any other circumstances.

If this methodology certificate relates to the Linked Third Party's usual accounting practices for calculating and claiming direct personnel costs declared as unit costs any reference here below to 'the Beneficiary' is to be considered as a reference to 'the Linked Third Party'.

<b>Please explain any discrepancies in the body of the Report.</b>	
<b>Statements to be made by Beneficiary</b>	<b>Procedures to be carried out and Findings to be confirmed by the Auditor</b>
<p><b>A. Use of the Methodology</b></p> <p>I. The cost accounting practice described below has been in use since [dd Month yyyy].</p> <p>II. The next planned alteration to the methodology used by the Beneficiary will be from [dd Month yyyy].</p>	<p><b>Procedure:</b></p> <p>✓ The Auditor checked these dates against the documentation the Beneficiary has provided.</p> <p><b>Factual finding:</b></p> <p>1. The dates provided by the Beneficiary were consistent with the documentation.</p>
<p><b>B. Description of the Methodology</b></p> <p>III. The methodology to calculate unit costs is being used in a consistent manner and is reflected in the relevant procedures.</p> <p><i>[Please describe the methodology your entity uses to calculate <u>personnel</u> costs, productive hours and hourly rates, present your description to the Auditor and annex it to this certificate]</i></p> <p><i>[If the statement of section "B. Description of the methodology" cannot be endorsed by the Beneficiary or there is no written methodology to calculate unit costs it should be listed here below and reported as exception by the Auditor in the main Report of</i></p>	<p><b>Procedure:</b></p> <p>✓ The Auditor reviewed the description, the relevant manuals and/or internal guidance documents describing the methodology.</p> <p><b>Factual finding:</b></p> <p>2. The brief description was consistent with the relevant manuals, internal guidance and/or other documentary evidence the Auditor has reviewed.</p> <p>3. The methodology was generally applied by the Beneficiary as part of its usual costs accounting practices.</p>

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<b>Please explain any discrepancies in the body of the Report.</b>	
<b>Statements to be made by Beneficiary</b>	<b>Procedures to be carried out and Findings to be confirmed by the Auditor</b>
<i>Factual Findings:</i> - ...]	
<p><b>C. Personnel costs</b></p> <p><u>General</u></p> <p>IV. The unit costs (hourly rates) are limited to salaries including during parental leave, social security contributions, taxes and other costs included in the remuneration required under national law and the employment contract or equivalent appointing act;</p> <p>V. Employees are hired directly by the Beneficiary in accordance with national law, and work under its sole supervision and responsibility;</p> <p>VI. The Beneficiary remunerates its employees in accordance with its usual practices. This means that personnel costs are charged in line with the Beneficiary's usual payroll policy (e.g. salary policy, overtime policy, variable pay) and no special conditions exist for employees assigned to tasks relating to the European Union or Euratom, unless explicitly provided for in the grant agreement(s);</p> <p>VII. The Beneficiary allocates its employees to the relevant group/category/cost centre for the purpose of the unit cost calculation in line with the usual cost accounting practice;</p> <p>VIII. Personnel costs are based on the payroll system and accounting system.</p> <p>IX. Any exceptional adjustments of actual personnel costs resulted from relevant budgeted or estimated elements and were based on objective and verifiable information. <i>[Please describe the 'budgeted or estimated elements' and their relevance to personnel costs, and explain how they were reasonable and based on objective and verifiable information, present your explanation to the Auditor and annex it to this certificate].</i></p> <p>X. Personnel costs claimed do not contain any of the following ineligible costs: costs related to return on capital; debt and debt service charges; provisions for future losses</p>	<p><b>Procedure:</b></p> <p><i>The Auditor draws a sample of employees to carry out the procedures indicated in this section C and the following sections D to F.</i></p> <p><i>[The Auditor has drawn a random sample of 10 full-time equivalents made up of employees assigned to the action(s). If fewer than 10 full-time equivalents are assigned to the action(s), the Auditor has selected a sample of 10 full-time equivalents consisting of all employees assigned to the action(s), complemented by other employees irrespective of their assignments.]. For this sample:</i></p> <ul style="list-style-type: none"> <li>✓ the Auditor reviewed all documents relating to personnel costs such as employment contracts, payslips, payroll policy (e.g. salary policy, overtime policy, variable pay policy), accounting and payroll records, applicable national tax, labour and social security law and any other documents corroborating the personnel costs claimed;</li> <li>✓ in particular, the Auditor reviewed the employment contracts of the employees in the sample to verify that:             <ul style="list-style-type: none"> <li>i. they were employed directly by the Beneficiary in accordance with applicable national legislation;</li> <li>ii. they were working under the sole technical supervision and responsibility of the latter;</li> <li>iii. they were remunerated in accordance with the Beneficiary's usual practices;</li> <li>iv. they were allocated to the correct group/category/cost centre for the purposes of calculating the unit cost in line with the Beneficiary's usual cost accounting practices;</li> </ul> </li> <li>✓ the Auditor verified that any ineligible items or any costs claimed under other costs categories or costs covered by other types of grant or by other grants financed from the European Union budget have not been taken</li> </ul>

