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EUROPEAN CLIMATE, INFRASTRUCTURE AND ENVIRONMENT EXECUTIVE AGENCY (CINEA)

CINEA.C – Green research and innovation
C.3 – Horizon Europe Transport

GRANT AGREEMENT

Project 101096405 — UP2030

PREAMBLE

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

on the one part,

the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and

on the other part,

1. 'the coordinator':

FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer), PIC 999984059, established in HANSASTRASSE 27C, MUNCHEN 80686, Germany,

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

2. **ADELPHI RESEARCH GEMEINNUTZIGE GMBH (ADELPHI)**, PIC 999693350, established in ALT-MOABIT 91, BERLIN 10559, Germany,

3. **BURO HAPPOLD GMBH (BH)**, PIC 890231372, established in PFALZBURGER STRASSE 43-44, BERLIN 10717, Germany,

4. **DESIGN CLIPS IDIOTIKI KEFALAIOUCHIKI ETAIREIA (DC)**, PIC 891899675, established in VAKCHOU 1, THESSALONIKI 54629, Greece,

5. **GREENADAPT GESELLSCHAFT FUER KLIMAANPASSUNG MBH (GreenAdapt)**, PIC 891661055, established in LUISENSTRASSE 53, BERLIN 10117, Germany,

6. **I-CATALIST SL (ICA)**, PIC 937459605, established in CALLE BORNI 20, LAS ROZAS DE MADRID 28232, Spain,

7. **STICHTING ISOCARP INSTITUTE CENTER OF URBAN EXCELLENCE (ISOCARP)**, PIC 905424870, established in WALDORPSTRAAT 17, THE HAGUE 2521 CA, Netherlands,

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8. **STELLMACH THOMAS (TSPA)**, PIC 913084960, established in WILHELM STRASSE 7, BERLIN 10963, Germany,

9. **TECHNISCHE UNIVERSITEIT DELFT (TUD)**, PIC 999977366, established in STEVINWEG 1, DELFT 2628 CN, Netherlands,

10. **UNIVERSITAT INTERNACIONAL DE CATALUNYA (UIC)**, PIC 994972069, established in C INMACULADA 22, BARCELONA 08017, Spain,

11. **GLOBAL GREEN GROWTH INSTITUTE (GGGI)**, PIC 945102429, established in 19FL JEONGDONG BLDG 15-5 JEONG DONG JUNG GU, SEOUL, South Korea,

12. **ICLEI EUROPEAN SECRETARIAT GMBH (ICLEI EUROPASEKRETARIAT GMBH) (ICLEI)**, PIC 998341364, established in LEOPOLDRING 3, FREIBURG IM BREISGAU 79098, Germany,

13. **STICHTING GLOBAL RESILIENT CITIES NETWORK (RCities)**, PIC 892204158, established in KORTE HOOGSTRAAT 31, ROTTERDAM 3011 GK, Netherlands,

14. **URBAN CLIMATE CHANGE RESEARCH NETWORK - EUROPEAN HUB APS (UCCRN)**, PIC 889096181, established in VIA VENTAGLIERI 74, NAPOLI 80135, Italy,

15. **AQUATEC PROYECTOS PARA EL SECTOR DEL AGUA SA (AQUATEC)**, PIC 972702033, established in CALLE SANTA LEONOR 39, MADRID 28037, Spain,

16. **CETAQUA, CENTRO TECNOLOGICO DEL AGUA, FUNDACION PRIVADA (CETAQUA)**, PIC 998224285, established in CARRETERA D'ESPLUGUES 75 LOCAL 1-2, CORNELLA DE LLOBREGAT BARCELONA 08940, Spain,

17. **PRAVO I INTERNET FOUNDATION (LIF)**, PIC 996838155, established in 54 BALGARSKA MORAVA STR FL 7, SOFIA 1000, Bulgaria,

18. **LABORATORIO NACIONAL DE ENGENHARIA CIVIL (LNEC)**, PIC 998850517, established in AV DO BRASIL 101, LISBOA 1700-066, Portugal,

19. **ANAPTYXIAKI MEIZONOS ASTIKIS THESSALONIKIS AE - ANAPTYXIAKOS ORGANISMOS TOPIKIS AUTODIOIKISIS (MDAT)**, PIC 939158754, established in V. GEORGIOU A 1, THESSALONIKI 546 40, Greece,

20. **MIDDLE EAST TECHNICAL UNIVERSITY (METU)**, PIC 999643492, established in DUMLUPINAR BULVARI 1, ANKARA 06800, Turkiye,

21. **UNIVERSITY OF STUTTGART (USTUTT)**, PIC 999974747, established in KEPLERSTRASSE 7, STUTTGART 70174, Germany,

22. **VRIJE UNIVERSITEIT BRUSSEL (VUB)**, PIC 999902094, established in PLEINLAAN 2, BRUSSEL 1050, Belgium,

23. **ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (CERTH)**, PIC 998802502, established in CHARILAOU THERMI ROAD 6 KM, THERMI THESSALONIKI 57001, Greece,

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24. **FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS (CIRCE)**, PIC 999516907, established in PARQUE EMPRESARIAL DINAMIZA, AVDA. DE RANILLAS, 3D, ZARAGOZA 50018, Spain,

25. **STICHTING DELTARES (DELTARES)**, PIC 999520302, established in BOUSSINESQWEG 1, DELFT 2629 HV, Netherlands,

26. **DRAXIS ENVIRONMENTAL SA (DRAXIS)**, PIC 996151686, established in THEMISTOKLI SOFOULI STR 54-56, THESSALONIKI 54655, Greece,

27. **ODTU GUNES ENERJISI UYGULAMA VE ARA STIRMA MERKEZI (GUNAM)**, PIC 891143657, established in UNIVERSITELER MAH. DUMLUPINAR BULVARI NO:1, ANKARA 06800, Turkiye,

28. **K3Y (K3Y)**, PIC 905140563, established in BOROVO RESIDENT BLOCK.227 ENTR.A FLOOR.6 AP.19 KRASNO SELO REGION, SOFIA 1680, Bulgaria,

29. **FONDAZIONE LINKS - LEADING INNOVATION & KNOWLEDGE FOR SOCIETY (LINKS)**, PIC 916573856, established in VIA PIER CARLO BOGGIO 61, TORINO 10138, Italy,

30. **MAGGIOLI SPA (MAG)**, PIC 996621457, established in VIA DEL CARPINO 8, SANTARCANGELO DI ROMAGNA 47822, Italy,

31. **UNIVERSITAT POLITECNICA DE VALENCIA (UPV)**, PIC 999864846, established in CAMINO DE VERA SN EDIFICIO 3A, VALENCIA 46022, Spain,

32. **VESELA MOTIKA D.O.O. ZA PROIZVODNJU TRGOVINU I USLUGE (VM)**, PIC 887783965, established in MARTICEVA ULICA 67, ZAGREB 10000, Croatia,

33. **BUDAPEST FOVAROS ONKORMANYZATA (Budapest)**, PIC 959102439, established in VAROSHAZ UTCA 9-11, BUDAPEST 1052, Hungary,

34. **AJUNTAMENT DE GRANOLLERS (Granollers)**, PIC 950897306, established in PLACA DE LA PORXADA 6, GRANOLLERS 08401, Spain,

35. **Istanbul Metropolitan Municipality (Istanbul)**, PIC 998498795, established in ISTANBUL METROPOLITAN MUNICIPALITY SARACHANE/FATIH, Istanbul 34478, Turkiye,

36. **CAMARA MUNICIPAL DE LISBOA (Lisbon)**, PIC 972290171, established in PACOS DO CONCELHO PRACA DO MUNICIPIO, LISBOA 1100-365, Portugal,

37. **COMUNE DI MILANO (Milan)**, PIC 998702204, established in PIAZZA DELLA SCALA 2, MILANO 20121, Italy,

38. **STADT MUNSTER (Muenster)**, PIC 941423316, established in KLEMENSSTRASSE 10, MUNSTER 48143, Germany,

39. **GEMEENTE ROTTERDAM (Rotterdam)**, PIC 998914925, established in COOLSINGEL 40, ROTTERDAM 3011 AD, Netherlands,

40. **DIMOS THESSALONIKIS (Thessaloniki)**, PIC 965342449, established in VASILEOS GEORGIOU 1A, THESSALONIKI 546 36, Greece,

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41. **GRAD ZAGREB (Zagreb)**, PIC 989531727, established in TRG STJEPANA RADICA 1, ZAGREB 10 000, Croatia,

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

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

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

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

The Agreement is composed of:

Preamble

Terms and Conditions (including Data Sheet)

Annex 1 Description of the action[1]

Annex 2 Estimated budget for the action

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

Annex 3 Accession forms (if applicable)[2]

Annex 3a Declaration on joint and several liability of affiliated entities (if applicable)[3]

Annex 4 Model for the financial statements

Annex 5 Specific rules (if applicable)

[1] Template published on Portal Reference Documents.
[2] Template published on Portal Reference Documents.
[3] Template published on Portal Reference Documents.

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TERMS AND CONDITIONS

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DATA SHEET

1. General data

Project summary:

Project summary
UP2030 aims to guide cities through the socio-technical transitions required to meet their climate neutrality ambitions. It will do so by enabling a quantum leap from a ´business as usual´, project-by-project decarbonisation approach to a vision-driven, strategy-based approach that is anchored on sound projects and renewed policy development. The approach uses urban planning and design as a vehicle to create better connected, more compact, net-zero neighbourhoods in the city pilots – i.e. neighbourhoods that promote liveability and, through designing with intent, promote mitigation action. Unlike fragmented innovation processes that focus on the deployment of a specific solution to achieve incremental progress, UP2030 proposes that cities should themselves be at the centre of the innovation approach to drive transformative change. The project develops the 5UP methodological framework that supports cities in (i) UP-dating those policies, codes, regulations that need to be left behind to make room for the new vision (ii) UP-skilling, through building the capacities of the entire city stakeholder ecosystem that shall deliver actions (iii) UP-grading, through the development of solution prototypes (digital and physical) at selected neighbourhoods, (iv) UP-scaling to achieve city-wide impact by shaping the enabling governance arrangements and matching project portfolios to financial resources, and (v) UP-taking, by engaging with the Mission and sharing best practices across European cities. Inclusive participation is key throughout the project's full cycle of activities so that real needs of communities are reflected in the city-specific visions, and co-designed interventions maximise delivery of co-benefits. As such, UP2030 will (a) have a measured positive impact on spatial justice in the pilots, and (b) give the opportunity to citizens to participate in the transition by becoming agents of change themselves through their sustainable behavioural shifts.

Keywords:

- Urbanization and urban planning, cities

Project number: 101096405

Project name: Urban Planning and design ready for 2030

Project acronym: UP2030

Call: HORIZON-MISS-2021-CIT-02

Topic: HORIZON-MISS-2021-CIT-02-01

Type of action: HORIZON Innovation Actions

Granting authority: European Climate, Infrastructure and Environment Executive Agency

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

Project starting date: fixed date: 1 January 2023

Project end date: 31 December 2025

Project duration: 36 months

Consortium agreement: Yes

2. Participants

List of participants:

N°	Role	Short name	Legal name	Ctry	PIC	Total eligible costs (BEN and AE)	Max grant amount
1	COO	Fraunhofer	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV	DE	999984059	706 687.50	706 687.50
2	BEN	ADELPHI	ADELPHI RESEARCH GEMEINNUTZIGE GMBH	DE	999693350	306 500.00	306 500.00
3	BEN	BH	BURO HAPPOLD GMBH	DE	890231372	285 625.00	199 937.50
4	BEN	DC	DESIGN CLIPS IDIOTIKI KEFALAIOUCHIKI ETAIREIA	EL	891899675	250 000.00	175 000.00

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

N°	Role	Short name	Legal name	Ctry	PIC	Total eligible costs (BEN and AE)	Max grant amount
5	BEN	GreenAdapt	GREENADAPT GESELLSCHAFT FUER KLIMAANPASSUNG MBH	DE	891661055	272 500.00	190 750.00
6	BEN	ICA	I-CATALIST SL	ES	937459605	391 850.00	274 295.00
7	BEN	ISOCARP	STICHTING ISOCARP INSTITUTE CENTER OF URBAN EXCELLENCE	NL	905424870	239 125.00	239 125.00
8	BEN	TSPA	STELLMACH THOMAS	DE	913084960	431 250.00	301 875.00
9	BEN	TUD	TECHNISCHE UNIVERSITEIT DELFT	NL	999977366	410 000.00	410 000.00
10	BEN	UIC	UNIVERSITAT INTERNACIONAL DE CATALUNYA	ES	994972069	360 000.00	360 000.00
11	BEN (IO)	GGGI	GLOBAL GREEN GROWTH INSTITUTE	KR	945102429	370 375.00	370 375.00
12	BEN	ICLEI	ICLEI EUROPEAN SECRETARIAT GMBH (ICLEI EUROPASEKRETARIAT GMBH)	DE	998341364	423 125.00	423 125.00
13	BEN	RCities	STICHTING GLOBAL RESILIENT CITIES NETWORK	NL	892204158	640 625.00	640 625.00
14	BEN	UCCRN	URBAN CLIMATE CHANGE RESEARCH NETWORK - EUROPEAN HUB APS	IT	889096181	315 000.00	315 000.00
15	BEN	AQUATEC	AQUATEC PROYECTOS PARA EL SECTOR DEL AGUA SA	ES	972702033	389 525.00	272 667.50
16	BEN	CETAQUA	CETAQUA, CENTRO TECNOLOGICO DEL AGUA, FUNDACION PRIVADA	ES	998224285	100 000.00	100 000.00
17	BEN	LIF	PRAVO I INTERNET FOUNDATION	BG	996838155	157 000.00	157 000.00
18	BEN	LNEC	LABORATORIO NACIONAL DE ENGENHARIA CIVIL	PT	998850517	216 486.25	216 486.00
19	BEN	MDAT	ANAPTYXIAKI MEIZONOS ASTIKIS THESSALONIKIS AE - ANAPTYXIAKOS ORGANISMOS TOPIKIS AUTODIOIKISIS	EL	939158754	197 500.00	138 250.00
20	BEN	METU	MIDDLE EAST TECHNICAL UNIVERSITY	TR	999643492	140 000.00	140 000.00
21	BEN	USTUTT	UNIVERSITY OF STUTTGART	DE	999974747	96 625.00	96 625.00
22	BEN	VUB	VRIJE UNIVERSITEIT BRUSSEL	BE	999902094	331 375.00	331 375.00
23	BEN	CERTH	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	EL	998802502	344 000.00	344 000.00
24	BEN	CIRCE	FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS	ES	999516907	297 500.00	297 500.00
25	BEN	DELTARES	STICHTING DELTARES	NL	999520302	291 760.00	291 760.00
26	BEN	DRAXIS	DRAXIS ENVIRONMENTAL SA	EL	996151686	597 250.00	418 075.00
26.1	AE	DreVen	DREVEN SRL	BE	888812553	192 500.00	134 750.00
27	BEN	GUNAM	ODTU GUNES ENERJISI UYGULAMA VE ARA STIRMA MERKEZI	TR	891143657	309 375.00	309 375.00
28	BEN	K3Y	K3Y	BG	905140563	284 000.00	198 800.00
29	BEN	LINKS	FONDAZIONE LINKS - LEADING INNOVATION & KNOWLEDGE FOR SOCIETY	IT	916573856	306 500.00	306 500.00
30	BEN	MAG	MAGGIOLI SPA	IT	996621457	275 625.00	192 937.50
31	BEN	UPV	UNIVERSITAT POLITECNICA DE VALENCIA	ES	999864846	327 250.00	327 250.00
32	BEN	VM	VESELA MOTIKA D.O.O. ZA PROIZVODNJU TRGOVINU I USLUGE	HR	887783965	270 000.00	189 000.00
33	BEN	Budapest	BUDAPEST FOVAROS ONKORMANYZATA	HU	959102439	130 500.00	130 500.00
34	BEN	Granollers	AJUNTAMENT DE GRANOLLERS	ES	950897306	190 250.00	190 250.00
35	BEN	Istanbul	Istanbul Metropolitan Municipality	TR	998498795	141 250.00	141 250.00
36	BEN	Lisbon	CAMARA MUNICIPAL DE LISBOA	PT	972290171	185 250.00	185 250.00
36.1	AE	LISBOA E-NOVA	LISBOA E-NOVA - AGENCIA DE ENERGIA E AMBIENTE DE LISBOA	PT	997719303	57 762.50	57 762.50
37	BEN	Milan	COMUNE DI MILANO	IT	998702204	196 250.00	196 250.00
38	BEN	Muenster	STADT MUNSTER	DE	941423316	257 562.50	257 562.50

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

N°	Role	Short name	Legal name	Ctry	PIC	Total eligible costs (BEN and AE)	Max grant amount
39	BEN	Rotterdam	GEMEENTE ROTTERDAM	NL	998914925	266 250.00	266 250.00
40	BEN	Thessaloniki	DIMOS THESSALONIKIS	EL	965342449	131 875.00	131 875.00
41	BEN	Zagreb	GRAD ZAGREB	HR	989531727	149 250.00	149 250.00
42	AP	ETH	EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	CH	999979015	0.00	0.00
43	AP	MfC	MAPPING FOR CHANGE CIC	UK	959582492	0.00	0.00
44	AP	UCAM	THE CHANCELLOR MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	UK	999977172	0.00	0.00
45	AP	Belfast	Belfast City Council	UK	963786278	0.00	0.00
Total						12 233 133.75	11 081 846.00

Coordinator:

– FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer)

3. Grant

Maximum grant amount, total estimated eligible costs and contributions and funding rate:

Total eligible costs (BEN and AE)	Funding rate (%)	Maximum grant amount (Annex 2)	Maximum grant amount (award decision)
12 233 133.75	70, 100	11 081 846.00	11 081 846.00

Grant form: Budget-based

Grant mode: Action grant

Budget categories/activity types:

- A. Personnel costs
  - A.1 Employees, A.2 Natural persons under direct contract, A.3 Seconded persons
  - A.4 SME owners and natural person beneficiaries
- B. Subcontracting costs
- C. Purchase costs
  - C.1 Travel and subsistence
  - C.2 Equipment
  - C.3 Other goods, works and services
- D. Other cost categories
  - D.2 Internally invoiced goods and services
- E. Indirect costs

Cost eligibility options:

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

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- Limitation for subcontracting

- Travel and subsistence:
  - Travel: Actual costs
  - Accommodation: Actual costs
  - Subsistence: Actual costs

- Equipment: depreciation only

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

- VAT: Yes

- Other ineligible costs

Budget flexibility: Yes (no flexibility cap)

4. Reporting, payments and recoveries

4.1 Continuous reporting (art 21)

Deliverables: see Funding & Tenders Portal Continuous Reporting tool

4.2 Periodic reporting and payments

Reporting and payment schedule (art 21, 22):

Reporting					Payments	
Reporting periods			Type	Deadline	Type	Deadline (time to pay)
RP No	Month from	Month to				
					Initial prefinancing	30 days from entry into force/10 days before starting date – whichever is the latest
1	1	18	Periodic report	60 days after end of reporting period	Interim payment	90 days from receiving periodic report
2	19	36	Periodic report	60 days after end of reporting period	Final payment	90 days from receiving periodic report

Prefinancing payments and guarantees:

Prefinancing payment	
Type	Amount
Prefinancing 1 (initial)	8 865 476.80

Reporting and payment modalities (art 21, 22):

Mutual Insurance Mechanism (MIM): Yes

MIM contribution: 5% of the maximum grant amount (554 092.30), retained from the initial prefinancing

Restrictions on distribution of initial prefinancing: The prefinancing may be distributed only if the minimum number of

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beneficiaries set out in the call condititions (if any) have acceded to the Agreement and only to beneficiaries that have acceded.

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

Exception for revenues: Yes

No-profit rule: Yes

Late payment interest: ECB + 3.5%

Bank account for payments:

DE40700202700036715570

Conversion into euros: Double conversion

Reporting language: Language of the Agreement

4.3 Certificates (art 24):

Certificates on the financial statements (CFS):

Conditions:

Schedule: only at final payment, if threshold is reached

Standard threshold (beneficiary-level):

- financial statement: requested EU contribution to costs ≥ EUR 430 000.00

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

4.4 Recoveries (art 22)

First-line liability for recoveries:

Beneficiary termination: Beneficiary concerned

Final payment: Each beneficiary for their own debt

After final payment: Beneficiary concerned

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

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

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

Suspension and termination:

Additional suspension grounds (art 31)

Additional termination grounds (art 32)

Applicable law (art 43):

Standard applicable law regime: EU law + law of Belgium

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Dispute settlement forum (art 43):

Standard dispute settlement forum:

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

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

Special dispute settlement forum:

– GLOBAL GREEN GROWTH INSTITUTE (GGGI): Arbitration

6. Other

Specific rules (Annex 5): Yes

Standard time-limits after project end:

Confidentiality (for X years after final payment): 5

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

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

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

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

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

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CHAPTER 1 GENERAL

ARTICLE 1 — SUBJECT OF THE AGREEMENT

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

ARTICLE 2 — DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

[4] For the definition, see Article 187 Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012 ('EU Financial Regulation') (OJ L 193, 30.7.2018, p. 1): "**affiliated entities** [are]:
(a) entities that form a sole beneficiary [(i.e. where an entity is formed of several entities that satisfy the criteria for being awarded a grant, including where the entity is specifically established for the purpose of implementing an action to be financed by a grant)];
(b) entities that satisfy the eligibility criteria and that do not fall within one of the situations referred to in Article 136(1) and 141(1) and that have a link with the beneficiary, in particular a legal or capital link, which is neither limited to the action nor established for the sole purpose of its implementation".

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

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

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

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

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

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

CHAPTER 2 ACTION

ARTICLE 3 — ACTION

The grant is awarded for the action **101096405 — UP2030** ('action'), as described in Annex 1.

ARTICLE 4 — DURATION AND STARTING DATE

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

CHAPTER 3 GRANT

ARTICLE 5 — GRANT

5.1 Form of grant

The grant is an action grant[8] which takes the form of a budget-based mixed actual cost grant (i.e. a

[5] Directive (EU) 2017/1371 of the European Parliament and of the Council of 5 July 2017 on the fight against fraud to the Union's financial interests by means of criminal law (OJ L 198, 28.7.2017, p. 29).
[6] OJ C 316, 27.11.1995, p. 48.
[7] Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities financial interests (OJ L 312, 23.12.1995, p. 1).
[8] For the definition, see Article 180(2)(a) EU Financial Regulation 2018/1046: '**action grant**' means an EU grant to finance "an action intended to help achieve a Union policy objective".

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

5.2 Maximum grant amount

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

5.3 Funding rate

The funding rate for costs is 100% of the eligible costs for beneficiaries that are non-profit legal entities[9] and 70% of the eligible costs for beneficiaries that are profit legal entities.

Contributions are not subject to any funding rate.

5.4 Estimated budget, budget categories and forms of funding

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

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

Annex 2 also shows the types of costs and contributions (forms of funding)[10] to be used for each budget category.

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

5.5 Budget flexibility

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

However:

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

[9] For the definition, see Article XX of the Horizon Europe Framework Programme and Rules for Participation Regulation (EU) XXX: '**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.

[10] See Article 125 EU Financial Regulation 2018/1046.

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- other changes require an amendment or simplified approval, if specifically provided for in Article 6.2

- flexibility caps: not applicable.

ARTICLE 6 — ELIGIBLE AND INELIGIBLE COSTS AND CONTRIBUTIONS

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

6.1 General eligibility conditions

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

(a) for actual costs:

(i) they must be actually incurred by the beneficiary

(ii) they must be incurred in the period set out in Article 4 (with the exception of costs relating to the submission of the final periodic report, which may be incurred afterwards; see Article 21)

(iii) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

(iv) they must be incurred in connection with the action as described in Annex 1 and necessary for its implementation

(v) they must be identifiable and verifiable, in particular recorded in the beneficiary's accounts in accordance with the accounting standards applicable in the country where the beneficiary is established and with the beneficiary's usual cost accounting practices

(vi) they must comply with the applicable national law on taxes, labour and social security and

(vii) they must be reasonable, justified and must comply with the principle of sound financial management, in particular regarding economy and efficiency

(b) for unit costs or contributions (if any):

(i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

(ii) the units must:

- be actually used or produced by the beneficiary in the period set out in Article 4 (with the exception of units relating to the submission of the final periodic report, which may be used or produced afterwards; see Article 21)

- be necessary for the implementation of the action and

(iii) the number of units must be identifiable and verifiable, in particular supported by records and documentation (see Article 20)

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(c) for flat-rate costs or contributions (if any):

(i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

(ii) the costs or contributions to which the flat-rate is applied must:

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

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

(i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

(ii) the work must be properly implemented by the beneficiary in accordance with Annex 1

(iii) the deliverables/outputs must be achieved in the period set out in Article 4 (with the exception of deliverables/outputs relating to the submission of the final periodic report, which may be achieved afterwards; see Article 21)

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

(i) they must fulfil the general eligibility conditions for the type of cost concerned

(ii) the cost accounting practices must be applied in a consistent manner, based on objective criteria, regardless of the source of funding

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

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

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

6.2 Specific eligibility conditions for each budget category

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

<u>Direct costs</u>

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A. Personnel costs

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

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

{daily rate for the person

multiplied by

number of day-equivalents worked on the action (rounded up or down to the nearest half-day)}.

The daily rate must be calculated as:

{annual personnel costs for the person

divided by

215}.

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

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

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

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

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

and

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

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

If there is no such national law, collective labour agreement or written internal rules or if the project-

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based remuneration is not based on objective criteria, the national project reference will be the average remuneration of the person in the last full calendar year covered by the reporting period, excluding remuneration paid for work in EU actions.

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

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

and

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

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

(a) work under conditions similar to those of an employee (in particular regarding the way the work is organised, the tasks that are performed and the premises where they are performed) and

(b) the result of the work belongs to the beneficiary (unless agreed otherwise).

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

A.4 The work of **SME owners** for the action (i.e. owners of beneficiaries that are small and medium-sized enterprises[11] not receiving a salary) or **natural person beneficiaries** (i.e. beneficiaries that are natural persons not receiving a salary) may be declared as personnel costs, if they fulfil the general eligibility conditions and are calculated as unit costs in accordance with the method set out in Annex 2a.

B. Subcontracting costs

Subcontracting costs for the action (including related duties, taxes and charges, such as non-deductible or non-refundable value added tax (VAT)) are eligible, if they are calculated on the basis

[11] For the definition, see Commission Recommendation 2003/361/EC: micro, small or medium-sized enterprise (SME) are enterprises

- engaged in an economic activity, irrespective of their legal form (including, in particular, self- employed persons and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity) and

- employing fewer than 250 persons (expressed in 'annual working units' as defined in Article 5 of the Recommendation) and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million.

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of the costs actually incurred, fulfil the general eligibility conditions and are awarded using the beneficiary's usual purchasing practices — provided these ensure subcontracts with best value for money (or if appropriate the lowest price) and that there is no conflict of interests (see Article 12).

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

Subcontracting may cover only a limited part of the action.

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

C. Purchase costs

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

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

C.1 Travel and subsistence

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

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

C.2 Equipment

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

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

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

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C.3 Other goods, works and services

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

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

D. Other cost categories

D.2 Internally invoiced goods and services

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

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

and

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

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

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

<u>Indirect costs</u>

E. Indirect costs

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

<u>Contributions</u>

Not applicable

6.3 Ineligible costs and contributions

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

(a) costs or contributions that do not comply with the conditions set out above (Article 6.1 and 6.2), in particular:

(i) costs related to return on capital and dividends paid by a beneficiary

(ii) debt and debt service charges

(iii) provisions for future losses or debts

(iv) interest owed

(v) currency exchange losses

(vi) bank costs charged by the beneficiary's bank for transfers from the granting authority

(vii) excessive or reckless expenditure

(viii) deductible or refundable VAT (including VAT paid by public bodies acting as public authority)

(ix) costs incurred or contributions for activities implemented during grant agreement suspension (see Article 31)

(x) in-kind contributions by third parties: not applicable

(b) costs or contributions declared under other EU grants (or grants awarded by an EU Member State, non-EU country or other body implementing the EU budget), except for the following cases:

(i) Synergy actions: not applicable

(ii) if the action grant is combined with an operating grant[12] running during the same period and the beneficiary can demonstrate that the operating grant does not cover any (direct or indirect) costs of the action grant

(c) costs or contributions for staff of a national (or regional/local) administration, for activities that are part of the administration's normal activities (i.e. not undertaken only because of the grant)

(d) costs or contributions (especially travel and subsistence) for staff or representatives of EU institutions, bodies or agencies

(e) other :

(i) country restrictions for eligible costs: not applicable

(ii) costs or contributions declared specifically ineligible in the call conditions.

6.4 Consequences of non-compliance

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

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

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

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CHAPTER 4 GRANT IMPLEMENTATION

SECTION 1 CONSORTIUM: BENEFICIARIES, AFFILIATED ENTITIES AND OTHER PARTICIPANTS

ARTICLE 7 — BENEFICIARIES

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

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

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

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

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

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

(a) Each beneficiary must:

(i) keep information stored in the Portal Participant Register up to date (see Article 19)

(ii) inform the granting authority (and the other beneficiaries) immediately of any events or circumstances likely to affect significantly or delay the implementation of the action (see Article 19)

(iii) submit to the coordinator in good time:

- the prefinancing guarantees (if required; see Article 23)
- the financial statements and certificates on the financial statements (CFS) (if required; see Articles 21 and 24.2 and Data Sheet, Point 4.3)
- the contribution to the deliverables and technical reports (see Article 21)
- any other documents or information required by the granting authority under the Agreement

(iv) submit via the Portal data and information related to the participation of their affiliated entities.

(b) The coordinator must:

(i) monitor that the action is implemented properly (see Article 11)

(ii) act as the intermediary for all communications between the consortium and the granting authority, unless the Agreement or granting authority specifies otherwise, and in particular:

- submit the prefinancing guarantees to the granting authority (if any)
- request and review any documents or information required and verify their quality and completeness before passing them on to the granting authority
- submit the deliverables and reports to the granting authority
- inform the granting authority about the payments made to the other beneficiaries (report on the distribution of payments; if required, see Articles 22 and 32)

(iii) distribute the payments received from the granting authority to the other beneficiaries without unjustified delay (see Article 22).

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

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

Moreover, coordinators which are 'sole beneficiaries'[13] (or similar, such as European research infrastructure consortia (ERICs)) may delegate the tasks set out in Point (b)(i) to (iii) above to one of their members. The coordinator retains sole responsibility for compliance with the obligations under the Agreement.

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

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

- the internal organisation of the consortium
- the management of access to the Portal
- different distribution keys for the payments and financial responsibilities in case of recoveries (if any)
- additional rules on rights and obligations related to background and results (see Article 16)

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

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- settlement of internal disputes
- liability, indemnification and confidentiality arrangements between the beneficiaries.

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

ARTICLE 8 — AFFILIATED ENTITIES

The following entities which are linked to a beneficiary will participate in the action as 'affiliated entities':

- **DREVEN SRL (DreVen)**, PIC 888812553, linked to DRAXIS ENVIRONMENTAL SA (DRAXIS)
- **LISBOA E-NOVA - AGENCIA DE ENERGIA E AMBIENTE DE LISBOA (LISBOA E-NOVA)**, PIC 997719303, linked to CAMARA MUNICIPAL DE LISBOA (Lisbon)

Affiliated entities can charge costs and contributions to the action under the same conditions as the beneficiaries and must implement the action tasks attributed to them in Annex 1 in accordance with Article 11.

Their costs and contributions will be included in Annex 2 and will be taken into account for the calculation of the grant.

The beneficiaries must ensure that all their obligations under this Agreement also apply to their affiliated entities.

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

Breaches by affiliated entities will be handled in the same manner as breaches by beneficiaries. Recovery of undue amounts will be handled through the beneficiaries.

If the granting authority requires joint and several liability of affiliated entities (see Data Sheet, Point 4.4), they must sign the declaration set out in Annex 3a and may be held liable in case of enforced recoveries against their beneficiaries (see Article 22.2 and 22.4).

ARTICLE 9 — OTHER PARTICIPANTS INVOLVED IN THE ACTION

9.1 Associated partners

The following entities which cooperate with a beneficiary will participate in the action as 'associated partners':

- **EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH (ETH)**, PIC 999979015
- **MAPPING FOR CHANGE CIC (MfC)**, PIC 959582492
- **THE CHANCELLOR MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE (UCAM)**, PIC 999977172

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- **Belfast City Council (Belfast)**, PIC 963786278

Associated partners must implement the action tasks attributed to them in Annex 1 in accordance with Article 11. They may not charge costs or contributions to the action and the costs for their tasks are not eligible.

The tasks must be set out in Annex 1.

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

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

9.2 Third parties giving in-kind contributions to the action

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

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

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

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

9.3 Subcontractors

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

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

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

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

9.4 Recipients of financial support to third parties

If the action includes providing financial support to third parties (e.g. grants, prizes or similar forms of

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

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

ARTICLE 10 — PARTICIPANTS WITH SPECIAL STATUS

10.1 Non-EU participants

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

- to respect general principles (including fundamental rights, values and ethical principles, environmental and labour standards, rules on classified information, intellectual property rights, visibility of funding and protection of personal data)

- for the submission of certificates under Article 24: to use qualified external auditors which are independent and comply with comparable standards as those set out in EU Directive 2006/43/EC[14]

- for the controls under Article 25: to allow for checks, reviews, audits and investigations (including on-the-spot checks, visits and inspections) by the bodies mentioned in that Article (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.).

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

10.2 Participants which are international organisations

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

- to respect general principles (including fundamental rights, values and ethical principles, environmental and labour standards, rules on classified information, intellectual property rights, visibility of funding and protection of personal data)

- for the submission of certificates under Article 24: to use either independent public officers or external auditors which comply with comparable standards as those set out in EU Directive 2006/43/EC

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

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

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

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

10.3 Pillar-assessed participants

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

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

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

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

and use the following specific rules, for:

- recoveries (Article 22): in case of financial support to third parties, there will be no recovery if the participant has done everything possible to retrieve the undue amounts from the third party receiving the support (including legal proceedings) and non-recovery is not due to an error or negligence on its part
- checks, reviews, audits and investigations by the EU (Article 25): will be conducted taking into account the rules and procedures specifically agreed between them and the framework agreement (if any)
- impact evaluation (Article 26): will be conducted in accordance with the participant's internal rules and procedures and the framework agreement (if any)
- grant agreement suspension (Article 31): certain costs incurred during grant suspension are eligible (notably, minimum costs necessary for a possible resumption of the action and costs relating to contracts which were entered into before the pre-information letter was received and which could not reasonably be suspended, reallocated or terminated on legal grounds)

- grant agreement termination (Article 32): the final grant amount and final payment will be calculated taking into account also costs relating to contracts due for execution only after termination takes effect, if the contract was entered into before the pre-information letter was received and could not reasonably be terminated on legal grounds

- liability for damages (Article 33.2): the granting authority must be compensated for damage it sustains as a result of the implementation of the action or because the action was not implemented in full compliance with the Agreement only if the damage is due to an infringement of the participant's internal rules and procedures or due to a violation of third parties' rights by the participant or one of its employees or individual for whom the employees are responsible.

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

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

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

- eligibility (Article 6)

- consortium roles and set-up (Articles 7-9)

- security and ethics (Articles 13, 14)

- IPR (including background and results, access rights and rights of use), communication, dissemination and visibility (Articles 16 and 17)

- information obligation (Article 19)

- payment, reporting and amendments (Articles 21, 22 and 39)

- rejections, reductions, suspensions and terminations (Articles 27, 28, 29-32)

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

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

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

- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes

- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed

- accurate and, where necessary, kept up to date

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- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed and

- processed in a manner that ensures appropriate security of the personal data.

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

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

SECTION 2 RULES FOR CARRYING OUT THE ACTION

ARTICLE 11 — PROPER IMPLEMENTATION OF THE ACTION

11.1 Obligation to properly implement the action

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

11.2 Consequences of non-compliance

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

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

ARTICLE 12 — CONFLICT OF INTERESTS

12.1 Conflict of interests

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

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

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

12.2 Consequences of non-compliance

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

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

ARTICLE 13 — CONFIDENTIALITY AND SECURITY

13.1 Sensitive information

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

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

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

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

(a) need to know it in order to implement the Agreement and

(b) are bound by an obligation of confidentiality.

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

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

(a) this is necessary to implement the Agreement or safeguard the EU financial interests and

(b) the recipients of the information are bound by an obligation of confidentiality.

The confidentiality obligations no longer apply if:

(a) the disclosing party agrees to release the other party

(b) the information becomes publicly available, without breaching any confidentiality obligation

(c) the disclosure of the sensitive information is required by EU, international or national law.

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

13.2 Classified information

The parties must handle classified information in accordance with the applicable EU, international or national law on classified information (in particular, Decision 2015/444[15] and its implementing rules).

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

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

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

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

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

13.3 Consequences of non-compliance

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

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

ARTICLE 14 — ETHICS AND VALUES

14.1 Ethics

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

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

14.2 Values

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

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

14.3 Consequences of non-compliance

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

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

ARTICLE 15 — DATA PROTECTION

15.1 Data processing by the granting authority

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

For grants where the granting authority is the European Commission, an EU regulatory or executive agency, joint undertaking or other EU body, the processing will be subject to Regulation 2018/1725[16].

[16] Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies

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15.2 Data processing by the beneficiaries

The beneficiaries must process personal data under the Agreement in compliance with the applicable EU, international and national law on data protection (in particular, Regulation 2016/679[17]).

They must ensure that personal data is:

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

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

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

15.3 Consequences of non-compliance

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

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

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

16.1 Background and access rights to background

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

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

and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, p. 39).

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

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(a) held by the beneficiaries before they acceded to the Agreement and

(b) needed to implement the action or exploit the results.

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

16.2 Ownership of results

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

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

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

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

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

(a) **use for its own purposes** (in particular, making them available to persons working for the granting authority or any other EU service (including institutions, bodies, offices, agencies, etc.) or EU Member State institution or body; copying or reproducing them in whole or in part, in unlimited numbers; and communication through press information services)

(b) **distribution to the public** (in particular, publication as hard copies and in electronic or digital format, publication on the internet, as a downloadable or non-downloadable file, broadcasting by any channel, public display or presentation, communicating through press information services, or inclusion in widely accessible databases or indexes)

(c) **editing or redrafting** (including shortening, summarising, inserting other elements (e.g. meta-data, legends, other graphic, visual, audio or text elements), extracting parts (e.g. audio or video files), dividing into parts, use in a compilation)

(d) **translation**

(e) **storage** in paper, electronic or other form

(f) **archiving**, in line with applicable document-management rules

(g) the right to authorise **third parties** to act on its behalf or sub-license to third parties the modes of use set out in Points (b), (c), (d) and (f), if needed for the information, communication and publicity activity of the granting authority

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(h) **processing**, analysing, aggregating the materials, documents and information received and **producing derivative works**.

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

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

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

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

16.4 Specific rules on IPR, results and background

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

16.5 Consequences of non-compliance

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

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

ARTICLE 17 — COMMUNICATION, DISSEMINATION AND VISIBILITY

17.1 Communication — Dissemination — Promoting the action

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

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

17.2 Visibility — European flag and funding statement

Unless otherwise agreed with the granting authority, communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded by the grant must acknowledge EU support and display the European flag (emblem) and funding statement (translated into local languages, where appropriate):

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Funded by the European Union

Co-funded by the European Union

Funded by the European Union

Co-funded by the European Union

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

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

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

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

17.3 Quality of information — Disclaimer

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

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

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

17.4 Specific communication, dissemination and visibility rules

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

17.5 Consequences of non-compliance

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

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

ARTICLE 18 — SPECIFIC RULES FOR CARRYING OUT THE ACTION

18.1 Specific rules for carrying out the action

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

18.2 Consequences of non-compliance

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

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

SECTION 3 GRANT ADMINISTRATION

ARTICLE 19 — GENERAL INFORMATION OBLIGATIONS

19.1 Information requests

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

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

19.2 Participant Register data updates

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

19.3 Information about events and circumstances which impact the action

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

(a) **events** which are likely to affect or delay the implementation of the action or affect the EU's financial interests, in particular:

(i) changes in their legal, financial, technical, organisational or ownership situation (including changes linked to one of the exclusion grounds listed in the declaration of honour signed before grant signature)

(ii) linked action information: not applicable

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(b) **circumstances** affecting:

(i) the decision to award the grant or

(ii) compliance with requirements under the Agreement.

19.4 Consequences of non-compliance

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

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

ARTICLE 20 — RECORD-KEEPING

20.1 Keeping records and supporting documents

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

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

(a) for actual costs: adequate records and supporting documents to prove the costs declared (such as contracts, subcontracts, invoices and accounting records); in addition, the beneficiaries' usual accounting and internal control procedures must enable direct reconciliation between the amounts declared, the amounts recorded in their accounts and the amounts stated in the supporting documents

(b) for flat-rate costs and contributions (if any): adequate records and supporting documents to prove the eligibility of the costs or contributions to which the flat-rate is applied

(c) for the following simplified costs and contributions: the beneficiaries do not need to keep specific records on the actual costs incurred, but must keep:

(i) for unit costs and contributions (if any): adequate records and supporting documents to prove the number of units declared

(ii) for lump sum costs and contributions (if any): adequate records and supporting documents to prove proper implementation of the work as described in Annex 1

(iii) for financing not linked to costs (if any): adequate records and supporting documents to prove the achievement of the results or the fulfilment of the conditions as described in Annex 1

(d) for unit, flat-rate and lump sum costs and contributions according to usual cost accounting practices (if any): the beneficiaries must keep any adequate records and supporting documents to prove that their cost accounting practices have been applied in a consistent manner, based on objective criteria, regardless of the source of funding, and that they comply with the eligibility conditions set out in Articles 6.1 and 6.2.

Moreover, the following is needed for specific budget categories:

(e) for personnel costs: time worked for the beneficiary under the action must be supported by declarations signed monthly by the person and their supervisor, unless another reliable time-record system is in place; the granting authority may accept alternative evidence supporting the time worked for the action declared, if it considers that it offers an adequate level of assurance

(f) additional record-keeping rules: not applicable

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

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

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

20.2 Consequences of non-compliance

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

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

ARTICLE 21 — REPORTING

21.1 Continuous reporting

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

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

21.2 Periodic reporting: Technical reports and financial statements

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

- for additional prefinancings (if any): an **additional prefinancing report**

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

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

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

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

The financial part of the periodic report includes:

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

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

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

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

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

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

21.3 Currency for financial statements and conversion into euros

The financial statements must be drafted in euro.

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

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

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

21.4 Reporting language

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

21.5 Consequences of non-compliance

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

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

ARTICLE 22 — PAYMENTS AND RECOVERIES — CALCULATION OF AMOUNTS DUE

22.1 Payments and payment arrangements

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

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

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

The cost of payment transfers will be borne as follows:

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

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

22.2 Recoveries

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

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

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

22.3 Amounts due

22.3.1 Prefinancing payments

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

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

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

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

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

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

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

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

22.3.2 Amount due at beneficiary termination — Recovery

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

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

Step 1 — Calculation of the total accepted EU contribution

<u>Step 1 — Calculation of the total accepted EU contribution</u>

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

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

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

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{total accepted EU contribution for the beneficiary

minus

{prefinancing and interim payments received (if any)}}.

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

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

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

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

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

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

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

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

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

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

22.3.3 Interim payments

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

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

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

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

Step 1 — Calculation of the total accepted EU contribution

Step 2 — Limit to the interim payment ceiling

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Step 1 — Calculation of the total accepted EU contribution

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

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

Step 2 — Limit to the interim payment ceiling

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

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

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

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

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

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

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

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

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

Step 1 — Calculation of the total accepted EU contribution

Step 2 — Limit to the maximum grant amount

Step 3 — Reduction due to the no-profit rule

Step 1 — Calculation of the total accepted EU contribution

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

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

Step 2 — Limit to the maximum grant amount

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

Step 3 — Reduction due to the no-profit rule

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

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

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

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

{final grant amount

minus

{prefinancing and interim payments made (if any)}**}**.

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

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

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

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

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

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

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

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

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

- requesting observations within 30 days of receiving notification.