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<b>Please explain any discrepancies in the body of the Report.</b>	
<b>Statements to be made by Beneficiary</b>	<b>Procedures to be carried out and Findings to be confirmed by the Auditor</b>
<p>or debts; interest owed; doubtful debts; currency exchange losses; bank costs charged by the Beneficiary’s bank for transfers from the Commission/Agency; excessive or reckless expenditure; deductible VAT or costs incurred during suspension of the implementation of the action.</p> <p>XI. Personnel costs were not declared under another EU or Euratom grant (including grants awarded by a Member State and financed by the EU budget and grants awarded by bodies other than the Commission/Agency for the purpose of implementing the EU budget).</p> <p><u>If additional remuneration as referred to in the grant agreement(s) is paid</u></p> <p>XII. The Beneficiary is a non-profit legal entity;</p> <p>XIII. The additional remuneration is part of the beneficiary’s usual remuneration practices and paid consistently whenever the relevant work or expertise is required;</p> <p>XIV. The criteria used to calculate the additional remuneration are objective and generally applied regardless of the source of funding;</p> <p>XV. The additional remuneration included in the personnel costs used to calculate the hourly rates for the grant agreement(s) is capped at EUR 8 000 per full-time equivalent (reduced proportionately if the employee is not assigned exclusively to the action).</p> <p><u>If certain statement(s) of section “C. Personnel costs” cannot be endorsed by the Beneficiary they should be listed here below and reported as exception by the Auditor in the main Report of</u></p>	<p>into account when calculating the personnel costs;</p> <ul style="list-style-type: none"> <li>✓ the Auditor numerically reconciled the total amount of personnel costs used to calculate the unit cost with the total amount of personnel costs recorded in the statutory accounts and the payroll system.</li> <li>✓ to the extent that actual personnel costs were adjusted on the basis of budgeted or estimated elements, the Auditor carefully examined those elements and checked the information source to confirm that they correspond to objective and verifiable information;</li> <li>✓ if additional remuneration has been claimed, the Auditor verified that the Beneficiary was a non-profit legal entity, that the amount was capped at EUR 8000 per full-time equivalent and that it was reduced proportionately for employees not assigned exclusively to the action(s).</li> <li>✓ the Auditor recalculated the personnel costs for the employees in the sample.</li> </ul> <p><b>Factual finding:</b></p> <ol style="list-style-type: none"> <li>4. All the components of the remuneration that have been claimed as personnel costs are supported by underlying documentation.</li> <li>5. The employees in the sample were employed directly by the Beneficiary in accordance with applicable national law and were working under its sole supervision and responsibility.</li> <li>6. Their employment contracts were in line with the Beneficiary’s usual policy;</li> <li>7. Personnel costs were duly documented and consisted solely of salaries, social security contributions (pension contributions, health insurance, unemployment fund contributions, etc.), taxes and other statutory costs included in the remuneration (holiday pay, thirteenth month’s pay, etc.);</li> <li>8. The totals used to calculate the personnel unit costs are consistent with those registered in the payroll and accounting records;</li> <li>9. To the extent that actual personnel costs were adjusted on the basis of budgeted or estimated elements, those elements were</li> </ol>