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

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

{{{total accepted EU contribution for the beneficiary

divided by

total accepted EU contribution for the action}

multiplied by

final grant amount for the action},

minus

{prefinancing and interim payments received by the beneficiary (if any)}}

and

(b) dividing the debt:

{{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 to be recovered}.

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

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

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

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

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

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

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

Step 1 — Calculation of the revised total accepted EU contribution

Step 1 — Calculation of the revised total accepted EU contribution

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

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

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

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

{{total accepted EU contribution for the beneficiary

divided by

total accepted EU contribution for the action}

multiplied by

final grant amount for the action}.

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

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

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

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

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

22.4 Enforced recovery

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

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

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

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

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

(b) financial guarantee(s): not applicable

(c) joint and several liability of beneficiaries: not applicable

(d) by holding affiliated entities jointly and severally liable (if any, see Data Sheet, Point 4.4)

(e) by taking legal action (see Article 43) or, provided that the granting authority is the European Commission or an EU executive agency, by adopting an enforceable decision under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 100(2) of EU Financial Regulation 2018/1046.

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

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

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

Bank charges incurred in the recovery process will be borne by the beneficiary, unless Directive 2015/2366[18] applies.

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

22.5 Consequences of non-compliance

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

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

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

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

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

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

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

22.5.2 If the coordinator breaches any of its obligations under this Article, the grant may be reduced (see Article 29) and the grant or the coordinator may be terminated (see Article 32).

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

ARTICLE 23 — GUARANTEES

Not applicable

ARTICLE 24 — CERTIFICATES

24.1 Operational verification report (OVR)

Not applicable

24.2 Certificate on the financial statements (CFS)

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

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

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

(a) be provided by a qualified approved external auditor which is independent and complies with Directive 2006/43/EC[19] (or for public bodies: by a competent independent public officer)

(b) the verification must be carried out according to the highest professional standards to ensure that the financial statements comply with the provisions under the Agreement and that the costs declared are eligible.

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

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

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

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

Not applicable

24.4 Systems and process audit (SPA)

Beneficiaries which:

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

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

This audit will be carried out as follows:

Step 1 – Application by the beneficiary.

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

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

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

24.5 Consequences of non-compliance

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

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

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

25.1 Granting authority checks, reviews and audits

25.1.1 Internal checks

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

25.1.2 Project reviews

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

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

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

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

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

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

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

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

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

Project reviews (including project review reports) will be in the language of the Agreement.

25.1.3 Audits

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

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

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

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

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

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

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

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

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

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

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

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

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

25.3 Access to records for assessing simplified forms of funding

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

25.4 OLAF, EPPO and ECA audits and investigations

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

- the European Anti-Fraud Office (OLAF) under Regulations No 883/2013[20] and No 2185/96[21]
- the European Public Prosecutor's Office (EPPO) under Regulation 2017/1939
- the European Court of Auditors (ECA) under Article 287 of the Treaty on the Functioning of the EU (TFEU) and Article 257 of EU Financial Regulation 2018/1046.

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

[20] 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).

[21] 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).

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

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

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

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

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

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

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

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

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

25.5.2 Extension from other grants

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

(a) the beneficiary concerned is found, in other EU grants awarded under similar conditions, to have committed systemic or recurrent errors, irregularities, fraud or breach of obligations that have a material impact on this grant and

(b) those findings are formally notified to the beneficiary concerned — together with the list of grants affected by the findings — within the time-limit for audits set out in the Data Sheet (see Point 6).

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

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

(a) an invitation to submit observations on the list of grants affected by the findings

(b) the request to submit revised financial statements for all grants affected

(c) the correction rate for extrapolation, established on the basis of the systemic or recurrent errors, to calculate the amounts to be rejected, if the beneficiary concerned:

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(i) considers that the submission of revised financial statements is not possible or practicable or

(ii) does not submit revised financial statements.

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

(a) an invitation to submit observations on the list of grants affected by the findings and

(b) the **correction rate for extrapolation**, established on the basis of the systemic or recurrent errors and the principle of proportionality.

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

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

25.6 Consequences of non-compliance

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

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

ARTICLE 26 — IMPACT EVALUATIONS

26.1 Impact evaluation

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

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

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

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

26.2 Consequences of non-compliance

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

CHAPTER 5 CONSEQUENCES OF NON-COMPLIANCE

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SECTION 1 REJECTIONS AND GRANT REDUCTION

ARTICLE 27 — REJECTION OF COSTS AND CONTRIBUTIONS

27.1 Conditions

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

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

Ineligible costs or contributions will be rejected.

27.2 Procedure

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

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

27.3 Effects

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

ARTICLE 28 — GRANT REDUCTION

28.1 Conditions

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

(a) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:

  (i) substantial errors, irregularities or fraud or

  (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or

(b) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants

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

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

28.2 Procedure

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

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

28.3 Effects

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

SECTION 2 SUSPENSION AND TERMINATION

ARTICLE 29 — PAYMENT DEADLINE SUSPENSION

29.1 Conditions

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

(a) the required report (see Article 21) has not been submitted or is not complete or additional information is needed

(b) there are doubts about the amount to be paid (e.g. ongoing audit extension procedure, queries about eligibility, need for a grant reduction, etc.) and additional checks, reviews, audits or investigations are necessary, or

(c) there are other issues affecting the EU financial interests.

29.2 Procedure

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

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

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

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

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

ARTICLE 30 — PAYMENT SUSPENSION

30.1 Conditions

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

(a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:

(i) substantial errors, irregularities or fraud or

(ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or

(b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant.

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

30.2 Procedure

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

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

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

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

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

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

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

ARTICLE 31 — GRANT AGREEMENT SUSPENSION

31.1 Consortium-requested GA suspension

31.1.1 Conditions and procedure

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

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

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

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

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

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

31.2 EU-initiated GA suspension

31.2.1 Conditions

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

(a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:

  (i) substantial errors, irregularities or fraud or

  (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions,

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

(b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant

(c) other:

(i) linked action issues: not applicable

(ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

31.2.2 Procedure

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

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

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

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

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

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

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

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

ARTICLE 32 — GRANT AGREEMENT OR BENEFICIARY TERMINATION

32.1 Consortium-requested GA termination

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32.1.1 Conditions and procedure

The beneficiaries may request the termination of the grant.

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

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

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

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

32.1.2 Effects

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

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

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

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

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

32.2 Consortium-requested beneficiary termination

32.2.1 Conditions and procedure

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

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

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

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

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

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

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

32.2.2 Effects

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

(i) a **report on the distribution of payments** to the beneficiary concerned

(ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)

(iii) a second **request for amendment** (see Article 39) with other amendments needed (e.g. reallocation of the tasks and the estimated budget of the terminated beneficiary; addition of a new beneficiary to replace the terminated beneficiary; change of coordinator, etc.).

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

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

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

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

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

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

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

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

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

32.3 EU-initiated GA or beneficiary termination

32.3.1 Conditions

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

(a) one or more beneficiaries do not accede to the Agreement (see Article 40)

(b) a change to the action or the legal, financial, technical, organisational or ownership situation of a beneficiary is likely to substantially affect the implementation of the action or calls into question the decision to award the grant (including changes linked to one of the exclusion grounds listed in the declaration of honour)

(c) following termination of one or more beneficiaries, the necessary changes to the Agreement (and their impact on the action) would call into question the decision awarding the grant or breach the principle of equal treatment of applicants

(d) implementation of the action has become impossible or the changes necessary for its continuation would call into question the decision awarding the grant or breach the principle of equal treatment of applicants

(e) a beneficiary (or person with unlimited liability for its debts) is subject to bankruptcy proceedings or similar (including insolvency, winding-up, administration by a liquidator or court, arrangement with creditors, suspension of business activities, etc.)

(f) a beneficiary (or person with unlimited liability for its debts) is in breach of social security or tax obligations

(g) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has been found guilty of grave professional misconduct

(h) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed fraud, corruption, or is involved in a criminal organisation, money laundering, terrorism-related crimes (including terrorism financing), child labour or human trafficking

(i) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) was created under a different jurisdiction with the intent to circumvent fiscal, social or other legal obligations in the country of origin (or created another entity with this purpose)

(j) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:

(i) substantial errors, irregularities or fraud or

(ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.)

(k) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (extension of findings from other grants to this grant; see Article 25)

(l) despite a specific request by the granting authority, a beneficiary does not request — through the coordinator — an amendment to the Agreement to end the participation of one of its affiliated entities or associated partners that is in one of the situations under points (d), (f), (e), (g), (h), (i) or (j) and to reallocate its tasks, or

(m) other:

(i) linked action issues: not applicable

(ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

32.3.2 Procedure

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

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

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

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

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

32.3.3 Effects

(a) for **GA termination**:

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

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

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

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

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

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

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

(b) for **beneficiary termination**:

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

(i) a **report on the distribution of payments** to the beneficiary concerned

(ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)

(iii) a **request for amendment** (see Article 39) with any amendments needed (e.g. reallocation of the tasks and the estimated budget of the terminated beneficiary; addition of a new beneficiary to replace the terminated beneficiary; change of coordinator, etc.).

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

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

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

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

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

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

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

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

SECTION 3 OTHER CONSEQUENCES: DAMAGES AND ADMINISTRATIVE SANCTIONS

ARTICLE 33 — DAMAGES

33.1 Liability of the granting authority

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

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

33.2 Liability of the beneficiaries

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

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

ARTICLE 34 — ADMINISTRATIVE SANCTIONS AND OTHER MEASURES

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

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for instance, Articles 135 to 145 EU Financial Regulation 2018/1046 and Articles 4 and 7 of Regulation 2988/95[22]).

SECTION 4 FORCE MAJEURE

ARTICLE 35 — FORCE MAJEURE

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

'Force majeure' means any situation or event that:

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

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

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

CHAPTER 6 FINAL PROVISIONS

ARTICLE 36 — COMMUNICATION BETWEEN THE PARTIES

36.1 Forms and means of communication — Electronic management

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

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

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

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

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

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

36.2 Date of communication

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

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

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

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

36.3 Addresses for communication

The Portal can be accessed via the Europa website.

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

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

ARTICLE 37 — INTERPRETATION OF THE AGREEMENT

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

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

Annex 2 takes precedence over Annex 1.

ARTICLE 38 — CALCULATION OF PERIODS AND DEADLINES

In accordance with Regulation No 1182/71[23], periods expressed in days, months or years are calculated from the moment the triggering event occurs.

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

‘Days’ means calendar days, not working days.

ARTICLE 39 — AMENDMENTS

[23] 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).

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39.1 Conditions

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

Amendments may be requested by any of the parties.

39.2 Procedure

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

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

The request for amendment must include:

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

The granting authority may request additional information.

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

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

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

ARTICLE 40 — ACCESSION AND ADDITION OF NEW BENEFICIARIES

40.1 Accession of the beneficiaries mentioned in the Preamble

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

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

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

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

40.2 Addition of new beneficiaries

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

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

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

Additions are also possible in mono-beneficiary grants.

ARTICLE 41 — TRANSFER OF THE AGREEMENT

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

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

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

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

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

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

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

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

ARTICLE 43 — APPLICABLE LAW AND SETTLEMENT OF DISPUTES

43.1 Applicable law

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

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

43.2 Dispute settlement

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

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

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

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

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

ARTICLE 44 — ENTRY INTO FORCE

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

SIGNATURES

For the coordinator

Andrea ZEUMANN with ECAS id nzeumaan signed in the Participant Portal on 13/12/2022 at 13:34:34 (transaction id SigId-200771-2xarFa9pzc4A3f7ekSEzN5zvASL41VWZEIAKCflV6XzWzzu5t9nfsVKh7YHaHZZpjzeiIa5B0A08aWBDV4a92u5e-yntOf97TTHqYSWbdLAFzhs-O0FHQ8EaP5nHjATLI6wtTt7sKneVY1xAJ6kPaWCnYvaO2gZ8uV7Fdh33tbbw0VPdZL8rpJGTLloizK9kSmCYNC). Timestamp by third party at 2022.12.13 13:46:41 CET

For the granting authority

Signed by Marcel ROMMERTS with ECAS id rommeml as an authorised representative on 13-12-2022 19:22:41 (transaction id SigId-1733-Sp8RBsD8h9zPX4RYAxvBPCNcS0rvLrgI5lzvYzjvRH088HM148GSp7ILuKDzTjKnEFeJtVTK8zc52pzpLU1T3HUW-jpJZscgsw0KZVg27Mazu7zG-MFmazHPpoBIpMgBVV2qDUtAuvKSbyS5qHza8q3v2PkbbJZzwm8HplxGzSgQEECD8AzJ3hJmzd26Xlyu3hlLWwj8m)
2022.12.13 19:22:44 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 1

Horizon Europe (HORIZON)

Description of the action (DoA)

Part A

Part B

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

DESCRIPTION OF THE ACTION (PART A)

COVER PAGE

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

PROJECT *Grant Preparation (General Information screen) — Enter the info.*	
Project number:	101096405
Project name:	Urban Planning and design ready for 2030
Project acronym:	UP2030
Call:	HORIZON-MISS-2021-CIT-02
Topic:	HORIZON-MISS-2021-CIT-02-01
Type of action:	HORIZON-IA
Service:	CINEA/C/03
Project starting date:	fixed date: 1 January 2023
Project duration:	36 months

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Staff effort 19
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List of critical risks 43
Project reviews 46

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PROJECT SUMMARY

Project summary

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

Use the project summary from your proposal.

UP2030 aims to guide cities through the socio-technical transitions required to meet their climate neutrality ambitions. It will do so by enabling a quantum leap from a ´business as usual´, project-by-project decarbonisation approach to a vision-driven, strategy-based approach that is anchored on sound projects and renewed policy development. The approach uses urban planning and design as a vehicle to create better connected, more compact, net-zero neighbourhoods in the city pilots – i.e. neighbourhoods that promote liveability and, through designing with intent, promote mitigation action. Unlike fragmented innovation processes that focus on the deployment of a specific solution to achieve incremental progress, UP2030 proposes that cities should themselves be at the centre of the innovation approach to drive transformative change. The project develops the 5UP methodological framework that supports cities in (i) UP-dating those policies, codes, regulations that need to be left behind to make room for the new vision (ii) UP-skilling, through building the capacities of the entire city stakeholder ecosystem that shall deliver actions (iii) UP-grading, through the development of solution prototypes (digital and physical) at selected neighbourhoods, (iv) UP-scaling to achieve city-wide impact by shaping the enabling governance arrangements and matching project portfolios to financial resources, and (v) UP-taking, by engaging with the Mission and sharing best practices across European cities. Inclusive participation is key throughout the project's full cycle of activities so that real needs of communities are reflected in the city-specific visions, and co-designed interventions maximise delivery of co-benefits. As such, UP2030 will (a) have a measured positive impact on spatial justice in the pilots, and (b) give the opportunity to citizens to participate in the transition by becoming agents of change themselves through their sustainable behavioural shifts.

LIST OF PARTICIPANTS

PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
1	COO	Fraunhofer	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV	DE	999984059
2	BEN	ADELPHI	ADELPHI RESEARCH GEMEINNUTZIGE GMBH	DE	999693350
3	BEN	BH	BURO HAPPOLD GMBH	DE	890231372
4	BEN	DC	DESIGN CLIPS IDIOTIKI KEFALAIOUCHIKI ETAIREIA	EL	891899675
5	BEN	GreenAdapt	GREENADAPT GESELLSCHAFT FUER KLIMAANPASSUNG MBH	DE	891661055
6	BEN	ICA	I-CATALIST SL	ES	937459605
7	BEN	ISOCARP	STICHTING ISOCARP INSTITUTE CENTER OF URBAN EXCELLENCE	NL	905424870
8	BEN	TSPA	STELLMACH THOMAS	DE	913084960
9	BEN	TUD	TECHNISCHE UNIVERSITEIT DELFT	NL	999977366

PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
10	BEN	UIC	UNIVERSITAT INTERNACIONAL DE CATALUNYA	ES	994972069
11	BEN	GGGI	GLOBAL GREEN GROWTH INSTITUTE	KR	945102429
12	BEN	ICLEI	ICLEI EUROPEAN SECRETARIAT GMBH (ICLEI EUROPASEKRETARIAT GMBH)	DE	998341364
13	BEN	RCities	STICHTING GLOBAL RESILIENT CITIES NETWORK	NL	892204158
14	BEN	UCCRN	URBAN CLIMATE CHANGE RESEARCH NETWORK - EUROPEAN HUB APS	IT	889096181
15	BEN	AQUATEC	AQUATEC PROYECTOS PARA EL SECTOR DEL AGUA SA	ES	972702033
16	BEN	CETAQUA	CETAQUA, CENTRO TECNOLOGICO DEL AGUA, FUNDACION PRIVADA	ES	998224285
17	BEN	LIF	PRAVO I INTERNET FOUNDATION	BG	996838155
18	BEN	LNEC	LABORATORIO NACIONAL DE ENGENHARIA CIVIL	PT	998850517
19	BEN	MDAT	ANAPTYXIAKI MEIZONOS ASTIKIS THESSALONIKIS AE - ANAPTYXIAKOS ORGANISMOS TOPIKIS AUTODIOIKISIS	EL	939158754
20	BEN	METU	MIDDLE EAST TECHNICAL UNIVERSITY	TR	999643492
21	BEN	USTUTT	UNIVERSITY OF STUTTGART	DE	999974747
22	BEN	VUB	VRIJE UNIVERSITEIT BRUSSEL	BE	999902094
23	BEN	CERTH	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	EL	998802502
24	BEN	CIRCE	FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS	ES	999516907
25	BEN	DELTARES	STICHTING DELTARES	NL	999520302
26	BEN	DRAXIS	DRAXIS ENVIRONMENTAL SA	EL	996151686
26.1	AE	DreVen	DREVEN SRL	BE	888812553
27	BEN	GUNAM	ODTU GUNES ENERJISI UYGULAMA VE ARA STIRMA MERKEZI	TR	891143657
28	BEN	K3Y	K3Y	BG	905140563
29	BEN	LINKS	FONDAZIONE LINKS - LEADING INNOVATION & KNOWLEDGE FOR SOCIETY	IT	916573856
30	BEN	MAG	MAGGIOLI SPA	IT	996621457
31	BEN	UPV	UNIVERSITAT POLITECNICA DE VALENCIA	ES	999864846
32	BEN	VM	VESELA MOTIKA D.O.O. ZA PROIZVODNJU TRGOVINU I USLUGE	HR	887783965
33	BEN	Budapest	BUDAPEST FOVAROS ONKORMANYZATA	HU	959102439

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PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
34	BEN	Granollers	AJUNTAMENT DE GRANOLLERS	ES	950897306
35	BEN	Istanbul	Istanbul Metropolitan Municipality	TR	998498795
36	BEN	Lisbon	CAMARA MUNICIPAL DE LISBOA	PT	972290171
36.1	AE	LISBOA E-NOVA	LISBOA E-NOVA - AGENCIA DE ENERGIA E AMBIENTE DE LISBOA	PT	997719303
37	BEN	Milan	COMUNE DI MILANO	IT	998702204
38	BEN	Muenster	STADT MUNSTER	DE	941423316
39	BEN	Rotterdam	GEMEENTE ROTTERDAM	NL	998914925
40	BEN	Thessaloniki	DIMOS THESSALONIKIS	EL	965342449
41	BEN	Zagreb	GRAD ZAGREB	HR	989531727
42	AP	ETH	EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	CH	999979015
43	AP	MfC	MAPPING FOR CHANGE CIC	UK	959582492
44	AP	UCAM	THE CHANCELLOR MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	UK	999977172
45	AP	Belfast	Belfast City Council	UK	963786278

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LIST OF WORK PACKAGES

Work packages

Grant Preparation (Work Packages screen) — Enter the info.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
WP1	MANAGE - Project Management	1 - Fraunhofer	94.00	1	36	D1.1 – Project management and quality assurance handbook D1.2 – Periodic activity report 1 D1.3 – Periodic activity report 2 D1.4 – Data management plan 1 D1.5 – Data management plan 2 D1.6 – Data management plan 3 D1.7 – Security, privacy and ethics handbook 1 D1.8 – Security, privacy and ethics handbook 2
WP2	UP-DATING - Understanding cities' and stakeholders' needs for upgrading, and co-designing visions of urban transformations	10 - UIC	272.10	1	12	D2.1 – The 5UP approach and its contextualisation in the project cities D2.2 – UP2030 benchmarking report against state-of-the-art and identification of pilot opportunities 1 D2.3 – UP2030 benchmarking report against state-of-the-art and identification of pilot opportunities 2 D2.4 – An interactive toolkit for stakeholder engagement in co-design of visions and pathways towards climate neutrality D2.5 – Report on vision co-design methodology report and its application for pilot shared visions
WP3	UP-SKILLING - Empowering the city's stakeholder ecosystem to co-develop urban	9 - TUD	544.30	1	36	D3.1 – Transformative pathways roadmaps:

Work packages

Grant Preparation (Work Packages screen) — Enter the info.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
	planning and design enabled transformation pathways					strategic integration of solutions and interoperability 1 D3.2 – Transformative pathways roadmaps: strategic integration of solutions and interoperability 2 D3.3 – Transformative pathways roadmaps: strategic integration of solutions and interoperability 3 D3.4 – Bundle of digital twin tools for net zero decision-making 1 D3.5 – Bundle of digital twin tools for net zero decision-making 2 D3.6 – Digital planning and design tools for climate neutral cities 1 D3.7 – Digital planning and design tools for climate neutral cities 2 D3.8 – Tools and approaches for promoting inclusive participation and spatial justice 1 D3.9 – Tools and approaches for promoting inclusive participation and spatial justice 2
WP4	UP-GRADING - Piloting and demonstrating	13 - RCities	639.60	1	36	D4.1 – UP2030 implementation plan for the pilot cities 1 D4.2 – UP2030 implementation plan for the pilot cities 2 D4.3 – Sustained engagement strategy of Learning & Action Alliances to promote the neutrality vision in the UP2030 pilots D4.4 – Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 1

Work packages

Grant Preparation (Work Packages screen) — Enter the info.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
						D4.5 – Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 2 D4.6 – Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 3 D4.7 – Report on strategic learning in city twinning programmes
WP5	UP-SCALING - Implementation and mainstreaming through renewed policy development and decision-making	12 - ICLEI	219.20	1	36	D5.1 – Analysis and recommendations for transformative governance and policy 1 D5.2 – Analysis and recommendations for transformative governance and policy 2 D5.3 – UP2030 Service platform D5.4 – Guidelines for economic valuations & assessment of financial instruments for spatial interventions 1 D5.5 – Guidelines for economic valuations & assessment of financial instruments for spatial interventions 2 D5.6 – Learning Programme Design, Development and Sustainability D5.7 – Online Learning Programme materials
WP6	UP-TAKING - Dissemination, Exploitation, Communication and Sustainability of UP2030	1 - DreVen	128.10	1	36	D6.1 – Dissemination and Communication strategy 1 D6.2 – Dissemination and Communication strategy 2 D6.3 – Report on Dissemination and Communication actions and their impact 1

Work packages

Grant Preparation (Work Packages screen) — Enter the info.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
						D6.4 – Report on Dissemination and Communication actions and their impact 2 D6.5 – Report on Dissemination and Communication actions and their impact 3 D6.6 – Neutrality Story Maps for the pilot cities 1 D6.7 – Neutrality Story Maps for the pilot cities 2 D6.8 – Exploitation & Sustainability Planning & Activities Report 1 D6.9 – Exploitation & Sustainability Planning & Activities Report 2 D6.10 – Report on clustering activities with other Mission initiatives 1 D6.11 – Report on clustering activities with other Mission initiatives 2 D6.12 – Sharing UP2030 best practices and policy briefs with the Mission's platform

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Work package WP1 – MANAGE - Project Management

Work Package Number	WP1	Lead Beneficiary	1. Fraunhofer
Work Package Name	MANAGE - Project Management		
Start Month	1	End Month	36

Objectives
WP1 guarantees project management according to the EU Grant Agreement provisions and conformingly to the respective Project Board organisation. It coordinates at consortium level the activities of the project, and ensures that partners work together effectively, by monitoring the overall scientific coordination and progress of UP2030. It is responsible for the management of all scientific, technical, legal, financial and administrative aspects of the project and consortium. It controls and refines the project's objectives by taking care of quality assurance, performance management, and conflict resolution to ensure scientific excellence for all outputs and for the internal processes. WP1 also sets out UP2030's GDPR requirements and gender considerations and guarantees effective management of ethics matters.

Description
Task 1.1 Administrative Management: Quality Procedures Metric Definitions, EU Liaison, Reporting and Reviewing (M1-M36) (Leader: FhG, Contributors: All) Task 1.1 will be responsible for the overall project coordination, management and administration by developing and implementing management processes for an efficient and successful project execution, Information on the administrative risk management and quality assurance will also be provided. The following tasks will be performed: (i) preparation of technical and financial interim reports in a 6-month basis so that deliverables and milestones of each period are closely followed and technical activities follow resource consumption, (ii) preparation of the EC reports (intermediate in M18 and final report in M36), monitoring technical and financial activities as well as audit reports in applicable cases, (iii) organisation of consortium meetings, (iv) distribution of the EC financial contribution and costs coordination and controlling; (v) communication with the EC and submission of deliverables; (vi) ensure of the communication between partners at all levels and the proper information exchange, (vii) preparation and maintenance of an appropriate communication and collaborative environment for the consortium partners (e.g., mailing lists, project repository, reporting tools), (viii) support of the evolution of the work plan, (ix) organisation of regular meetings (1 meeting per year with all partners - alternating online meetings to maintain 6 month frequency; 2 meeting per year between WP leads), (x) formation of an External Advisory Board and organisation of meetings with them. T1.2 Technical Management: Quality Control, Leadership and Technical WP Reporting (M1-M36) (Leader: FhG, Contributors: DRAXIS, RCities) Task 1.2 will monitor the overall progress and quality of UP2030's technical work. It will guarantee the smooth technical cooperation between partners and interconnections between WPs and tasks, participate in the consideration of, and responding to, the opinions and contributions of the relevant working groups, and will suggest alternative technical routes in case of stumbling blocks (see Section 3.1.6 for risk management and mitigation measures). Additionally, the task will track the project's milestones and coordinate the project's regular technical meetings (at least every 3 months) that could be organized also online, and will ensure that the scientific and technological outcomes comply with the project's work plan, and the results fulfil the technical requirements for effective progress towards the achievement of the project's goals. T1.3 Data Management (M1-M36) (Leader: DRAXIS, Contributors: FhG, LINKS) Task 1.3 will produce a Data Management Plan (DMP), detailing what data the project will generate, whether and how it will be exploited or made accessible for verification and re-use, and how it will be curated and preserved. The main objective of the DMP is to support the data management life cycle for all data that will be collected, processed or generated by UP2030. It will be prepared in accordance with the EC Guidelines regarding data management and will be based on the FAIR principles to produce an overview of how research data will be made Findable, Accessible, Interoperable and Reusable elaborating, among other, on the data types, the accessibility to datasets, the use of standards and the publication methodology to be followed. In this context, special emphasis will be put on making the research data accessible through open repositories, to maximise the visibility of the project's data results, aiming also, to assist other research activities to find and utilise the knowledge produced by UP2030. T1.4 Security, privacy and ethics (M1-M36) (Leader: LIF, Contributors: FhG, DRAXIS, MfC) Task 1.4 will design and monitor the procedures and protocols necessary for handling security, legal and ethical issues

during the project's lifetime. A framework of security, legal and ethical requirements will be constructed to ensure UP2030 will be carrying out responsible research practice with specific reference to the European Code of Conduct for Research Integrity (ALLEA), and the Data Protection legislation and regulation. The task will also set out the ethics requirements the project must comply with (e.g., procedures, criteria to identify/recruit research participants, templates for informed consent, etc.), while also ensuring GDPR and Privacy Compliance Policy by producing and properly disseminating informed consent forms for all project participatory activities (e.g., demonstration activities, online surveys, evaluation forms, workshops, etc.) according to the EU GDPR regulations and national data protection legislation. Gender balance will also be monitored during the project to ensure that all genders are represented equally.

Work package WP2 – UP-DATING - Understanding cities' and stakeholders' needs for upgrading, and co-designing visions of urban transformations

Work Package Number	WP2	**Lead Beneficiary**	10. UIC
Work Package Name	UP-DATING - Understanding cities' and stakeholders' needs for upgrading, and co-designing visions of urban transformations		
Start Month	1	**End Month**	12

Objectives
WP2 lays the groundwork for the whole project, establishing what are the missing pieces for accelerating transformations (cities' needs for up-dates and barriers to updates). This is done to fill the gaps between theories, available solutions, and practices. WP2 is delivered in very high intensity in the first year to allow most time for the actual delivery of the tools/prototypes/upscales. To this end, WP2 identifies through a state-of-the-art systematic review (T2.2) which are the best approaches, design and planning methods, tools available (through catalogue clustering), and then screens cities to determine where the gaps in implementation are (T2.3). This work is preparatory to understand which are realistic adaptive pathways for transformation (co-defined in T2.4), in order to start working on them through a scientifically sounding metric-based shared vision. This WP will consider top-down plans and design guidelines, but also stakeholders and citizens' needs, barriers and opportunities, feeding the WP3 and WP4. The final aim is thus consolidating the 5UP approach consistency (T2.1), in terms of methods, processes and integration among WPs, pilot cities and mechanisms for transformation implementation for mission cities.

Description
T2.1 Project Vision Consensus - The 5UP approach (M1-M6) (Leader: FhG, Contributors: ALL) T2.1 is critical for internally building the same UP2030 vision and methods understanding. All project partners participate in this task. It includes definitions around terminologies, innovation is streamlined with the project's vision, arrangements between WPs and Tasks in the context of the 5UP approach. This task is also critical for contextualising the 5UP approach in the pilot environments. Based on a participative workshop methodology combining exploratory scenarios and back casting methods, it will sketch plausible and desirable future scenarios for the cities of 2030 and 2050 (in alignment with T2.4) in key strategic areas, comprising both qualitative (e.g., storylines) and quantitative methods. This task will allow cities and expert partners to provide their views and feedback regarding the Project Vision and plans for further project implementation. In collaboration with T3.1 and T4.1, it will secure that the project matches the supply of solutions (WP3) with the demand from solutions (WP4) through co-design, i.e. address the risk that research teams do not tailor services sufficiently to the cities' needs. T2.1 culminates in the production of D2.1 "The 5UP approach and its contextualisation in the project cities". T2.2 Benchmarking against the state of the art in urban planning and design (M1-M6) (Leader: UIC, Contributors: All technical partners) T2.2 guarantees that UP2030 is contributing to and extending the latest research and innovation in urban planning and design at a global level. As such, a review of the emerging approaches and practices (such as conceptual frameworks, modelling tools and policies) will be conducted to develop a catalogue of best practices from cities and previous projects. This systematic review of the state of the art will identify the gaps between theories (frameworks, tools) and practices, and thus constitute the reference background for UP2030 for refining the methods. Technical partners contribute in their respective expertise areas. To guarantee the usefulness of this benchmarking activity, best practices will be classified according to geography and climate, scale, topics among other. This review and benchmarking will feed pilots' baseline

generation (T2.3), informing the vision (T2.4) and inspiring our living labs (T4.2). This process culminates in the preparation of D2.2. Lastly, this activity will lay the ground for T5.2 on replication potential.

T2.3 City & stakeholder engagement for the identification of needs for upgrading, barriers and drivers of change (M1-M8) (Leader: MfC, Contributors: TUD, ICA, VUB, RCities, Cities & Liaisons)
T2.3 puts cities and its stakeholders - particularly citizens - at the centre of its approach and implementation. Innovative, participatory and inclusive engagement activities will seek to identify needs for updating, barriers in following best practices identified in T2.2, and also existing assets and drivers of change for each pilot (in relation to the pilot challenge described in section 1.2). It therefore constitutes the basis for the whole 5UP process, guiding the co-design of the visions and transformation visions and pathways (T2.4). The inclusive participation of stakeholders will be secured in collaboration with T4.2, and in line with the toolkit elaborated in T3.4. Stakeholders to be involved include those influencing decisions, but also those most affected by them. Finally, this will form the baseline evaluation in terms of planning and design related to governance arrangements, policies and financing schemes (feeding directly to WP5). Findings from this task will help to develop a practical "simple to use" interactive toolkit which can be capitalised by other cities wishing to perform similar assessments (D2.3).

T2.4 Co-designing pilot shared visions and adaptive pathways for transformation (M1-M12) (Leader: TSPA, Contributors: Cities, Liaisons, UPV, CETAQUA, DRAXIS, BH, UCAM, RCities, ICLEI)
T2.4 will co-design pilot climate neutrality visions consistent with the aspirations of stakeholders - particularly the most vulnerable groups impacted by climate challenges - and as such respond to the needs identified in T2.3. The visions are translated in a series of action steps to create possible adaptive pathways. The methodology for shaping the vision co-designing is reported in D2.4, constituting legacy results for other Mission cities. The methodology is applied in all project pilots. Each pilot's vision is associated with target delivery against co-developed KPIs. These involve thematic specific and GHG emission metrics, but also, according to the 5UP Approach of integrating carbon neutrality, resilience and justice, indicators assessing environmental, socio-economic & demographic (SED), and behavioural change indicators. A prerequisite involves identifying robust baseline conditions guaranteeing the consistency of the whole 5UP approach along the project. The task is therefore also responsible for establishing the methodology to monitor progress against the established metrics. These are then evaluated in T4.3. This task aims to turn the visions into implementation roadmaps. Supported by T4.1, user-stories will be created to enable the identification of user requirements, helping thus identify which tools will be used and how. They also set the context of story maps (T6.2).

Work package WP3 – UP-SKILLING - Empowering the city's stakeholder ecosystem to co-develop urban planning and design enabled transformation pathways

Work Package Number	WP3	**Lead Beneficiary**	9. TUD
Work Package Name	UP-SKILLING - Empowering the city's stakeholder ecosystem to co-develop urban planning and design enabled transformation pathways		
Start Month	1	**End Month**	36

Objectives
The overarching objective of WP3 is to upskill the city's stakeholder ecosystem by engaging them in the co-design, co-development of tools, methods, and processes that will support the implementation roadmaps of the transformative pathways as in T3.1. The focus, therefore, is on the "last-mile delivery" of state-of-the-art tools and methods for mainstreaming neutrality in urban planning and design rather than performing exploratory research. T3.1 also includes the strategic integration of the data produced and the solutions developed within the project. The defined roadmaps are then implemented in cooperation with WP4. The solutions are diverse: they include thematic and integrated models (T3.2), cross-cutting digital tools (T3.3) and tools and approaches that can be applied to drive local democratic processes and behavioural change (T3.4). None of these resources requires development from scratch. They are all mature and have been applied in diverse contexts (Table 1). Instead, the focus here is twofold: (i) on the operationalisation and integration of those resources in the urban planning and design practice, and (ii) on adapting them to the local contextual requirements to effectively promote the climate neutrality challenge for cities.

Description
T3.1 Roadmap implementation through solution integration (M1-M36) (Leader: DRAXIS, Contributors: K3Y, LINKS, UPV, Liaisons)

T3.1 is responsible for coordinating roadmap implementation and leading solution integration. This task develops the IT infrastructure needed to integrate all the data and solutions produced within the project and enable the integration of models and decision support systems that the cities already use. It will constitute an end-to-end solution using common data formats and communication protocols to enable data collection, processing, and analysis, ensuring data harmonisation, standardisation and interoperability. This task gives particular emphasis on the digitisation of the neutrality transition, making sure that solutions are interoperable and integrated. Providing that relevant open data are available, the platform will act as a geospatial Gateway, built on an existing smart city solution developed by DRAXIS. At the same time the platform may support the integration of external models and algorithms into the platform, to augment and enrich the analysis. Activities in this task are preparatory and supportive for T3.2, T3.3, T3.4 where the architecture of tools and methods is further elaborated and then implemented. The roadmaps are developed in sync with the co-creation process of T4.2 to match solution demand with solution supply

T3.2 Digital Twins of urban environments for energy integration and GHG emissions reduction (M1-M36) (Leader: CIRCE, Contributors: GUNAM, METU, ETH, UCAM, DRAXIS)

Building upon the user stories (see relevant milestone) and requirements from T3.1, T3.2 involves the adaptation of existing Digital Twins of urban environments (digital models of existing cities). These involve Building Information Modelling (BIM) and Civil Information Modelling (CIM) energy integration models towards energy positive districts (by CIRCE, GUNAM) incorporating multiple assets and processes. Adaptation entails describing the pilot environments at the necessary built and natural environment spatial and temporal resolution, as well as incorporating user behaviour characteristics. This will allow (i) opportunity screening for urban planning, (ii) support optimal design and (iii) optimal system-level operation. Optimization refers therefore to both long-term decision-making and to short term decision making by agents (e.g., citizens taking decisions upon receiving information leading to behavioural nudging), both reflected in GHG emissions reduction. In the same vein, the digital solutions for circular construction and LCAs are carried out in this Task by ETH. This Task therefore leverages smart digital solutions for the implementation of the neutrality roadmaps. Co-design and co-development are coordinated with T4.1. The tools and their technical guides are delivered in D3.2.

T3.3 Data governance and digital planning and design tools for climate neutral cities (M1-M36) (Leader: UCAM, Contributors: BH, TSPA, UCCRN, DELTARES, LINKS, MfC, MAG, LNEC, AQUATEC)

T3.3 develops the data governance, digital planning and design resources that will help cities implement their climate plans, as expressed in the visions. Firstly, the task addresses data governance pertaining to planning and design, and develops the carbon budgets framework (UCAM to extend its existing digital twin programme), which helps cities develop robust accounting schemes. The spatial planning and energy modelling tools, described in T3.3 and T3.2 are used in T2.4 to derive the baseline and prepare the vision Building on the aforementioned framework, BH will guide cities in the baseline emission assessments and projected impact of interventions. Secondly, this task leverages the unprecedented volume of geospatial data in cities to assess and quantitatively measure the performance of cities in addressing climate goals and sustainable urban environments. Open geospatial frameworks will enable stakeholders to engage directly with planning/design decisions, assess trade-offs and will offer the opportunity to co-design/co-develop more inclusive, just and low-carbon spaces (solutions designed interoperably; integration points with solutions from T3.4 will be sought after). TSPA will extend its existing in-house parametric design and data driven geospatial analysis toolsets to integrate cross-sectoral data-driven design approaches to provide context-specific spatial solutions and evaluate the design solutions impact. MfC will contribute to this end through its GeoKey data platform. Thirdly, the DELTARES' rapid Climate Risk Assessments tool will be applied to identify areas in cities with greatest climate vulnerabilities, before zooming in in those with the interactive climate resilient cities GIS-based urban planning AST tool and to design mitigation-adaptation synergies of NBS (mitigation potential not accounted to date, hence TRL increase anticipated). Additional implementation activities reported briefly: UCCRN to extend UDCW, MAG to focus on mobility modelling for optimal routing, LINKS on Earth Observation data, air quality modelling, and ES assessments, AQUATEC and LNEC to extend RESCCUE platform for mitigation spatial assessments

T3.4 Tools and approaches for promoting inclusive participation and spatial justice (M1-M36) (Leader: TUD, Contributors: MfC, DC, VUB, CERTH, RCities, ICA)

T3.4 is responsible for developing methods of inclusive participation, and for the promotion of procedural spatial justice (just procedures), underscored by the inclusion of a multitude of voices in the planning and design process (TUD). It is noted that participation starts from the needs assessment and participatory vision definition (planning level) through to implementation in the tools and prototypes. These methods will be applied in the pilot cases, in collaboration with WP4. VUB will develop a toolkit for behavioural change and deep engagement to inform planning and design with regards to citizen perceptions, preferences and values that shape their sense of place, i.e., development of place identity. The engagement toolkit will include the methodology development for digital storytelling using maps. On this basis, Neutrality Story Maps which will be developed for pilots as part of the engagement of communities in the project and as inspiration for other cities (collaboration with T6.2). MfC will extend/adapt its existing Community Maps tool for participatory mapping, to engage citizens in the neutrality oriented visioning, strategy-making, design and

implementation - ranging from neighbourhood focus (as in Belfast) through to city-wide (as in Zagreb). DC supported by RCities, will lead the development of the Child Friendly Neighbourhoods toolset which builds upon the previous partner's experience in the implementation of the OASIS schoolyards, the Real Play Coalition projects. Last, but not least, TUD in collaboration with the digital developments of T3.2, will lead the development of spatial justice benchmarking and assessment methodology to mainstream equity in city decision-making (inspired by the Brede Welvaart (Inclusive Prosperity) set of indicators used by the Dutch government).

Work package WP4 – UP-GRADING - Piloting and demonstrating

Work Package Number	WP4	**Lead Beneficiary**	13. RCities
Work Package Name	UP-GRADING - Piloting and demonstrating		
Start Month	1	**End Month**	36

Objectives

WP4 aims to drive UP-Grading, i.e., is concerned with the implementation process at the pilot environments. Upgrading can refer to both physical infrastructure prototypes but also to the use of detailed model prototypes which can then be upscaled. Accordingly, the baseline and visions for each pilot will have the respective thematic focus As such, the objectives are: to coordinate roadmap actions in each pilot; to drive collaboration with WP3 for the selection of tools/ processes, contextualising, integrating and implementing; to set up the LLAs and run their activities to co-design and co-develop across WP2/WP3/WP5; to develop the methods and apply them for the monitoring and evaluation of the implementation process and validate against the set-out KPIs; to consolidate on pilot lessons through the evaluation process; to set up communities of practice and run cross-city learning activities.

Description

T4.1 Pilots coordination & implementation of solutions & processes (M1-M36) (Leader: RCities, Contributors: FhG, ICA, ICLEI, UPV, Liaisons, Cities)
T4.1 from the very beginning of the project will develop a pilot implementation plan of actions for each pilot environment [M6], indicating interactions with the co-design focused WPs (2/3/5). This Task will also coordinate the actions of the pilot implementation plans throughout the project. Both the implementation plan and the coordination are methodologically driven by RCities, and implemented by the Cities supported by their Liaisons. Using the pilot visions of T2.4, this task will drive the selection of tools, processes and resources to be integrated [M12, see user stories milestone] and implemented in each pilot for both WP3 and WP5. It is clarified that the contribution of the research/technical partners offering the service is budgeted in the co-design of WP2/3/5, as such their participation in T4.1 is implicit.

T4.2 Learning and Action Alliances' setup and activities (M1-M32) (Leader: ICA, Contributors: MfC, VUB, RCities, Liaisons, Cities)
T4.2 consists of three steps: (i) Cities will set up the LLAs to drive inclusive participation. To this end, the task includes application of deep and sustained engagement methods/steps (D4.2). VUB, TUD, MfC, DC lead the behaviour, participation and justice context of D4.2 as part of T3.4 co-development; ICA, MfC and Liaisons lead the contextualization in pilots in collaboration with T2.3, (ii) After set-up, the LAA is initially concerned with mutual Learning among the stakeholder ecosystem, i.e. the city departments, external institutional stakeholders, citizens and the scientific teams. Following, it is primarily concerned with Action by these groups. LAAs drive Up-dating (WP2), lead to Up-skilling (WP3) and Up-taking (WP5) - i.e. in practical terms, LAAs is where the agents of 5UP-approach co-work. The LAAs will convene 4 major workshops at each pilot to focus on Analysis, Visioning, Action, Evaluation/ Uptake respectively (iii) Guarantee the sustainability of the LAAs as a long-term partnership. The LAA partnership will draft and sign the "partnership commitment" (see milestone) as means to promote the defined vision. This commitment [M36] will adopt the Climate City Contract methodology (working with T6.4).

T4.3 Monitoring, Evaluation and KPI Validation (M1-M36) (Leader: UPV, Contributors: Cities, Liaisons, CETAQUA, VUB, RCities, DRAXIS)
T4.3 is concerned with the development of feasible monitoring methods that will lead to robust evaluation results. This concerns the validation of pilot specific KPIs, as defined in collaboration with T2.4. Typologies of KPIs will concern neutrality, geo-spatial assessments, SED and behavioural assessments, but also process integration in the local authorities and upskilling progress. This will be done in collaboration with the respective thematic experts from WP3 and WP5, and on-the-ground delivery will be led by the City Liaisons. Evaluation will be carried out against baseline measurements

that will be taken. KPIs monitoring will initiate as soon as the vision is set out (T2.4) and pilot specific objectives will be set out (T4.1). Evaluation will be on-going and reported in the mid-project review to steer activities if needed. Evaluation and KPI validation methodologies and results culminate in the D4.3 report.