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<b>Please explain any discrepancies in the body of the Report.</b>	
<b>Statements to be made by Beneficiary</b>	<b>Procedures to be carried out and Findings to be confirmed by the Auditor</b>
<p><b>Factual Findings:</b></p> <p>- ...]</p>	<p>relevant for calculating the personnel costs and correspond to objective and verifiable information. The budgeted or estimated elements used are: — (indicate the elements and their values).</p> <p>10. Personnel costs contained no ineligible elements;</p> <p>11. Specific conditions for eligibility were fulfilled when additional remuneration was paid: a) the Beneficiary is registered in the grant agreements as a non-profit legal entity; b) it was paid according to objective criteria generally applied regardless of the source of funding used and c) remuneration was capped at EUR 8000 per full-time equivalent (or up to up to the equivalent pro-rata amount if the person did not work on the action full-time during the year or did not work exclusively on the action).</p>
<p><b>D. Productive hours</b></p> <p>XVI. The number of productive hours per full-time employee applied is <i>[delete as appropriate]</i>:</p> <p>A. 1720 productive hours per year for a person working full-time (corresponding pro-rata for persons not working full time).</p> <p>B. the total number of hours worked in the year by a person for the Beneficiary</p> <p>C. the standard number of annual hours generally applied by the beneficiary for its personnel in accordance with its usual cost accounting practices. This number must be at least 90% of the standard annual workable hours.</p> <p><u>If method B is applied</u></p> <p>XVII. The calculation of the total number of hours worked was done as follows: annual workable hours of the person according to the employment contract, applicable labour agreement or national law plus overtime worked minus absences (such as sick leave and special leave).</p> <p>XVIII. 'Annual workable hours' are hours</p>	<p><b>Procedure (same sample basis as for Section C: Personnel costs):</b></p> <ul style="list-style-type: none"> <li>✓ The Auditor verified that the number of productive hours applied is in accordance with method A, B or C.</li> <li>✓ The Auditor checked that the number of productive hours per full-time employee is correct and that it is reduced proportionately for employees not exclusively assigned to the action(s).</li> <li>✓ If method B is applied the Auditor verified i) the manner in which the total number of hours worked was done and ii) that the contract specified the annual workable hours by inspecting all the relevant documents, national legislation, labour agreements and contracts.</li> <li>✓ If method C is applied the Auditor reviewed the manner in which the standard number of working hours per year has been calculated by inspecting all the relevant documents, national legislation, labour agreements and contracts and verified that the number of productive hours per year used for these calculations was at least 90% of the standard number of working hours per year.</li> </ul>

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<b>Please explain any discrepancies in the body of the Report.</b>	
<b>Statements to be made by Beneficiary</b>	<b>Procedures to be carried out and Findings to be confirmed by the Auditor</b>
<p>during which the personnel must be working, at the employer’s disposal and carrying out his/her activity or duties under the employment contract, applicable collective labour agreement or national working time legislation.</p> <p>XIX. The contract (applicable collective labour agreement or national working time legislation) do specify the working time enabling to calculate the annual workable hours.</p> <p><u>If method C is applied</u></p> <p>XX. The standard number of productive hours per year is that of a full-time equivalent; for employees not assigned exclusively to the action(s) this number is reduced proportionately.</p> <p>XXI. The number of productive hours per year on which the hourly rate is based i) corresponds to the Beneficiary’s usual accounting practices; ii) is at least 90% of the standard number of workable (working) hours per year.</p> <p>XXII. Standard workable (working) hours are hours during which personnel are at the Beneficiary’s disposal performing the duties described in the relevant employment contract, collective labour agreement or national labour legislation. The number of standard annual workable (working) hours that the Beneficiary claims is supported by labour contracts, national legislation and other documentary evidence.</p> <p><i>[If certain statement(s) of section “D. Productive hours” cannot be endorsed by the Beneficiary they should be listed here below and reported as exception by the Auditor:</i></p> <p>- ...]</p>	<p><b>Factual finding:</b></p> <p><u>General</u></p> <p>12. The Beneficiary applied a number of productive hours consistent with method A, B or C detailed in the left-hand column.</p> <p>13. The number of productive hours per year per full-time employee was accurate and was proportionately reduced for employees not working full-time or exclusively for the action.</p> <p><u>If method B is applied</u></p> <p>14. The number of ‘annual workable hours’, overtime and absences was verifiable based on the documents provided by the Beneficiary and the calculation of the total number of hours worked was accurate.</p> <p>15. The contract specified the working time enabling to calculate the annual workable hours.</p> <p><u>If method C is applied</u></p> <p>16. The calculation of the number of productive hours per year corresponded to the usual costs accounting practice of the Beneficiary.</p> <p>17. The calculation of the standard number of workable (working) hours per year was corroborated by the documents presented by the Beneficiary.</p> <p>18. The number of productive hours per year used for the calculation of the hourly rate was at least 90% of the number of workable (working) hours per year.</p>
<p><b>E. Hourly rates</b></p> <p>The hourly rates are correct because:</p> <p>XXIII. Hourly rates are correctly calculated since they result from dividing annual personnel</p>	<p><b>Procedure</b></p> <ul style="list-style-type: none"> <li>✓ The Auditor has obtained a list of all personnel rates calculated by the Beneficiary in accordance with the methodology used.</li> <li>✓ The Auditor has obtained a list of all the relevant employees, based on which the</li> </ul>