T4.4 Cross-pilot exchange Community of Practice and Strategic Learning (M1-M36) (Leader: RCities, Contributors: Cities, Liaisons, ICLEI)
T4.4 exploits the diversity of knowledge and skills among the participating cities and partners by creating opportunities for peer-to-peer learning and real time problem-solving. All city-hubs and liaisons participate in this task. While a schedule will be fixed for all activities, the content will be demand-driven according to the twinning requirements. Specifically, the following activities will be organised and moderated:
1. "Office hour" (4/year) where cities can ask a specific question to their peers and connect bilaterally with each other.
2. "Peer review sessions" (2/year) between cities that face similar challenges, going in more depth on challenges discussed during office-hours.
3. "Learning sessions" among all the pilot cities with 5 meetings in total, each meeting focusing on one aspect of the 5UP approach relevant to the work the pilot cities are doing at the respective time. Other partners of the consortium or other non-project cities (members of ICLEI, RCities) will participate bringing specific expertise and best practice case studies.
4. "Knowledge exchange": RCities and ICLEI will organise an in person 1.5-day event bringing together all city pilots and partners (attached to the in person mid-project meeting to minimise travel). The aim of this activity is to encourage sharing of lessons learned, facilitate cross-pollination of ideas and solutions across cities and create spaces for real time problem solving.

Work package WP5 – UP-SCALING - Implementation and mainstreaming through renewed policy development and decision-making

Work Package Number	WP5	**Lead Beneficiary**	12. ICLEI
Work Package Name	UP-SCALING - Implementation and mainstreaming through renewed policy development and decision-making		
Start Month	1	**End Month**	36

Objectives
Led by ICLEI, WP5 aims to drive city-wide upscaling by informing policy and decision-making. It aims to: (i) improve understanding of soft and hard governance structures and processes that will break silos and drive collaboration, (ii) inform which policies that enable transformation must be put in place, (iii) extract and harmonise lessons from the pilots, (iv) establish methodologies for cost-benefit analysis and prioritisation of projects within cities, (v) offer guidance for the identification and connection to financial instruments and the mobilisation of alternative financial resources, and (vi) develop and implement a training programme for city hubs to enhance capacity building, integration and collaboration for climate neutral, just and resilient cities.

Description
T5.1 Enabling governance environment, integrative policy development (M1-M30) (Leader: ADELPHI, Contributors: GreenAdapt, ICLEI, RCities) This task provides insights into different governance arrangements and structures that can enable urban transformation. By building on the formerly identified needs, barriers and drivers to climate neutral cities (T2.3), T5.1 will identify what constitutes transformative governance using a Governance Analytical Framework (GAF). Governance is inextricably connected to the development of soft and hard policies by the project cities that will enable upscaling. These policies are not exclusively in the urban planning and design sphere, rather integrate across multiple actions taking place within a city. Therefore, the scope will engage multiple relevant influencing agents, while considering aspects of climate justice. A policy panel with internal and external experts to support this task with expert meetings (estimated 3-5) with desk research supporting development. This task will draw recommendations for cities who wish to align their governance and policies with the neutrality pledge (D5.1). A validation workshop with cities will allow feedback to the results of T5.1 (in coordination with T4.4). T5.2 Replication and Transferability Packages (M1-M36) (Leader: ICLEI, Contributors: FhG, ADELPHI, GreenAdapt, UIC, ISOCARP, RCities) T5.2 will (i) extract the lessons, success factors and challenges of up-grading to drive further up-scale, (ii) evaluate

replication potential and customisation requirements, and (iii) turn the developed tools of WP3 into readily exploitable assets for other cities beyond the project. All objectives are relevant to the uptake too, as such the collaboration with WP6, and specifically the Mission (T6.4) is critical. To this end, the previously developed tool on transferability analogues (ADELPHI) will be used to create typologies of cities that can best leverage proposed approaches/solutions. The above activities culminate in the preparation of one of the legacy products of UP2030, its replication services platform (D5.2).

T5.3 Financing the transition (M1-M36) (Leader: GGGI, Contributors: ICLEI, AQUATEC)
T5.3 will develop guidance for cities who wish to upscale interventions. This will include (i) conducting a needs assessment of partner cities on financing instruments, and map what financing tools are available for cities in general and what are their benefits/shortcomings - thus supporting Task 2.3, (ii) methodologies for cost-benefit analysis to assess their portfolio options (interventions/measures), (iii) a simple guide to identify well established and also emerging financial instruments and how business cases can be developed to respond to these. Among various financing instruments identified, special attention will be devoted to building energy improvements in close collaboration with the Mission, including, among others, financing vehicles for ESCO-type mechanisms.

T5.4 Training programme for climate neutral and smart cities (M1-M32) (Leader: UIC, Contributors: UCCRN, TUD, UCAM, ICLEI, RCities, Cities)
T5.4 will develop a training programme for the cities in a MOOC format. This will respond to identified learning needs and deliver respective learning outcomes (identification through tailored survey in collaboration with T4.1/T4.2). The course will provide the necessary foundations for cities to maximise the value they get out of UP2030, including fundamentals of adaptive planning and carbon neutral design for districts and cities, fundamentals on urban resilience and justice, but also a set of practical guides on how to use tools and mechanisms for transformations implementation. Training will also contain a part on project management and business cases. The course and its materials will be designed also in line with specific upgrading and up-skilling needs arising. The training programme will be carefully deployed throughout the course of the project: it will consist of - at least - 4 Modules to correspond with the Implementation Methodology steps on Analysis/Vision/Action/Upscale and support each of the Workshop activities. Leading institutions will contribute their expertise in forming successful education programmes (e.g., the UCAM professionals' Masters in Interdisciplinary Design for the Built Environment). The training programme quality will be guaranteed by the already existing capacities in delivering executive and university education programmes on urban and climate resilience, thanks to the partners involvement (UCCRN leading) the recently awarded Erasmus Plus Urban Climate Changes Research Network for Higher Education and the UIC international Masters' of the Urban Resilience Research Network. The synergies with these educational tools will guarantee the highest standard for the training, and its up-scaling to any potentially interested city or practitioner, constituting the UP2030 legacy outputs supporting the Mission - its sustainability will be explored in collaboration with T6.3 & T6.4.

Work package WP6 – UP-TAKING - Dissemination, Exploitation, Communication and Sustainability of UP2030

Work Package Number	WP6	**Lead Beneficiary**	1. DreVen
Work Package Name	UP-TAKING - Dissemination, Exploitation, Communication and Sustainability of UP2030		
Start Month	1	**End Month**	36

Objectives
WP6 aims to drive UP-Scaling, i.e., is concerned with the dissemination, communication, exploitation and overall sustainability of the UP2030 results. To this end, the objectives of this work package are: to develop and implement a comprehensive dissemination and communication plan to primarily address the project's target groups, as well as raise the general public's awareness about the project and its key concepts; to carry out dissemination and communication actions to maximise the project's impact; to design a tailored exploitation plan to maximise the benefits derived from the adoption of the UP2030 solutions by the consortium as a whole, as well as by each individual member after the end of the project; and to create synergies with relevant initiatives in order to maximise their impact and accelerate the cities' vision towards meeting their Mission's goals.

Description
T6.1 Target-Driven Dissemination and Communication Strategy (M1-M15) (Leader: UCCRN, Contributors: All)

T6.1 will develop a detailed dissemination and communication plan (DCP) (D6.1) which will function as an evolving and living document, throughout the project lifespan. Activities related to this plan will include identification of stakeholders, target audiences, key messages, channels, tools and metrics used for the upscale of the UP2030 solutions. Qualitative and quantitative criteria (e.g., approximate number of the project website visitors, individuals contacted and informed about the project and feedback collected, etc.) will be defined in the Dissemination and Communication Plan (D6.1) and will be used for the assessment of the impact of the communication activities on the specific and general audiences for the project. These preliminary results will be taken into consideration also for eventual modifications and adaptation of the plan set-up at the beginning of UP2030.

T6.2 Dissemination and communication actions (M1-M36) (Leader: DreVen, Contributors: All)
UP2030's visual identity (logo, templates for deliverables, presentations, etc.) and social media accounts will be designed in the early stages of the project [M1]. A project website will also be delivered in M3 and will be regularly updated with the project's latest activities and outcomes. A dedicated page for blog posts prepared by the consortium partners regarding project innovations brought to the cities is also foreseen (rotation plan for regular posting will be used). As part of T6.2, the project will develop Neutrality Story Maps for the pilot cities (D6.3, led by VUB, technical implementation by CERTH). T6.2 will also coordinate the efforts of UP2030 partners in the dissemination of the project's achievements by: (i) submitting high quality papers at high impact, peer-reviewed journals and magazines, with specific focus given to those concerning urban planning and design practices (Section 0), (ii) presenting and publishing results in prestigious conferences, (iii) organising workshops, trainings, conference session, and tutorials on the use of the UP2030 solutions, the development of climate action plans, etc., and (iv) linking the dissemination and communication activities with related initiatives and ongoing projects and knowledge exchange platforms (such as the Green Growth Knowledge Platform, OPPLA, the C40 Knowledge Hub, the World Bank Knowledge Portal), preparing the ground for T6.4.

T6.3 Exploitation, Standardisation and Market Readiness (M1-M36) (Leader: ISOCARP, Contributors: All)
T6.3 will produce the exploitation and sustainability plan and actions (D6.4) aiming to maximise the benefits arising from the adoption of the UP2030 solutions by individual members of the consortium, as well as by the consortium, after the lifespan of the project. The plan will include information on the project's exploitable assets (Table 8) and the appropriate business model that will be selected to incentivise, acquire, and retain UP2030 stakeholders (Table 4), and ensure subsequent commercial growth of the UP2030 solutions. The model will be based on a market analysis that will include a lens on techno-economic, socio-economic and sustainability indicators through a quantitative and qualitative assessment that looks into the urban planning and design market both in terms of volume and in value, the associated "customer" segments (e.g., consultancies, cities themselves), the global competition and competitive landscape, and the economic environment in terms of barriers to entry and regulatory imperatives. How project cities will exploit further the project products will also be analysed. Standardisation of methods will be sought through the standardisation mechanism CEN TC 465 Sustainable and Smart Cities and Communities (ICLEI's membership in the working group). The exploitation strategy will be also fed by the results of WP5, and more specifically T5.3, which, as mentioned above, will assess the operating costs, investments, risks and benefits in adopting the project solutions and will analyse the economic impact of the project results. T6.3 will also establish the Intellectual Property (IP) protection for the proposed solutions, guaranteeing that all partners agree on the rights of use of the products originated from the project and what they get out of the project. The IPR matters will also be included in the exploitation strategy.

T6.4 Collaboration with the Mission and related projects (M1-M36) (Leader: ICLEI, Contributors: All)
UP2030 will contribute, upon invitation by the CINEA, to common information and dissemination activities to increase the visibility and synergies between HE/H2020 supported actions.T6.4 aims to build synergies between UP2030 and other Mission initiatives and projects (e.g., NetZeroCities) to enhance the dissemination range and impact on the wider end-user community, as well as accelerate the cities' progress. This task will identify complementarities, such as on monitoring & evaluation, financing, policy and governance, participation which are cross-cutting themes. Joint dissemination activities will be carried out to raise further awareness about the projects and their impact to the Mission. It will target primarily policy- and decision- making actors within cities that hold more potential in exploiting the results and applying them. In this task, ICLEI and FhG will establish a host environment of the "UP2030 service platform/ resources" (T5.2) to capitalise on existing initiatives and their member's database - such as the Smart Cities Marketplace (incl. the Scalable Cities initiative). Last, this Task will liaise with NZC research to share best practices and policy briefs.

UP2030 is committed to establishing a cooperation with the projects funded under the same topic HORIZON-MISS-2021-CIT-02-01 as part of cluster urban planning and design as well as with the Climate-neutral and Smart Cities Mission Platform. This cooperation shall materialise in the coordination of research and innovation, monitoring and communication and dissemination activities of mutual interest, and any other type of collaborations that may occur during the conduct of this Innovation Action project, on the basis of mutual benefit.

UP2030 has flexibility in identifying activities and means of collaboration with the other projects funded under the

same topic and the Mission Platform. The collaboration could cover e.g. defining complementary solutions, measures or methodologies, capacity building, networking or dissemination activities (such as webinars, workshops, site visits or publications). A detailed description of the specific activities and common actions that will be undertaken will be further defined during the first months of the project lifetime.

To foster complementarity and avoid duplication, all the projects funded under topic HORIZON-MISS-2021-CIT-02-01 and part of cluster urban planning and design as are expected to share information on their living-labs demonstration/ pilot activities and relevant results to the Mission Platform, including where possible the provision of data to enable the monitoring of progress towards the achievement of the Climate-neutral and Smart Cities Mission objectives." The collaboration with the Mission Platform will be formalised through a Memorandum of Understanding to be concluded as soon as possible after the project starting date

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

STAFF EFFORT

Staff effort per participant

Grant Preparation (Work packages - Effort screen) — Enter the info.

Participant	WP1	WP2	WP3	WP4	WP5	WP6	Total Person-Months
1 - Fraunhofer	25.00	10.00	3.00	6.00	3.00	3.00	50.00
2 - ADELPHI	1.00	5.00		2.00	33.00	1.00	42.00
3 - BH	1.00	5.00	11.00	2.00	1.00	1.00	21.00
4 - DC	1.00	5.00	19.00	17.00	4.00	1.00	47.00
5 - GreenAdapt	1.00	3.00	8.00	7.00	22.00	1.00	42.00
6 - ICA	1.00	19.00	6.00	21.00	7.00	1.00	55.00
7 - ISOCARP	1.00	3.00	3.00	4.00	2.00	24.00	37.00
8 - TSPA	1.00	31.00	27.00	3.00	4.00	1.00	67.00
9 - TUD	1.00	2.00	33.00	2.00	1.00	1.00	40.00
10 - UIC	1.00	29.00	2.00	4.00	13.00	1.00	50.00
11 - GGGI	1.00	1.00		6.00	20.00	3.00	31.00
12 - ICLEI	1.00	2.00	2.00	1.00	23.00	12.00	41.00
13 - RCities	1.00	12.00	1.00	35.00	1.00	5.00	55.00
14 - UCCRN	1.00	10.00	12.00	8.00	10.00	4.00	45.00
15 - AQUATEC	1.00	2.00	8.00	35.00		1.00	47.00
16 - CETAQUA	1.00	4.00	2.00	8.00		1.00	16.00
17 - LIF	11.00		1.00	2.00	5.00	1.00	20.00
18 - LNEC	1.00	2.00	9.00	14.00		1.00	27.00
19 - MDAT	1.00	6.00	4.00	36.00	6.00	3.00	56.00

Staff effort per participant

Grant Preparation (Work packages - Effort screen) — Enter the info.

Participant	WP1	WP2	WP3	WP4	WP5	WP6	Total Person-Months
20 - METU	1.00	3.00	28.00	5.00	3.00	1.00	41.00
21 - USTUTT	1.00	2.00		7.00		1.00	11.00
22 - VUB	1.00	4.00	12.00	14.00		1.00	32.00
23 - CERTH	1.00	2.00	41.00	6.00	3.00	1.00	54.00
24 - CIRCE	1.00	8.00	25.00	6.70		3.00	43.70
25 - DELTARES	1.00	2.00	9.70	11.50	2.00	1.00	27.20
26 - DRAXIS	15.00	5.00	56.00	7.00	8.00		91.00
26.1 - DreVen	1.00					29.00	30.00
27 - GUNAM	1.00	3.00	18.00	33.00	4.00	1.00	60.00
28 - K3Y	1.00	2.00	36.00	4.00	3.00	1.00	47.00
29 - LINKS	1.00	4.00	34.00	2.00		2.00	43.00
30 - MAG	1.00	2.00	37.00	3.00	3.00	1.00	47.00
31 - UPV	1.00	2.00	3.00	42.00	1.00	1.00	50.00
32 - VM	1.00	11.00	4.00	36.00	5.00	1.00	58.00
33 - Budapest	1.00	5.00	2.00	25.00	3.00	2.00	38.00
34 - Granollers	1.00	5.00	2.00	17.00	3.00	1.00	29.00
35 - Istanbul	1.00	5.00	2.00	30.00	6.00	3.00	47.00
36 - Lisbon	1.00	5.00	3.00	18.00	3.00	1.00	31.00
36.1 - LISBOA E-NOVA	1.00	1.00	1.00	5.00	1.00	1.00	10.00
37 - Milan		5.00	2.00	20.00	3.00	1.00	31.00
38 - Muenster	1.00	2.00	1.00	16.00	1.00	1.00	22.00

Staff effort per participant

Grant Preparation (Work packages - Effort screen) — Enter the info.

Participant	WP1	WP2	WP3	WP4	WP5	WP6	Total Person-Months
39 - Rotterdam	1.00	3.00	1.00	18.00	1.00	1.00	25.00
40 - Thessaloniki	1.00	5.00	2.00	28.00	2.00	1.00	39.00
41 - Zagreb	1.00	5.00	2.00	25.00	3.00	2.00	38.00
42 - ETH	1.00	2.00	30.00	1.00	1.00	1.00	36.00
43 - MfC	1.00	21.00	11.00	20.00		1.00	54.00
44 - UCAM	1.00	2.10	28.60	4.40	2.20	1.10	39.40
45 - Belfast	1.00	5.00	2.00	22.00	3.00	1.00	34.00
Total Person-Months	94.00	272.10	544.30	639.60	219.20	128.10	1897.30

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

LIST OF DELIVERABLES

Deliverables

Grant Preparation (Deliverables screen) — Enter the info.

The labels used mean:

Public — fully open (⚠ automatically posted online)
Sensitive — limited under the conditions of the Grant Agreement
EU classified —RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision 2015/444

Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D1.1	Project management and quality assurance handbook	WP1	1 - Fraunhofer	R — Document, report	SEN - Sensitive	2
D1.2	Periodic activity report 1	WP1	1 - Fraunhofer	R — Document, report	SEN - Sensitive	18
D1.3	Periodic activity report 2	WP1	1 - Fraunhofer	R — Document, report	SEN - Sensitive	36
D1.4	Data management plan 1	WP1	26 - DRAXIS	DMP — Data Management Plan	SEN - Sensitive	6
D1.5	Data management plan 2	WP1	26 - DRAXIS	DMP — Data Management Plan	SEN - Sensitive	18
D1.6	Data management plan 3	WP1	26 - DRAXIS	DMP — Data Management Plan	SEN - Sensitive	36
D1.7	Security, privacy and ethics handbook 1	WP1	17 - LIF	R — Document, report	SEN - Sensitive	6
D1.8	Security, privacy and ethics handbook 2	WP1	17 - LIF	R — Document, report	SEN - Sensitive	18
D2.1	The 5UP approach and its contextualisation in the project cities	WP2	1 - Fraunhofer	R — Document, report	PU - Public	6
D2.2	UP2030 benchmarking report against state-of-the-art and identification of pilot opportunities 1	WP2	10 - UIC	R — Document, report	PU - Public	6

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D2.3	UP2030 benchmarking report against state-of-the-art and identification of pilot opportunities 2	WP2	10 - UIC	R — Document, report	PU - Public	12
D2.4	An interactive toolkit for stakeholder engagement in co-design of visions and pathways towards climate neutrality	WP2	43 - MfC	OTHER	PU - Public	8
D2.5	Report on vision co-design methodology report and its application for pilot shared visions	WP2	8 - TSPA	R — Document, report	PU - Public	12
D3.1	Transformative pathways roadmaps: strategic integration of solutions and interoperability 1	WP3	26 - DRAXIS	R — Document, report	PU - Public	12
D3.2	Transformative pathways roadmaps: strategic integration of solutions and interoperability 2	WP3	26 - DRAXIS	R — Document, report	PU - Public	24
D3.3	Transformative pathways roadmaps: strategic integration of solutions and interoperability 3	WP3	26 - DRAXIS	R — Document, report	PU - Public	36
D3.4	Bundle of digital twin tools for net zero decision-making 1	WP3	24 - CIRCE	OTHER	PU - Public	18

Deliverables

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D3.5	Bundle of digital twin tools for net zero decision-making 2	WP3	24 - CIRCE	OTHER	PU - Public	36
D3.6	Digital planning and design tools for climate neutral cities 1	WP3	44 - UCAM	OTHER	PU - Public	18
D3.7	Digital planning and design tools for climate neutral cities 2	WP3	44 - UCAM	OTHER	PU - Public	36
D3.8	Tools and approaches for promoting inclusive participation and spatial justice 1	WP3	9 - TUD	R — Document, report	PU - Public	18
D3.9	Tools and approaches for promoting inclusive participation and spatial justice 2	WP3	9 - TUD	R — Document, report	PU - Public	36
D4.1	UP2030 implementation plan for the pilot cities 1	WP4	13 - RCities	R — Document, report	PU - Public	3
D4.2	UP2030 implementation plan for the pilot cities 2	WP4	13 - RCities	R — Document, report	PU - Public	12
D4.3	Sustained engagement strategy of Learning & Action Alliances to promote the neutrality vision in the UP2030 pilots	WP4	6 - ICA	R — Document, report	PU - Public	6
D4.4	Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 1	WP4	31 - UPV	R — Document, report	PU - Public	12
D4.5	Report on monitoring, evaluation and	WP4	31 - UPV	R — Document, report	PU - Public	18

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
	KPI validation in the 5UP-approach implementation pilots 2					
D4.6	Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 3	WP4	31 - UPV	R — Document, report	PU - Public	36
D4.7	Report on strategic learning in city twinning programmes	WP4	13 - RCities	R — Document, report	PU - Public	34
D5.1	Analysis and recommendations for transformative governance and policy 1	WP5	2 - ADELPHI	R — Document, report	PU - Public	16
D5.2	Analysis and recommendations for transformative governance and policy 2	WP5	2 - ADELPHI	R — Document, report	PU - Public	32
D5.3	UP2030 Service platform	WP5	12 - ICLEI	OTHER	PU - Public	36
D5.4	Guidelines for economic valuations & assessment of financial instruments for spatial interventions 1	WP5	11 - GGGI	R — Document, report	PU - Public	20
D5.5	Guidelines for economic valuations & assessment of financial instruments for spatial interventions 2	WP5	11 - GGGI	R — Document, report	PU - Public	32
D5.6	Learning Programme Design, Development and Sustainability	WP5	10 - UIC	R — Document, report	PU - Public	18
D5.7	Online Learning Programme materials	WP5	10 - UIC	R — Document, report	PU - Public	32

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D6.1	Dissemination and Communication strategy 1	WP6	14 - UCCRN	R — Document, report	PU - Public	3
D6.2	Dissemination and Communication strategy 2	WP6	14 - UCCRN	R — Document, report	PU - Public	15
D6.3	Report on Dissemination and Communication actions and their impact 1	WP6	1 - DreVen	R — Document, report	PU - Public	6
D6.4	Report on Dissemination and Communication actions and their impact 2	WP6	1 - DreVen	R — Document, report	PU - Public	18
D6.5	Report on Dissemination and Communication actions and their impact 3	WP6	1 - DreVen	R — Document, report	PU - Public	36
D6.6	Neutrality Story Maps for the pilot cities 1	WP6	22 - VUB	DEC —Websites, patent filings, videos, etc	PU - Public	18
D6.7	Neutrality Story Maps for the pilot cities 2	WP6	22 - VUB	DEC —Websites, patent filings, videos, etc	PU - Public	36
D6.8	Exploitation & Sustainability Planning & Activities Report 1	WP6	7 - ISOCARP	R — Document, report	SEN - Sensitive	18
D6.9	Exploitation & Sustainability Planning & Activities Report 2	WP6	7 - ISOCARP	R — Document, report	SEN - Sensitive	36
D6.10	Report on clustering activities with other Mission initiatives 1	WP6	12 - ICLEI	R — Document, report	PU - Public	18

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D6.11	Report on clustering activities with other Mission initiatives 2	WP6	12 - ICLEI	R — Document, report	PU - Public	36
D6.12	Sharing UP2030 best practices and policy briefs with the Mission's platform	WP6	12 - ICLEI	R — Document, report	PU - Public	36

Deliverable D1.1 – Project management and quality assurance handbook

Deliverable Number	D1.1	**Lead Beneficiary**	1. Fraunhofer
Deliverable Name	Project management and quality assurance handbook		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	2	**Work Package No**	WP1

Description
Guidelines to ensure high quality research and development, measures to be taken in case of detected quality flaws and quality assurance responsibilities. It will include the project internal communication and decision-making mechanism and a project planning.

Deliverable D1.2 – Periodic activity report 1

Deliverable Number	D1.2	**Lead Beneficiary**	1. Fraunhofer
Deliverable Name	Periodic activity report 1		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	18	**Work Package No**	WP1

Description
Interim version of activity report will be submitted to the EC, including information on the technical and financial management, GDPR, gender, and ethics matters.

Deliverable D1.3 – Periodic activity report 2

Deliverable Number	D1.3	**Lead Beneficiary**	1. Fraunhofer
Deliverable Name	Periodic activity report 2		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	36	**Work Package No**	WP1

Description
Final version of activity report will be submitted to the EC, including information on the technical and financial management, GDPR, gender, and ethics matters.

Deliverable D1.4 – Data management plan 1

Deliverable Number	D1.4	**Lead Beneficiary**	26. DRAXIS
Deliverable Name	Data management plan 1		
Type	DMP — Data Management Plan	**Dissemination Level**	SEN - Sensitive
Due Date (month)	6	**Work Package No**	WP1

Description

First version of the report on management of the data used in UP2030, including e.g. the handling of research data during and after the end of the project, the type of data that will be collected, processed and/or generated, etc.

Deliverable D1.5 – Data management plan 2

Deliverable Number	D1.5	**Lead Beneficiary**	26. DRAXIS
Deliverable Name	Data management plan 2		
Type	DMP — Data Management Plan	**Dissemination Level**	SEN - Sensitive
Due Date (month)	18	**Work Package No**	WP1

Description
Second version of the report on management of the data used in UP2030, including e.g. the handling of research data during and after the end of the project, the type of data that will be collected, processed and/or generated, etc.

Deliverable D1.6 – Data management plan 3

Deliverable Number	D1.6	**Lead Beneficiary**	26. DRAXIS
Deliverable Name	Data management plan 3		
Type	DMP — Data Management Plan	**Dissemination Level**	SEN - Sensitive
Due Date (month)	36	**Work Package No**	WP1

Description
Final version of the report on management of the data used in UP2030, including e.g. the handling of research data during and after the end of the project, the type of data that will be collected, processed and/or generated, etc.

Deliverable D1.7 – Security, privacy and ethics handbook 1

Deliverable Number	D1.7	**Lead Beneficiary**	17. LIF
Deliverable Name	Security, privacy and ethics handbook 1		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	6	**Work Package No**	WP1

Description
Interim version of the handbook containing the framework, requirements, management of security, privacy and ethics to comply with regulations

Deliverable D1.8 – Security, privacy and ethics handbook 2

Deliverable Number	D1.8	**Lead Beneficiary**	17. LIF
Deliverable Name	Security, privacy and ethics handbook 2		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive

Due Date (month)	18	**Work Package No**	WP1

Description
Final version of the handbook containing the framework, requirements, management of security, privacy and ethics to comply with regulations

Deliverable D2.1 – The 5UP approach and its contextualisation in the project cities

Deliverable Number	D2.1	**Lead Beneficiary**	1. Fraunhofer
Deliverable Name	The 5UP approach and its contextualisation in the project cities		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	6	**Work Package No**	WP2

Description
Report to streamline project activities for all partners on the basis of the 5UP project vision, and contextualising for all pilots

Deliverable D2.2 – UP2030 benchmarking report against state-of-the-art and identification of pilot opportunities 1

Deliverable Number	D2.2	**Lead Beneficiary**	10. UIC
Deliverable Name	UP2030 benchmarking report against state-of-the-art and identification of pilot opportunities 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	6	**Work Package No**	WP2

Description
First version of the benchmark exercise for all technical partners, and cataloguing to integrate in the context of urban planning & the 5UP approach

Deliverable D2.3 – UP2030 benchmarking report against state-of-the-art and identification of pilot opportunities 2

Deliverable Number	D2.3	**Lead Beneficiary**	10. UIC
Deliverable Name	UP2030 benchmarking report against state-of-the-art and identification of pilot opportunities 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	12	**Work Package No**	WP2

Description
Second version of the benchmark exercise for all technical partners, and cataloguing to integrate in the context of urban planning & the 5UP approach

Deliverable D2.4 – An interactive toolkit for stakeholder engagement in co-design of visions and pathways towards climate neutrality

Deliverable Number	D2.4	**Lead Beneficiary**	43. MfC
Deliverable Name	An interactive toolkit for stakeholder engagement in co-design of visions and pathways towards climate neutrality		
Type	OTHER	**Dissemination Level**	PU - Public
Due Date (month)	8	**Work Package No**	WP2

Description
The process through which all pilots will perform the respective assessment and its implementation. An interactive toolkit with the findings, best practices and lessons learnt from UP2030 based on the activities carried out within WP2 on stakeholders engagement, particularly citizens, in co-design of visions and pathways towards climate neutrality.

Deliverable D2.5 – Report on vision co-design methodology report and its application for pilot shared visions

Deliverable Number	D2.5	**Lead Beneficiary**	8. TSPA
Deliverable Name	Report on vision co-design methodology report and its application for pilot shared visions		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	12	**Work Package No**	WP2

Description
Developing and applying the vision co-design methodology for all pilots. Report on vision co-design methodology explaining how it was deployed and its application for UP2030 pilot cities, including KPIs, GHG emission metrics, integrating carbon neutrality, resilience and justice, indicators assessing environmental, socio-economic & demographic (SED), and behavioural change indicators.

Deliverable D3.1 – Transformative pathways roadmaps: strategic integration of solutions and interoperability 1

Deliverable Number	D3.1	**Lead Beneficiary**	26. DRAXIS
Deliverable Name	Transformative pathways roadmaps: strategic integration of solutions and interoperability 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	12	**Work Package No**	WP3

Description
First version of roadmap implementation and associated IT infrastructure. Transformative pathways roadmaps: strategic integration of solutions and interoperability, developing the IT infrastructure to integrate all data and solutions. First version

Deliverable D3.2 – Transformative pathways roadmaps: strategic integration of solutions and interoperability 2

Deliverable Number	D3.2	**Lead Beneficiary**	26. DRAXIS
Deliverable Name	Transformative pathways roadmaps: strategic integration of solutions and interoperability 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	24	**Work Package No**	WP3

Description
Intermediary version of roadmap implementation and associated IT infrastructure- Transformative pathways roadmaps: strategic integration of solutions and interoperability, developing the IT infrastructure to integrate all data and solutions. Updated version.

Deliverable D3.3 – Transformative pathways roadmaps: strategic integration of solutions and interoperability 3

Deliverable Number	D3.3	**Lead Beneficiary**	26. DRAXIS
Deliverable Name	Transformative pathways roadmaps: strategic integration of solutions and interoperability 3		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP3

Description
Final version of roadmap implementation and associated IT infrastructure. Transformative pathways roadmaps: strategic integration of solutions and interoperability, developing the IT infrastructure to integrate all data and solutions. Final version.

Deliverable D3.4 – Bundle of digital twin tools for net zero decision-making 1

Deliverable Number	D3.4	**Lead Beneficiary**	24. CIRCE
Deliverable Name	Bundle of digital twin tools for net zero decision-making 1		
Type	OTHER	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP3

Description
First version of Digital Energy Twin resources responding to the implementation roadmaps of all pilot cities. Bundle of digital twin tools adapting existing Digital Twins of urban environments, describing the pilot environments at the necessary built and natural environment spatial and temporal resolution, as well as incorporating user behaviour characteristics, including BIM and CIM energy integration models for net zero decision-making. First version.

Deliverable D3.5 – Bundle of digital twin tools for net zero decision-making 2

Deliverable Number	D3.5	**Lead Beneficiary**	24. CIRCE
Deliverable Name	Bundle of digital twin tools for net zero decision-making 2		
Type	OTHER	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP3

Description
Second version of Digital Energy Twin resources responding to the implementation roadmaps of all pilot cities. Bundle of digital twin tools adapting existing Digital Twins of urban environments, describing the pilot environments at the necessary built and natural environment spatial and temporal resolution, as well as incorporating user behaviour characteristics, including BIM and CIM energy integration models for net zero decision-making. Final version.

Deliverable D3.6 – Digital planning and design tools for climate neutral cities 1

Deliverable Number	D3.6	**Lead Beneficiary**	44. UCAM
Deliverable Name	Digital planning and design tools for climate neutral cities 1		
Type	OTHER	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP3

Description
First version of data governance methodological guide and digital resources for urban planning and design toward climate neutral urban environments

Deliverable D3.7 – Digital planning and design tools for climate neutral cities 2

Deliverable Number	D3.7	**Lead Beneficiary**	44. UCAM
Deliverable Name	Digital planning and design tools for climate neutral cities 2		
Type	OTHER	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP3

Description
Second version of data governance methodological guide and digital resources for urban planning and design toward climate neutral urban environments

Deliverable D3.8 – Tools and approaches for promoting inclusive participation and spatial justice 1

Deliverable Number	D3.8	**Lead Beneficiary**	9. TUD
Deliverable Name	Tools and approaches for promoting inclusive participation and spatial justice 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP3

Description
First version of methodologies and digital resources to support activities aimed at inclusive participation and spatial justice in urban neutrality transformations

Deliverable D3.9 – Tools and approaches for promoting inclusive participation and spatial justice 2

Deliverable Number	D3.9	**Lead Beneficiary**	9. TUD
Deliverable Name	Tools and approaches for promoting inclusive participation and spatial justice 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP3

Description
Second version of methodologies and digital resources to support activities aimed at inclusive participation and spatial justice in urban neutrality transformations

Deliverable D4.1 – UP2030 implementation plan for the pilot cities 1

Deliverable Number	D4.1	**Lead Beneficiary**	13. RCities
Deliverable Name	UP2030 implementation plan for the pilot cities 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	3	**Work Package No**	WP4

Description
First version outlining the activities each pilot will carry out – based on a living document. UP2030 implementation plan of actions for each intervention to be demonstrated in the pilot cities.

Deliverable D4.2 – UP2030 implementation plan for the pilot cities 2

Deliverable Number	D4.2	**Lead Beneficiary**	13. RCities
Deliverable Name	UP2030 implementation plan for the pilot cities 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	12	**Work Package No**	WP4

Description
Second version outlining the activities each pilot will carry out – based on a living document

Deliverable D4.3 – Sustained engagement strategy of Learning & Action Alliances to promote the neutrality vision in the UP2030 pilots

Deliverable Number	D4.3	**Lead Beneficiary**	6. ICA

Deliverable Name	Sustained engagement strategy of Learning & Action Alliances to promote the neutrality vision in the UP2030 pilots		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	6	**Work Package No**	WP4

Description
The process and activities to initiate and maintain engagement of the LAAs, as well as training for the cities and liaisons on engagement

Deliverable D4.4 – Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 1

Deliverable Number	D4.4	**Lead Beneficiary**	31. UPV
Deliverable Name	Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	12	**Work Package No**	WP4

Description
First version outlining the process, KPIs and their baseline report to include post-project monitoring & evaluation guide to capacity build the cities

Deliverable D4.5 – Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 2

Deliverable Number	D4.5	**Lead Beneficiary**	31. UPV
Deliverable Name	Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP4

Description
Second version monitoring the actual delivery of the pilots; report to include post-project monitoring & evaluation guide to capacity build the cities

Deliverable D4.6 – Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 3

Deliverable Number	D4.6	**Lead Beneficiary**	31. UPV
Deliverable Name	Report on monitoring, evaluation and KPI validation in the 5UP-approach implementation pilots 3		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP4

Description
Third version monitoring the actual delivery of the pilots; report to include post-project monitoring & evaluation guide to capacity build the cities

Deliverable D4.7 – Report on strategic learning in city twinning programmes

Deliverable Number	D4.7	**Lead Beneficiary**	13. RCities
Deliverable Name	Report on strategic learning in city twinning programmes		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	34	**Work Package No**	WP4

Description
Summarise the process to create recommendation for future twinning programmes as well as present key findings arising from city twin learning

Deliverable D5.1 – Analysis and recommendations for transformative governance and policy 1

Deliverable Number	D5.1	**Lead Beneficiary**	2. ADELPHI
Deliverable Name	Analysis and recommendations for transformative governance and policy 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	16	**Work Package No**	WP5

Description
First version informed by desk research, expert panel and city consultations. Analysis and recommendations for transformative governance and policy using a Governance Analytical Framework (GAF), integrating multiple spheres from city actions. First version.

Deliverable D5.2 – Analysis and recommendations for transformative governance and policy 2

Deliverable Number	D5.2	**Lead Beneficiary**	2. ADELPHI
Deliverable Name	Analysis and recommendations for transformative governance and policy 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP5

Description
Second version informed by desk research, expert panel and city consultations. Analysis and recommendations for transformative governance and policy using a Governance Analytical Framework (GAF), integrating multiple spheres from city actions. Final version.

Deliverable D5.3 – UP2030 Service platform

Deliverable Number	D5.3	**Lead Beneficiary**	12. ICLEI

Deliverable Name	UP2030 Service platform		
Type	OTHER	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP5

Description
Service platform containing digital and guidance resources hosted in Smart Cities marketplace. Selected resources also available directly through UP2030 repository/website.

Deliverable D5.4 – Guidelines for economic valuations & assessment of financial instruments for spatial interventions 1

Deliverable Number	D5.4	**Lead Beneficiary**	11. GGGI
Deliverable Name	Guidelines for economic valuations & assessment of financial instruments for spatial interventions 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	20	**Work Package No**	WP5

Description
First version as technical support to cities for economic valuation and assessment/deployment of existing/emerging financial instruments for diverse mitigation oriented spatial interventions

Deliverable D5.5 – Guidelines for economic valuations & assessment of financial instruments for spatial interventions 2

Deliverable Number	D5.5	**Lead Beneficiary**	11. GGGI
Deliverable Name	Guidelines for economic valuations & assessment of financial instruments for spatial interventions 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP5

Description
Second version as technical support to cities for economic valuation and assessment/deployment of existing/emerging financial instruments for diverse mitigation oriented spatial interventions

Deliverable D5.6 – Learning Programme Design, Development and Sustainability

Deliverable Number	D5.6	**Lead Beneficiary**	10. UIC
Deliverable Name	Learning Programme Design, Development and Sustainability		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP5

Description
Informed by the learning needs identified and the pilot contexts to guide the delivery of the 4 Modules.

Learning Programme in MOOC format: Design and implementation plan of the modules and methodologies, including sustainability plan.

Deliverable D5.7 – Online Learning Programme materials

Deliverable Number	D5.7	**Lead Beneficiary**	10. UIC
Deliverable Name	Online Learning Programme materials		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP5

Description
Lecture materials, hands-on exercises, webinars used in the delivery become publicly available. Online learning programme materials used within the MOOC modules.

Deliverable D6.1 – Dissemination and Communication strategy 1

Deliverable Number	D6.1	**Lead Beneficiary**	14. UCCRN
Deliverable Name	Dissemination and Communication strategy 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	3	**Work Package No**	WP6

Description
Initial dissemination and communication strategy. Dissemination and Communication strategy presenting the communication and dissemination objectives, players, roadmap, target audiences, messages and implementation measures. First version.

Deliverable D6.2 – Dissemination and Communication strategy 2

Deliverable Number	D6.2	**Lead Beneficiary**	14. UCCRN
Deliverable Name	Dissemination and Communication strategy 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	15	**Work Package No**	WP6

Description
Updated dissemination and communication strategy. Dissemination and Communication strategy presenting the communication and dissemination objectives, players, roadmap, target audiences, messages and implementation measures. Second version.

Deliverable D6.3 – Report on Dissemination and Communication actions and their impact 1

Deliverable Number	D6.3	**Lead Beneficiary**	1. DreVen
Deliverable Name	Report on Dissemination and Communication actions and their impact 1		

Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	6	**Work Package No**	WP6

Description
First reporting of dissemination, communication, policy outreach, excellence diffusion, joint activities performed, foreseen/undertaken activities.

Deliverable D6.4 – Report on Dissemination and Communication actions and their impact 2

Deliverable Number	D6.4	**Lead Beneficiary**	1. DreVen
Deliverable Name	Report on Dissemination and Communication actions and their impact 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP6

Description
Second reporting of dissemination, communication, policy outreach, excellence diffusion, joint activities performed, foreseen/undertaken activities.

Deliverable D6.5 – Report on Dissemination and Communication actions and their impact 3

Deliverable Number	D6.5	**Lead Beneficiary**	1. DreVen
Deliverable Name	Report on Dissemination and Communication actions and their impact 3		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP6

Description
Final reporting of dissemination, communication, policy outreach, excellence diffusion, joint activities performed, foreseen/undertaken activities.

Deliverable D6.6 – Neutrality Story Maps for the pilot cities 1

Deliverable Number	D6.6	**Lead Beneficiary**	22. VUB
Deliverable Name	Neutrality Story Maps for the pilot cities 1		
Type	DEC —Websites, patent filings, videos, etc	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP6

Description
First version of the maps built on the basis of user stories, citizen narratives and pilot geospatially represented characteristics

Deliverable D6.7 – Neutrality Story Maps for the pilot cities 2

Deliverable Number	D6.7	**Lead Beneficiary**	22. VUB
Deliverable Name	Neutrality Story Maps for the pilot cities 2		
Type	DEC —Websites, patent filings, videos, etc	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP6

Description
Second version of the maps built on the basis of user stories, citizen narratives and pilot geospatially represented characteristics

Deliverable D6.8 – Exploitation & Sustainability Planning & Activities Report 1

Deliverable Number	D6.8	**Lead Beneficiary**	7. ISOCARP
Deliverable Name	Exploitation & Sustainability Planning & Activities Report 1		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	18	**Work Package No**	WP6

Description
Initial exploitation and sustainability plan and reporting of performed activities by all partners, including market analysis, business models, IPR management.

Deliverable D6.9 – Exploitation & Sustainability Planning & Activities Report 2

Deliverable Number	D6.9	**Lead Beneficiary**	7. ISOCARP
Deliverable Name	Exploitation & Sustainability Planning & Activities Report 2		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	36	**Work Package No**	WP6

Description
Updated exploitation and sustainability plan and reporting of performed activities by all partners, including market analysis, business models, IPR management.

Deliverable D6.10 – Report on clustering activities with other Mission initiatives 1

Deliverable Number	D6.10	**Lead Beneficiary**	12. ICLEI
Deliverable Name	Report on clustering activities with other Mission initiatives 1		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP6

Description
First report on synergies built between UP2030 and other Mission initiatives and projects.

Report on cooperation with projects funded under the same topic HORIZON-MISS-2021-CIT-02-01 as part of cluster urban planning and design as well as with the Climate-neutral and Smart Cities Mission Platform. First version.

Deliverable D6.11 – Report on clustering activities with other Mission initiatives 2

Deliverable Number	D6.11	**Lead Beneficiary**	12. ICLEI
Deliverable Name	Report on clustering activities with other Mission initiatives 2		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP6

Description
Final report on synergies built between UP2030 and other Mission initiatives and projects. Report on cooperation with projects funded under the same topic HORIZON-MISS-2021-CIT-02-01 as part of cluster urban planning and design as well as with the Climate-neutral and Smart Cities Mission Platform. Final version.

Deliverable D6.12 – Sharing UP2030 best practices and policy briefs with the Mission's platform

Deliverable Number	D6.12	**Lead Beneficiary**	12. ICLEI
Deliverable Name	Sharing UP2030 best practices and policy briefs with the Mission's platform		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	36	**Work Package No**	WP6

Description
Report on policy briefs and best practices to contribute to the catalogues under development by the Mission projects. Report on sharing UP2030 best practices and policy briefs with the projects funded under the same topic HORIZON-MISS-2021-CIT-02-01 as part of cluster urban planning and design as well as with the Climate-neutral and Smart Cities Mission Platform

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

LIST OF MILESTONES

Milestones

Grant Preparation (Milestones screen) — Enter the info.

Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
1	Start of UP2030 project	WP1	1-Fraunhofer	Minutes of the kick-off meeting sent to EC Officer.	1
2	Launch of UP2030 visual identification and virtual presence, and initial D&C plan	WP6	1-DreVen	Launch of the UP2030 identity, website and social media accounts, and submission of D6.1A.	3
3	Establish the QA & ethical procedures, and the data management protocol	WP1	1-Fraunhofer	Circulate the UP2030 handbooks to the consortium.	6
4	Cities have set-up LAAs	WP4	6-ICA	Stakeholder mapping, invitations and acceptance letters	3
5	Cities run first workshop on needs	WP2, WP4	13-RCities	Produce output report, to be circulated with LAA	4
6	Cities run second workshop on vision	WP2, WP4	13-RCities	Produce output report, to be circulated with LAA	8
7	Cities establish user stories	WP2, WP3, WP4	13-RCities	First version D3.1 & Second version of D4.1	12
8	First meeting of the expert panel on Governance and Policy for climate neutrality in European cities	WP5	2-ADELPHI	Findings reported in D5.1	14
9	City "Partnership Commitments"	WP5, WP4	12-ICLEI	Signed Memorandum of Understanding (MoU) and validation by Mission's city climate contract managers	14
10	Cities run third workshop on action	WP3, WP4	13-RCities	Produce output report, to be circulated with LAA	18
11	Major city twinning "knowledge exchange" event	WP4	13-RCities	Pre-project physical meeting event	18
12	Advisory Board key steering recommendations	WP1, WP6	1-Fraunhofer	Feedback post- mid project meeting	20

Milestones

Grant Preparation (Milestones screen) — Enter the info.

Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
13	All cities have at least one successful prototype	WP4	26-DRAXIS	Each city hub (city+liaison) produce executive summary	26
14	Cities run fourth workshop on upscale	WP5, WP4	12-ICLEI	Produce output report, to be circulated with LAA	28
15	Training programme successful delivery completed	WP5	10-UIC	Training material available on UP2030 website; feedback surveys on quality/relevance of programme	32
16	Service platform up operative	WP5, WP3	12-ICLEI	Hosting in marketplace	34

LIST OF CRITICAL RISKS

Critical risks & risk management strategy

Grant Preparation (Critical Risks screen) — Enter the info.

Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
1	Partner related: Project schedule is partly not appropriate	WP2, WP1, WP5, WP3, WP4, WP6	The management will continuously monitor the performed work according to the project plan and corrective actions will be performed under Task 1.1. In certain cases, the PC will work on and adaptation plan with the Project Officer (PO).
2	Partner related: Underestimated partner resources	WP2, WP1, WP5, WP3, WP4, WP6	If needed, the ExB will ensure that planned work can be completed by: (i) re-arranging resources among the partners as needed, (ii) committing further internal resources of organisations in project activities, (iii) re-planning work on the activities in accordance with previous measures.
3	Partner related: Project milestones or deliverables are delayed	WP2, WP1, WP5, WP3, WP4, WP6	In the scope of project management monitoring activities, detailed analysis will be carried out on both global project and lower (WP/Task) project implementation levels. Thus, it will

Critical risks & risk management strategy

Grant Preparation (Critical Risks screen) — Enter the info.

Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
			be ensured that delay cases are recognised in early stage ensuring necessary corrections in workplan.
4	Planning issues - One or more partners leaving the consortium	WP2, WP1, WP5, WP3, WP4, WP6	Given the strong reputation of all consortium partners, this possibility is very unlikely. The General Assembly will decide if uncovered activities can be carried-out by existing partners or a partner with relevant experience should recruited.
5	Planning issues: Overspending by one or more partners	WP2, WP1, WP5, WP3, WP4, WP6	This situation will be detected early via management reports under T1.1. If this risk occurs, actions will be considered by the ExB, such as escalation to the management of the affected partner(s) to mobilise more experienced or better skilled resources, capable of working more efficiently.
6	Consortium collaboration issues: Unsatisfactory interaction between tasks and WPs	WP2, WP1, WP5, WP3, WP4, WP6	The regular synchronisation of the work amongst WPs (including tasks within WPs) will be performed in the scope of project management activities, so that such eventualities would not occur or be timely identified. If problems continue, PC together with the WP leaders will analyse problems in interactions.
7	Consortium collaboration issues: Implementation issues due to large consortium	WP2, WP1, WP5, WP3, WP4, WP6	The WP leaders will have a significant role acting as “WP coordinators”. The ExB will convene regularly to identify and mitigate potential issues. Weekly telcos will be organized in several sub-groups, such us cities, social scientists, urban planners, technical solution providers, etc., together with monthly plenary telcos.
8	Activities implementation risks: Misalignment with Mission targets	WP6	UP2030 has a dedicated Task (T6.4) to actively collaborate with the Mission. Partners ICLEI and FhG are dedicated to this role. Activities to feed existing Mission developments have been planned (CCC process, Best-practice sharing).
9	Activities implementation risks: Limited cities’ participation	WP2, WP5, WP3, WP4	A) UP230 has dedicated Liaison Partners for each city; B) The co-design approach ensures alignment between project priorities, city needs and Mission goals.
10	Activities implementation risks: Limited access to relevant stakeholders	WP2, WP5, WP3, WP4	To ensure the active stakeholder engagement, regular reviews on the level and efficacy of stakeholder engagement will be implemented through T4.2, to ensure clear communication of needs and benefits linked to stakeholders' contributions.
11	Activities implementation risks: Missing input data for methods OR Reluctance from stakeholders to provide data	WP2, WP5, WP3, WP4	The consortium has already identified the needed data and potential data sources; both from pilot leaders and from existing datasets. Should actors involved in the project implementation decide not to share data, the consortium will: (i) evaluate the reasons behind this, (ii) take all

Critical risks & risk management strategy

Grant Preparation (Critical Risks screen) — Enter the info.

Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
			appropriate measures to safeguard privacy/legal/ethical issues are not hindering this process, (iii) use proxies when relevant and assess impact on confidence on results.
12	Activities implementation risks: Features of solutions are not perceived as useful by end-users	WP2, WP5, WP3, WP4, WP6	UP2030 will use a co-creation approach to develop its models/tools and solutions, which will be tailored to the specific target groups in the pilot communities. The methodology will ensure that needs of all actors involved are taken into account and are reflected in the design. Continuous interaction with prospective end-users and stakeholders through the LAAs will be constantly aimed.
13	Activities implementation risks: Complex technologies for urban planning and design	WP5, WP3, WP4	A wide range of complex technologies (including AI) will be developed aiming to optimise the urban planning and design practices. Due to the involvement of experts in urban planning solutions and the strong expertise of R&D and TECH partners in AI, the risk of failure is critically reduced.
14	Activities implementation risks: Delays regarding legal issues	WP2, WP1, WP5, WP3, WP4, WP6	The UP2030 consortium includes a partner with expertise on legal issues who will be responsible for all legal matters concerning the project, ensuring all activities are being implemented considering legal aspects. This partner will be included in the technical implementation, as well as in all internal and external communications.
15	External project risks: Snowball delay effects due to unforeseen factors, i.e., new pandemic wave	WP2, WP1, WP5, WP3, WP4, WP6	The consortium will employ all means for teleworking and remote collaboration, as during the proposal preparation. Therefore, the work in closed offices and workspaces will be reduced to the minimum possible degree. For the cases that face-to-face meetings are unavoidable, the participants will take all the necessary healthcare precautions and conform with the necessary protocols.

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PROJECT REVIEWS

Project Reviews *Grant Preparation (Reviews screen) — Enter the info.*			
Review No	**Timing** (month)	**Location**	**Comments**
RV1	18	Brussels	
RV2	36	TBC	

History of changes:

Part A		
24/08/2022	Deliverables	General remarks: Numbering of deliverables were updated for consistency. Changes on dissemination level: Change of dissemination level from PU to SEN for D1.1 and D.17 Changes on type: D3.1 and D3.8-9 deliverable type defined as R (report).
24/08/2022	Milestones	Lead beneficiaries were added. Minor corrections in spelling were done.
24/08/2022	WP description	WP3: Text included in T3.1 and T3.3 to provide link to tasks, as requested in Item 2.5 from the Grant Agreement Preparation - List of Open issues. WP4: Text included in the objectives to link the pilots to the context in the pilot cities, as requested in Item 2.6 from the Grant Agreement Preparation - List of Open issues. WP6: Text provided in Item 4.10 from the Grant Agreement Preparation - List of Open issues was included in T6.4
24/08/2022	PM transfer/Budget	CIRCE: WP4: Originally CIRCE had 9 PMs on WP4. These were changed to 6,7 PMs. After thorough research, this action was deemed necessary in order to increase the budget of CIRCE reserved for the equipment they will need in the context of this project. This equipment is essential for the successful implementation of their tasks. Adjustments in the budget were made to reflect these changes accordingly.
24/08/2022	Budget	Minor changes in the budget of following partners were made due to decimal rounding: P01 – Fraunhofer: -0,50 € P03 – BH: +0,50 € P15 – AQUATEC: -0,50 € P18 – LNEC: -0,25 € P22 – UCAM: -0,19 € P27 – Deltares: -1,04 € P32 – MAG: -0,50 € P39.1 – E-NOVA: +0.50 € P41 – Muenster: +0,50 € The overall budget of requested EU contribution is 11,956,686.00 € remains the same.
13/10/2022	WP descriptions	WP6: Text provided in Item 4.1.2 from the Grant Agreement Preparation - List of Open issues was included in T6.4
13/10/2022	Budget	Modification in the personnel costs from cost category for following partners: P01 – Fraunhofer: a1) actual costs, to a2) unit costs;

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		P06 – ICA: a1) actual costs, to a3) unit costs; P28 – DRAXIS: a1) actual costs, to a3) unit costs; All explanation to be found on the Item 4.2 from the Grant Agreement Preparation - List of Open issues. The overall budget of requested EU contribution is 11,956,686.00 € remains the same.
26/10/2022	Deliverables	Additional information (descriptive text) included in D2.4, D2.5, D3.1, D3.2, D3.3, D3.4, D3.5, D4.1, D5.1, D5.2, D5.6, D5.7, D6.1, D6.2, D6.10, D6.11, D6.12 as a response to Item 4.9 from the Grant Agreement Preparation - List of Open issues.
26/10/2022	26/10/2022 Gender Equality Plan	Following beneficiaries have declared their GEP in the F&T Portal, as requested to Item 4.12 from the Grant Agreement Preparation - List of Open issues: - P07 - ISOCARP - P14 - UCCRN - P36 - Budapest - P37 - Granollers - P38 - Istanbul - P39.1 - E-NOVA (affiliated entity from P39 - Lisbon) - P42 - Muenster - P43 - Rotterdam - P44 - Thessaloniki - P45 - Zagreb
26/10/2022	Associated partners	Shift from beneficiaries to associated partners to the UK based partners: - MfC - UCAM - Belfast New beneficiaries numbering resulting from this situation will be used from now on. Furthermore, the overall budget of requested EU contribution changed from 11,956,686.00 € to 11,081,846.00 €.
04/11/2022	Beneficiaries	Addition of P26.1-DReVen as affiliated entity from P26-DRAXIS. DreVen will lead all the dissemination and communication activities of the project, including WP6 and T6.2. Changes were made in the corresponding WP, Dels, Milestones. Budget and efforts from DRAXIS for these purposes was reduced and shifted to DreVen.
04/11/2022	WP efforts	<u>P16 - CETAQUA:</u> PM allocation for P16-CETAQUA modified after internal assessment. *Staff efforts participant P16 CETAQUA:*

WP	Actual PM allocation	Proposed PM allocation	Deviation
WP1	1	1	No changes
WP2	1	4	+3
WP3	9	2	-7
WP4	4	8	+4
WP5	0	0	No changes
WP6	1	1	No changes
Total	16	16	No changes

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<table>
<tr><td></td><td></td><td>CETAQUA will be actively involved in T2.4 and in T4.3 developing of indicators for the evaluation in monitoring of the difference solutions proposed for the pilots in T4.3. Useful insights are expected in T3.2 due to their experience in GHG calculation in the urban water cycle, but not major role.

P26-DRAXIS and AF P26.1 DReVen:
Staff effort of the participant P26-DRAXIS modified due to the addition to AF P26.1 DReVen.

Staff efforts participant P26 DRAXIS and AF P26.1 DReVen:
<table>
<tr><th>WP</th><th>Actual PM allocation P26- DRAXIS</th><th>Proposed PM allocation P26-DRAXIS</th><th>Proposed PM allocation P26.1-DReVen</th></tr>
<tr><td>WP1</td><td>16</td><td>15</td><td>1</td></tr>
<tr><td>WP2</td><td>5</td><td>5</td><td>0</td></tr>
<tr><td>WP3</td><td>56</td><td>56</td><td>0</td></tr>
<tr><td>WP4</td><td>7</td><td>7</td><td>0</td></tr>
<tr><td>WP5</td><td>8</td><td>8</td><td>0</td></tr>
<tr><td>WP6</td><td>29</td><td>0</td><td>29</td></tr>
<tr><td>Total</td><td>120</td><td>91</td><td>29</td></tr>
</table>
No changes in the overall WP efforts foreseen.

<u>Summary of changes:</u>
Therefore, here are the new proposed WP efforts:

Staff efforts per WP, all participants:
<table>
<tr><th>WP</th><th>Actual PM allocation</th><th>Proposed PM allocation</th><th>Deviation</th></tr>
<tr><td>WP1</td><td>94,00</td><td>94,00</td><td>No changes</td></tr>
<tr><td>WP2</td><td>216,10</td><td>219,10</td><td>+3</td></tr>
<tr><td>WP3</td><td>551,30</td><td>544,30</td><td>-7</td></tr>
<tr><td>WP4</td><td>635,60</td><td>639,60</td><td>+4</td></tr>
<tr><td>WP5</td><td>219,20</td><td>219,20</td><td>No changes</td></tr>
<tr><td>WP6</td><td>128,10</td><td>128,10</td><td>No changes</td></tr>
<tr><td>Total</td><td>1897,30</td><td>1897,30</td><td>No changes</td></tr>
</table></td></tr>
<tr><td>04/11/2022</td><td>Budget</td><td>Modification in the personnel costs from cost category for following partners:
P08 – TSPA: a1) actual costs, to a3) unit costs;
P26 – DRAXIS: adjustment due to the incorporation from AF P26.1-DreVen

All explanation to be found on the Item 4.2 from the Grant Agreement Preparation - List of Open issues.

The overall budget of requested EU contribution is 11,081,846.00 € remains the same.</td></tr>
</table>

Part B		
24/08/2022	1.1.1 - UP2030 Objectives and Success Criteria	Additional information included in KPI SO2.1 and KPI SO3.2 as a response to Item 2.1 from the Grant Agreement Preparation - List of Open issues.
24/08/2022	1.2.5.1 - UP2030 Case Studies	Additional information to address the replication/follower cities was included, as a response to Item 2.4 from the Grant Agreement Preparation - List of Open issues. Additional information to explain the Artificial Intelligence (AI) systems and techniques for the pilot in Istanbul were

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		added in this section, as a response to Item 2.2 from the Grant Agreement Preparation - List of Open issues
24/08/2022	1.2.9 - Open Science Practices in the UP2030 project	Additional text was added for costs of open access journal publications, as a response to Item 2.7 from the Grant Agreement Preparation - List of Open issues
24/08/2022	2.1 - Project's pathways towards impact	Additional information to describe Expected Outcome 2 was included, as a response to Item 2.3 from the Grant Agreement Preparation - List of Open issues
24/08/2022	3.1.7 - Resources to be committed	Additional text was added referring to subcontracts above Table 3.1g, as requested in Item 4.4 from the Grant Agreement Preparation - List of Open issues Also, additional information to detail the scope of the subcontract and reference to the tasks/activities were included in Table 10: 'Subcontracting costs' items.
24/08/2022	3.2 - Capacity of participants and consortium as a whole	Text regarding the affiliated partner E-NOVA has been added in Table 12- Partners contribution to UP2030, as requested in Item 4.5 from the Grant Agreement Preparation - List of Open issues
24/08/2022	3.1.3 Resources to be committed	Information on the justification of the equipment costs for partner 26 CIRCE were added in Table 11: 'Purchase costs' items (travel and subsistence, equipment and other goods, works and services).
13/10/2022	3.1.3 - Resources to be committed	Additional text was added referring to depreciation costs above Table 3.1h, as requested in Item 1.4 from the Grant Agreement Preparation - List of Open issues
26/10/2022	3.1.7 - Resources to be committed	Additional text was added referring to clarify the Photovoltaics installation in Istanbul.
26/10/2022	4. Ethics	New section "Ethics" included, as requested in Item 3.1 from the Grant Agreement Preparation - List of Open issues
26/10/2022	Table of Partners	Numbering of table of partners updated according to new numbering due to change from UK beneficiaries to associated partners.
04/11/2022	3.2 - Capacity of participants and consortium as a whole	Text regarding the affiliated partner DReVen has been added in Table 12- Partners contribution to UP2030, due to its incorporation as AF from P26-DRAXIS.
04/11/2022	Table of partners	Table of partners at the beginning adjusted to incorporate the changes from the new AF entity DreVen (P26.1)
23/11/2022	3.1.3 Resources to be committed	Adjustment of the requested EU contribution to 11,08,846.00€ due to the situation of P43-MfC, P44-UCAM and P45-Belfast as partners from a transitional arrangement country not eligible for funding. Correction of partner numbering. Table 9: Deletion of P45-Belfast, as they are not eligible for funding. Table 10: Addition in the description of the items, depreciation rules and percentage of use of the equipment costs from partners P24-CIRCE, P27-GUNAM and P32-VM. Correction in the cost breakdown of other goods, works and services for P35-Istanbul.
23/11/2022	3.2 Capacity of participants and consortium as a whole	As requested by PO, an additional text specifying that P11-GGGI is an international organisation that will receive direct funding was adjusted. Additional information in the description of P42-ETH, P43-MfC, P44-UCAM & P45-Belfast as participant in the action as

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		'associated partners' with their own funding source were added.
23/11/2022	Whole document	Adjustment to the partner acronym from P1 to "Fraunhofer" for consistency

Urban Planning and design ready for 2030

TABLE OF PARTNERS

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P#	Acronym	Partner Name	Country	Role
P1	Fraunhofer	FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	DE	R&I
P2	ADELPHI	ADELPHI RESEARCH GGMBH	DE	R&I
P3	BH	BURO HAPPOLD GMBH	DE	R&I
P4	DC	DESIGN CLIPS P.C. DC	EL	R&I
P5	GreenAdapt	GREENADAPT GESELLSCHAFT FÜR KLIMAANPASSUNG MBH	DE	R&I
P6	ICA	I-CATALIST S.L ICA	ES	R&I
P7	ISOCARP	ISOCARP INSTITUTE CENTRE FOR URBAN EXCELLENCE ISOCARP	NL	R&I
P8	TSPA	THOMAS STELLMACH PLANUNG & ARCHITEKTUR	DE	R&I
P9	TUD	TECHNISCHE UNIVERSITEIT DELFT	NL	R&I
P10	UIC	UNIVERSITAT INTERNACIONAL DE CATALUNYA	ES	R&I
P11	GGGI	GLOBAL GREEN GROWTH INSTITUTE GGGI	HU	NETWORK
P12	ICLEI	ICLEI EUROPEAN SECRETARIAT ICLEI	DE	NETWORK
P13	RCities	STICHTING GLOBAL RESILIENT CITIES NETWORK	NL	NETWORK
P14	UCCRN	URBAN CLIMATE CHANGE RESEARCH NETWORK - EUROPEAN HUB	IT	NETWORK
P15	AQUATEC	AQUATEC PROYECTOS PARA EL SECTOR DEL AGUA, S.A.U	ES	R&I
P16	CETAQUA	CETAQUA, CENTRO TECNOLOGICO DEL AGUA, FUNDACION PRIVADA	ES	R&I
P17	LIF	PRAVO AND INTERNET FOUNDATION	BG	R&I
P18	LNEC	LABORATORIO NACIONAL DE ENGENHARIA CIVIL	PT	R&I
P19	MDAT	MAJOR DEVELOPMENT AGENCY OF THESSALONIKI S.A.	EL	R&I
P20	METU	ORTA DOĞU TEKNIK ÜNIVERSITESI METU	TR	R&I
P21	USTUTT	UNIVERSITY OF STUTTGART	DE	R&I
P22	VUB	VRIJE UNIVERSITEIT BRUSSEL	BE	R&I
P23	CERTH	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	EL	TECH
P24	CIRCE	FUNDACIÓN CIRCE - CENTRO DE INVESTIGACIÓN DE RECURSOS Y CONSUMOS ENERGÉTICOS CIRCE	ES	TECH
P25	DELTARES	STICHTING DELTARES	NL	TECH
P26	DRAXIS	DRAXIS ENVIRONMENTAL S.A.	EL	TECH
P26.1	DReVen	DREVEN SRL	BE	TECH
P27	GUNAM	ODTU GUNES ENERJISI UYGULAMA VE ARASTIRMA MERKEZI	TR	TECH
P28	K3Y	K3Y LTD	BG	TECH
P29	LINKS	THE LINKS FOUNDATION – LEADING INNOVATION & KNOWLEDGE FOR SOCIETY	IT	TECH
P30	MAG	MAGGIOLI S.P.A.	IT	TECH
P31	UPV	UNIVERSITAT POLITECNICA DE VALENCIA	ES	TECH
P32	VM	VESELA MOTIKA D.O.O.	HR	TECH
P33	Budapest	BUDAPEST FŐVÁROS ÖNKORMÁNYZATA	HU	CITY
P34	Granollers	AJUNTAMENT DE GRANOLLERS	ES	CITY
P35	Istanbul	ISTANBUL METROPOLITAN MUNICIPALITY	TR	CITY
P36	Lisbon	CÂMARA MUNICIPAL DE LISBOA	PT	CITY
P36.1	E-NOVA	LISBOA E-NOVA – AGÊNCIA DE ENERGIA E AMBIENTE DE LISBOA	PT	R&I
P37	Milan	COMUNE DI MILANO	IT	CITY
P38	Muenster	STADT MUENSTER	DE	CITY
P39	Rotterdam	GEMEENTE ROTTERDAM	NL	CITY
P40	Thessaloniki	DIMOS THESSALONIKIS	EL	CITY
P41	Zagreb	CITY OF ZAGREB	HR	CITY
P42	ETH	EIDGENÖSSISCHE TECHNISCHE HOCHSCHULE ZÜRICH	CH	R&I
P43	MfC	MAPPING FOR CHANGE C.I.C.	UK	R&I
P44	UCAM	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	UK	R&I
P45	Belfast	BELFAST CITY COUNCIL	UK	CITY

** NET =Networks, R&I =Research & Innovation Partners, TECH= Technology Partners, CITY= Cities*

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Section 1. Excellence

1.1 Objectives and Ambition

As cities are responsible for approximately 75% of global emissions[1], they are central to meeting the 2030 and 2050 emission reduction targets of the European Green Deal, set out to respond to the Paris agreement. The Mission for climate-neutral and smart cities calls for even faster action by cities to meet neutrality. It can be said that cities are at the frontline; however, achieving an intensified decarbonisation is not going to be easy for them. While the ambition is clear - 377 applications were submitted to the Call to join the Mission's 100 cities cohort - the pathways to meeting its targets are not yet laid out. Specifically, cities follow a project-by-project decarbonisation approach (typically described in climate action plans) but there is a need for a shift towards a strategy-based approach that is anchored on sound projects coupled with supportive policy development. This means identifying barriers that hinder upscaling solutions and addressing them with multilevel and cross-sectoral collaboration, i.e., shaping the necessary innovation-enabling environment for climate neutrality.