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<b>Please explain any discrepancies in the body of the Report.</b>	
<b>Statements to be made by Beneficiary</b>	<b>Procedures to be carried out and Findings to be confirmed by the Auditor</b>
<p>costs by the productive hours of a given year and group (e.g. staff category or department or cost centre depending on the methodology applied) and they are in line with the statements made in section C. and D. above.</p> <p><i>[If the statement of section 'E. Hourly rates' cannot be endorsed by the Beneficiary they should be listed here below and reported as exception by the Auditor:</i></p> <p>- ...]</p>	<p>personnel rate(s) are calculated.</p> <p>For 10 full-time equivalent employees selected at random (same sample basis as Section C: Personnel costs):</p> <ul style="list-style-type: none"> <li>✓ The Auditor recalculated the hourly rates.</li> <li>✓ The Auditor verified that the methodology applied corresponds to the usual accounting practices of the organisation and is applied consistently for all activities of the organisation on the basis of objective criteria irrespective of the source of funding.</li> </ul> <p><b>Factual finding:</b></p> <p>19. No differences arose from the recalculation of the hourly rate for the employees included in the sample.</p>
<p><b>F. Time recording</b></p> <p>XXIV. Time recording is in place for all persons with no exclusive dedication to one Horizon 2020 action. At least all hours worked in connection with the grant agreement(s) are registered on a <b>daily/weekly/monthly</b> basis <i>[delete as appropriate]</i> using a <b>paper/computer-based system</b> <i>[delete as appropriate]</i>;</p> <p>XXV. For persons exclusively assigned to one Horizon 2020 activity the Beneficiary has either signed a declaration to that effect or has put arrangements in place to record their working time;</p> <p>XXVI. Records of time worked have been signed by the person concerned (on paper or electronically) and approved by the action manager or line manager at least monthly;</p> <p>XXVII. Measures are in place to prevent staff from:</p> <ul style="list-style-type: none"> <li>i. recording the same hours twice,</li> <li>ii. recording working hours during absence periods (e.g. holidays, sick leave),</li> <li>iii. recording more than the number of productive hours per year used to calculate the hourly rates, and</li> </ul>	<p><b>Procedure</b></p> <ul style="list-style-type: none"> <li>✓ The Auditor reviewed the brief description, all relevant manuals and/or internal guidance describing the methodology used to record time.</li> </ul> <p>The Auditor reviewed the time records of the random sample of 10 full-time equivalents referred to under Section C: Personnel costs, and verified in particular:</p> <ul style="list-style-type: none"> <li>✓ that time records were available for all persons with not exclusive assignment to the action;</li> <li>✓ that time records were available for persons working exclusively for a Horizon 2020 action, or, alternatively, that a declaration signed by the Beneficiary was available for them certifying that they were working exclusively for a Horizon 2020 action;</li> <li>✓ that time records were signed and approved in due time and that all minimum requirements were fulfilled;</li> <li>✓ that the persons worked for the action in the periods claimed;</li> <li>✓ that no more hours were claimed than the productive hours used to calculate the hourly</li> </ul>

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<b>Please explain any discrepancies in the body of the Report.</b>	
<b>Statements to be made by Beneficiary</b>	<b>Procedures to be carried out and Findings to be confirmed by the Auditor</b>
<p>iv. recording hours worked outside the action period.</p> <p>XXVIII. No working time was recorded outside the action period;</p> <p>XXIX. No more hours were claimed than the productive hours used to calculate the hourly personnel rates.</p> <p><i>[Please provide a brief description of the <u>time recording system</u> in place together with the measures applied to ensure its reliability to the Auditor and annex it to the present certificate<sup>4</sup>].</i></p> <p><i>[If certain statement(s) of section “F. Time recording” cannot be endorsed by the Beneficiary they should be listed here below and reported as exception by the Auditor:</i></p> <p>- ...]</p>	<p>personnel rates;</p> <ul style="list-style-type: none"> <li>✓ that internal controls were in place to prevent that time is recorded twice, during absences for holidays or sick leave; that more hours are claimed per person per year for Horizon 2020 actions than the number of productive hours per year used to calculate the hourly rates; that working time is recorded outside the action period;</li> <li>✓ the Auditor cross-checked the information with human-resources records to verify consistency and to ensure that the internal controls have been effective. In addition, the Auditor has verified that no more hours were charged to Horizon 2020 actions per person per year than the number of productive hours per year used to calculate the hourly rates, and verified that no time worked outside the action period was charged to the action.</li> </ul> <p><b>Factual finding:</b></p> <ol style="list-style-type: none"> <li>20. The brief description, manuals and/or internal guidance on time recording provided by the Beneficiary were consistent with management reports/records and other documents reviewed and were generally applied by the Beneficiary to produce the financial statements.</li> <li>21. For the random sample time was recorded or, in the case of employees working exclusively for the action, either a signed declaration or time records were available;</li> <li>22. For the random sample the time records were signed by the employee and the action manager/line manager, at least monthly.</li> <li>23. Working time claimed for the action occurred in the periods claimed;</li> <li>24. No more hours were claimed than the number productive hours used to calculate the hourly</li> </ol>

<sup>4</sup> The description of the time recording system must state among others information on the content of the time records, its coverage (full or action time-recording, for all personnel or only for personnel involved in H2020 actions), its degree of detail (whether there is a reference to the particular tasks accomplished), its form, periodicity of the time registration and authorisation (paper or a computer-based system; on a daily, weekly or monthly basis; signed and countersigned by whom), controls applied to prevent double-charging of time or ensure consistency with HR-records such as absences and travels as well as its information flow up to its use for the preparation of the Financial Statements.

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<b>Please explain any discrepancies in the body of the Report.</b>	
<b>Statements to be made by Beneficiary</b>	<b>Procedures to be carried out and Findings to be confirmed by the Auditor</b>
	<p>personnel rates;</p> <p>25. There is proof that the Beneficiary has checked that working time has not been claimed twice, that it is consistent with absence records and the number of productive hours per year, and that no working time has been claimed outside the action period.</p> <p>26. Working time claimed is consistent with that on record at the human-resources department.</p>

**[official name of the [Beneficiary] [Linked Third Party]]**

**[official name of the Auditor]**

**[name and title of authorised representative]**

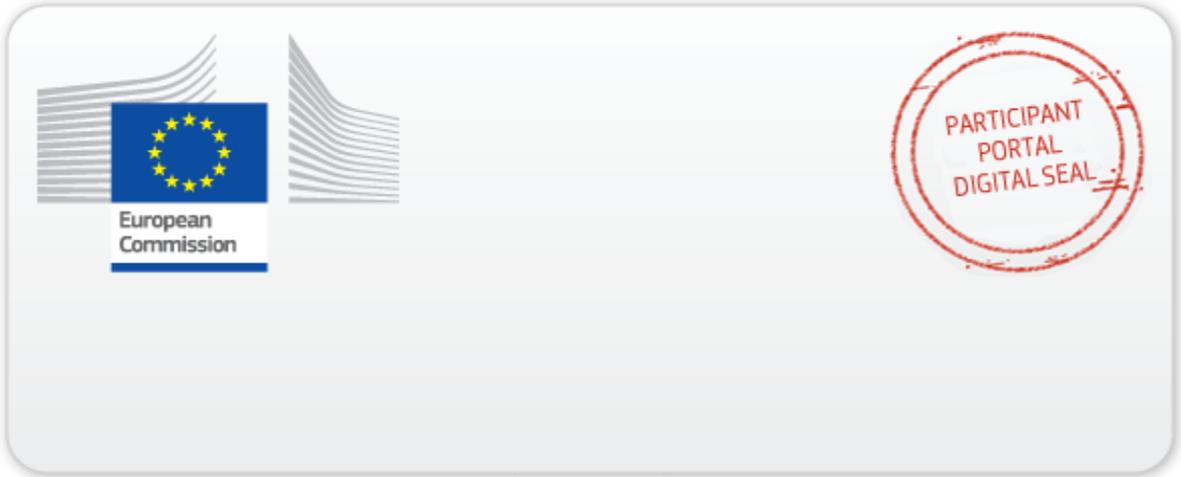
**[name and title of authorised representative]**

**[dd Month yyyy]**

**[dd Month yyyy]**

**<Signature of the [Beneficiary] [Linked Third Party]>**

**<Signature of the Auditor>**



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