As energy consumption takes place literally everywhere, cities need to rethink how all infrastructural systems (e.g., mobility, buildings, waste and the city's natural environment) can contribute to reducing emissions. At the same time, citizens interact with such urban systems, becoming agents whose everyday decisions and behaviours shape the city, ultimately determining its carbon footprint. Considering the complexity of urban interactions, a mere technological fix cannot address the neutrality challenge. Instead, renewed urban planning and design practices and policies, coupled with social innovation, can play a pivotal role by re-directing these interactions towards desired outcomes.

1.1.1 UP2030 Objectives and Success Criteria

By leveraging urban planning and design, UP2030's **overall objective is to support cities in driving the socio-technical transitions required to meet their climate neutrality targets,** helping city stakeholders and local authorities put neutrality on the map of their communities in day-to-day actions and strategic decisions. This will be achieved by developing and applying an innovative methodology that cities can adopt to meaningfully engage with the Mission *(5UP-approach, Section 1.2)*. This methodology will comprise the backbone of UP2030 to **(i)** updating cities' vision through consistent policy development, **(ii)** upskilling in state-of-the-art approaches, **(iii)** prototyping upgrades, and ultimately **(iv)** upscaling city-wide neutrality actions. This will be achieved through the co-development and implementation of science-based - yet practical - tools, and methods which will guide cities to deliver across the values of equity, resilience, neutrality, and sustainability.

UP2030 looks at mainstreaming the climate neutrality agenda using urban planning and design as a vehicle for also enhancing the liveability of urban communities. The emphasis on liveability will connect the urban planning and design approaches to the provision of multiple socio-environmental benefits, foremost at a neighbourhood scale *(Specific Objective SO2)*. Prototyping is strategically focused on neighbourhoods, as they offer a critical scale for problem-solving, reinvestment, and climate innovation in cities (e.g., positive energy districts[2], 15-minute neighbourhoods/cities[3]). Testing at this scale will provide valuable lessons for city-wide upscale. To drive city-wide impact, cities will need to go well beyond technical designs and piloting; UP2030 will empower local authorities to shape their innovation-enabling city environment through: a relevant policy framework, deliberate inclusive participation, shifts to sustainable behaviours, capacity building in city departments, new governance arrangements and financial facilitation. The overall objective described above is reflected in **Specific Objectives (SOs)**:

SO1. Engage the cities' stakeholder ecosystem in the mapping of their needs and baseline assessments, to co-design neutrality visions that synergistically deliver on the values of justice, resilience, sustainability and neutrality.
UP2030 will identify city needs, barriers and drivers towards neutrality which will inform the co-development of a vision that is shared among the quadruple helix stakeholders' ecosystem who are called to deliver the transition and/or are impacted by it. In addition, the baseline conditions in each city will be established for their social, economic, governance and physical systems, as well as with regards to their emission inventories. **Visions will go well beyond outlining a series of potential projects (typical to climate action plans), rather they will represent both structural (physical) and non-structural (intangible) interventions that together will comprise transformational pathways.** Visions will address innovation in three key, and interrelated, urban planning and design domains: **(i) connected, (ii) compact and (iii) net-zero** cities *(Figure 1)*. City visions will be linked to outcome Key Performance Indicators (KPIs) - including target delivery horizon - so that cities and the Mission will be able to measure their level of success and rate of progress. Activities will be delivered in 11 pilot cases, each one bringing its own unique context, thus offering an opportunity to learn during implementation what works where, why and how.

[1] UNEP - UN Environment Programme, Cities and climate change
[2] JPI Urban Europe, Positive Energy Districts (PED)
[3] ARUP, Designing the Fifteen Minute City

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Contribution across all five Expected Outcomes (EO) (Section 2.1.1). **KPI SO1.1:** Sustained quadruple helix living labs at all 11 pilots; **KPI SO1.2:** Evaluation of needs and barriers; shaping shared visions (all pilots); **KPI SO1.3:** Co-design 11 respective visions and socio-technical pathways for transformative change in the three domains.

SO2. Develop implementation roadmaps, customise tools and methods for the delivery of prototyping actions in the testbed neighbourhood environments.

UP2030 will support cities in developing implementation roadmaps to translate their visions into practical actions. As part of these actions, **the project will customise and evolve a range of existing tools and approaches to achieve their *last-mile delivery* in the selected cities in the service of climate neutrality**. This will happen through deep quadruple helix stakeholder engagement and co-creation. The application of the co-developed tools and methods will enable prototyping upgrades in the pilot neighbourhoods – considering this is the scale in which the interaction of infrastructure, people and economic activities primarily takes place. Upgrading will involve strong capacity building activities bringing the development and application of tools closer to stakeholders so they will own solutions and lead future decision-making themselves; actions will be centred on principles of equitable participation and spatial justice *(SO3)*; and will be evaluated to support future city-wide upscale *(SO4)*.

Contribution to EO3 and EO4. **KPI SO2.1:** Successful matching of solutions demanded by pilots and solutions supplied by research/technical partners (i.e. achieve last-mile delivery of tools and methods"); **KPI SO2.2:** Successful prototyping and demonstration at the neighbourhood pilots.

SO3. Making neighbourhoods more liveable, inclusive, and equitable by leveraging the neutrality transition

Cities have existing societal and environmental challenges they deal with, shaping a unique context in which climate neutrality is to be achieved. The project will therefore customise solutions to respond to the specific context in the pilot neighbourhoods – for instance, social or physical vulnerability to climate-induced hazards is not uniform across a city. In addition, citizen engagement is more meaningfully facilitated at the neighbourhood scale. **UP2030 sees citizens as an integral part of the transition as they shall become agents of change through their sustainable behavioural shifts and lifestyle decisions.** To this end, approaches will be developed to secure inclusive participation in all project stages and beyond: needs definitions, visioning, co-design of solutions and co-implementation. Engagement will aim to achieve a stronger sense of place identity, as well as to position climate resilience as a new cultural identity associated with neighbourhood pride, consistent with the vision of the New European Bauhaus. Supported by inclusive participation, UP2030 will promote spatial justice through the proposed interventions, i.e., by being deliberate in offering positive social outcomes (e.g., co-address energy poverty) and avoid undesired consequences (e.g., Nature-Based Solutions (NBS) interventions potentially driving the gentrification of a neighbourhood).

Contribution to EO1, EO2, EO4, EO5. **KPI SO3.1:** Mapping of social, economic, demographic and biophysical vulnerabilities (all pilots); **KPI SO3.2:** Demonstrate impact across social, economic, and environmental indicators in all pilots (impact measured against the baseline).

SO4. Guarantee city-wide upscale of solutions by shaping the enabling governance arrangements, updating policy instruments and promoting relevant financing mechanisms.

Prototyping at the neighbourhood scale provides a series of advantages, as outlined above, but does not guarantee that upgrades can be scaled up efficiently to the whole city, nor that their deployment can be sufficiently fast for 2030. UP2030 aims at identifying barriers in the governance setup of each city that hinder upscaling the proposed upgrades, and addressing them with multilevel and cross-sectoral collaboration. It also aims to develop those integrative policies so decisions in one domain are considered/assessed against their outcomes in other domains. These assessments need to be backed by quantitative evidence - thus robust monitoring, evaluation and learning from the prototype application is really central. Lastly, considering the tight budgets within which local authorities operate, UP2030 aims to identify and guide cities through relevant financing mechanisms which will unlock resources to cities, citizens, businesses, infrastructure asset owners to participate in the climate neutrality transition.

Contribution to EO1 and EO2. **KPI O4.1:** Renewed governance arrangements that enable the transition; **KPI O4.2:** Matching of projects with financial resources.

SO5. Share broadly the lessons of success and levers to overcoming implementation barriers. Support replication beyond the project's scale in collaboration with the Mission while demonstrating how the solutions contribute to European policy and strategy implementation.

Being part of the Mission family of projects, UP2030 will have a unique opportunity to disseminate its findings to an extensive pool of cities (e.g., ICLEI and RCities member cities). Lessons from UP2030 will be extracted and offered in "replication and transferability packages" to cities outside the project. For more effective dissemination, the project will also develop a Training Programme on "urban planning and design for climate neutral and smart cities" which will include open access resources as legacy. Moreover, cities wishing to engage in more depth with certain UP2030 solutions will be able to do so through the Service Platform of UP2030. The project also plans to create synergies with the Mission projects (and other EU outlets/marketplaces) to optimise use of resources and maximise impact - e.g., existing connections with NetZeroCities will be leveraged to contribute approaches to the

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Mission's Platform as well as seek consistency with the Climate City Contracts. Lastly, UP2030 will demonstrate how the proposed approaches tangibly contribute to relevant European policies and strategies.
Contribution to EO1, EO5. **KPI SO5.1:** Legacy resources and services met by demand by non-UP2030 cities; **KPI SO5.2:** Mission projects co-developing coherent and harmonised support, validated in the Mission projects.

1.1.2 Ambition – Advance Beyond the State-of-the-Art

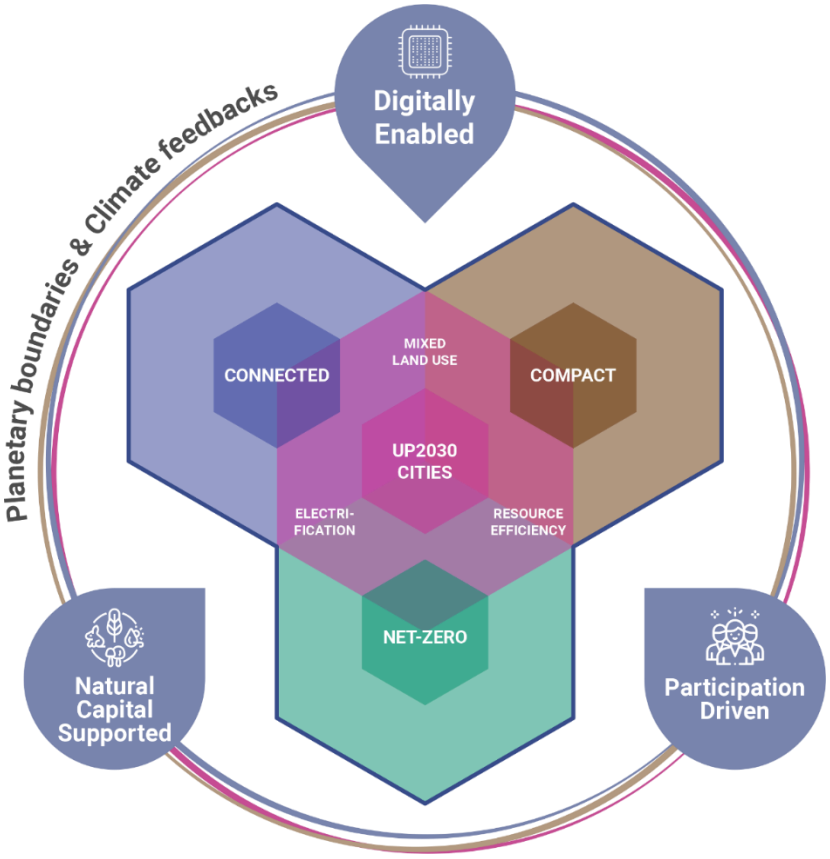

Figure 1: Conceptual diagram of UP2030 showing interrelations of thematic domains and cross-cutting expertise areas.

Consistent with the overall objective to drive a socio-technical transition, going beyond the State-of-the-Art (SotA) is a matter of technological and scientific innovation, as much as of process, policy and engagement innovation in urban planning and design[4]. **Figure 1** shows how the key thematic domains (connected, compact, net-zero) and cross-cutting expertise areas (natural capital, participation, digitalisation) should be effectively integrated. Making sure the different levels of innovation facilitate this integration constitutes the primary ambition of UP2030.

Clean technologies keep improving – e.g., on energy efficiency, renewables, circularity, dynamic integration – towards achieving positive-energy districts. However, it is still hard to find successful demonstrators, as these technologies need to be deployed in a finite urban environment where competing priorities and uses exist presenting implementation constraints[5]. In this context, **a key ambition is that cities can take better decisions to reduce emissions through urban form – i.e., through connectedness for improved access to neighbourhood services and workplaces, and through the efficient integration of infrastructure in compact neighbourhoods**[6]. Promoting active travel should be a cornerstone of strategies to meet net zero carbon targets, while also improving public health and quality of urban life[7]. UP2030 will promote accessibility through active mobility (e.g., superblocks, healthy streets, infrastructure for walkability and cycling) and identify high mitigation impact renovation in the existing urban fabric (i.e., also addressing sprawling) as fundamental to reducing emissions, while also making cities more liveable.

While compact neighbourhoods tend to be more carbon efficient (emissions per capita)[8], dense urban environments can also be highly prone to climate hazards - e.g., flooding, urban heat island – increasing the need for adaptation to climate change. This potential trade-off should therefore be carefully managed. UP2030 will support cities integrate natural capital as a paradigm shift for compact neighbourhoods to create synergies between adaptation and mitigation. Going beyond the SotA, the project will assess the Ecosystem Service (ES) supply (i.e., the benefits that flow from natural capital), but will also guarantee that cities optimally match supply with actual demand for ES – e.g., a park that is underused has low ES demand, therefore the NBS benefits are not fully captured. Conversely, UP2030 will also identify those neighbourhood areas in greatest need for ES, particularly focusing on benefits for the most vulnerable populations to match this ES demand with supply. This extension beyond SotA is critical, as it will allow cities to intervene purposefully for ES delivery strengthening environmental justice[9].

Developing sound projects requires extensive quantitative assessments. These will be carried out by adapting existing digital city twins, to create customised analysis and decision support tools that combine digital urban planning and

[4] OECD, 2019, Enhancing Innovation Capacity in City Government, https://doi.org/10.1787/f10c96e5-en
[5] Krangsas et al., 2021, Positive Energy Districts, https://doi.org/10.3390/su131910551
[6] ClimateAction, Compact cities to address climate change
[7] Brand et al., 2021, The Climate Change Mitigation Effects of Daily Active Travel in Cities, https://doi.org/10.1016/j.trd.2021.102764
[8] World Bank Group, 2011, Cities and climate change: an urgent agenda, https://bit.ly/3EMz6od
[9] Herreros-Cantis and McPhearson, 2021: Mapping Supply of and Demand for Ecosystem Services to Assess Environmental Justice in New York City, https://doi.org/10.1002/eap.2390.

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urban energy models. These tools will capitalise state-of-the-art capabilities on Building Information Modelling (BIM) and City Information Modelling (CIM) the project partners bring *(Section 1.2)*.

While such data-driven technological solutions can open new opportunities, in practice cities still struggle with their adoption as they need to achieve better data governance. This requires a system view of what decisions are being made in their organisation, what data and information is informing those decisions, the quality of that data and how people have access to it[10]. As cities move towards achieving their ambitious targets, the way in which they make decisions will change. New technology is also changing access to data and can have implications for how cities as organisations will structure their role and responsibilities. UP2030 will therefore create baseline organisational information flow maps to help cities on this journey. The process will focus on the flow of carbon data, from monitoring asset performance through to informed strategic decision making. This process will identify the most problematic areas in their current "data governance" in order to achieve reliably measured, desired climate-neutrality outcomes.

Last but not least, the envisaged transition cannot be delivered by local authorities on their own and thus citizen engagement is crucial to success. Significant engagement innovation already exists (extreme citizen science, participatory mapping, climate champion programme), but the adoption of such techniques is far from mainstreamed in how cities exercise urban planning and design. Decisions are still taken mostly through top-down; even in those cases where engagement is well intentioned, the vast data and input from participatory exercises might not lead to a structured response to the citizens/challenge. This, in turn can lead to citizen disillusionment and disengagement. To address this, there is a need for planning and executing the full life cycle of participatory processes[11]. UP2030 has the ambition to demonstrate new operational ways for engaging citizens effectively in the entire process – from needs assessment and early visioning through to co-design, implementation, and evaluation – recognising that participation takes time, resources, and requires capacity building. The benefits of this process will be key to guaranteeing social acceptance and legitimacy of the UP2030 interventions in the project's pilots, as well as understanding better potential co-benefits and maximising their delivery. As presented in *Section 1.2*, UP2030 will use engagement tools that are tailored to specific target groups (e.g., children).

1.1.3 Positioning and Maturity of the Project Solutions

Table 1 presents the maturity levels of core components of UP2030, as described in more detail in Section 1.2. While some of the tools will be advanced separately in different pilots, the aim is to identify common methodological threads that connect them. For this reason, tools are classified in typologies to drive this identification process (note list is not exhaustive on the tools/experience partners bring, see also *Section 3.2*). Given that new integrated solutions will be explored – at least within classes - it is more relevant to report TRL per class rather than the individual solution's TRL. Cross-class solutions will be further strengthened during the project implementation (*T3.4 and T4.3*).

Table 1: UP2030 solutions' maturity level – TRL.

UP2030 SOLUTION CLASSES: ADVANCEMENTS TO BE ACHIEVED
Positive-energy districts, digital energy twins and digital infrastructure (TRL 6→8)
Baseline emission inventories for cities developed by BH (26 climate action plans for members cities of C40) will be advanced by automating process and refining spatiotemporally at neighbourhood scale. Such baselines will be supported by existing capabilities in BIM/CIM digital twins coupled in GIS, by CIRCE, GUNAM, METU (e.g., NEED4B, RESPONSE). These will be used to identify hotspots for interventions and guide decision-making for efficiency and renewable integration interventions. In the same vein, through data-driven techniques (ML) they will predict performance indicators (such as heating/cooling energy use, greenhouse gas (GHG) emissions, occupant thermal stress) using building, context and climate information and provide feedbacks to users towards participation-driven operation efficiency. The digitisation of circular construction capabilities of ETH (capitalising on the interactive Life-Cycle Assessment (LCA) tool for embodied quantity outputs, deQo) will be exploited to create structured guidance for cities to assess the benefits of circular design, i.e., go beyond standard efficiency measures. UCAM will bring expertise in digital governance towards carbon accounting and budgeting, acquired in Digital Cities for Change (funded by Ove Arup Foundation). Work will guide cities on how to govern their data better, in terms of information flow for cross-sectoral cross-department integration. K3Y will support this task in technical terms, providing the ability to "chain" activities across platforms to better support the flow of Big Data to decision-makers (as in RAINBOW). Lastly, building on experience from EXHAUSTION and hackAIR, DRAXIS' Geospatial Intelligence Platform will allow the customization for each pilot's challenge, and will constitute an end-to-end solution for data collection, processing, analysis and geospatial visualisation.
Digital spatial planning and design tools for climate resilience and co-benefits (TRL 6→8)

[10] DUET, Data Governance Act: Practical Implications for Digital Urban Twins
[11] Community Tool Box, Chapter 18. Deciding Where to Start, Section 2. Participatory Approaches to Planning Community Interventions

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TSPA's in-house parametric design and geospatial analysis toolsets will be used to provide context-specific spatial solutions and help to evaluate the design solutions impact (extended to capture vision KPIs). UCCRN's collaborative "*Urban Design Climate Workshop*" (UDCW) simulation tools (CLARITY) allows microclimate simulations of adaptation/mitigation actions. It will be used to assess co-delivery of 4 broad "city visions": net-zero city, green-blue city, circular city, 15-minute cities. DELTARES' rapid Climate Risk Assessments tool (using the in-house BlueEarth Engine) will be used to identify climate-vulnerable urban populations in data-poor cities coupling publicly available socio-economic, demographic and geophysical data sources. Outputs will be fed to the DELTARES' Climate Resilient Cities Tool (CRCT), a GIS-based multi-stakeholder planning tool used for NBS optioneering, to be extended in terms of its mitigation capabilities. The Urban Modeling Interface (UMI) (ETH collaboration with MIT's Sustainable Design Lab) allows the evaluation of the environmental performance of neighbourhoods and cities with respect to operational and embodied energy use, neighbourhood walkability, access to daylighting, urban food production and district-level energy supply analysis; as with UDCW, it can serve as a means to integrate energy and planning digital twins.
Participation and engagement tools towards spatial justice (TRL 7→9)
MfC's Community Maps (dNoses) front-end application for spatial visualisations through participatory action will be used at the pilot interventions. VUB's experience in citizen science for conservation actions (SOCIO-BEE) will help engage citizens bottom-up, while Climate Stories will be exploited to create story-maps, critical for stakeholder engagement. DC's child-friendly design capabilities in safe-routes-to-schools will be used towards inclusive design towards connected neighbourhoods. Experience by Fraunhofer (Triangulum, UNaLab) in setting up City Labs for exploring sustainable urban development solutions, by ICA (REXUS) in building multi-stakeholder partnerships through living labs (Learning and Action Alliances, (LAAs)) and TUD (REPAiR) Geodesign Decision Support Environment (GDSE) online interface, will support the process of going from co-exploration to decision-making on spatial solutions.
Multi-Criteria Analysis, Cost-Benefit Analysis tools (TRL 6→8)
The City Resilience Framework used by 100 cities of RCities to develop their Resilience Strategies will be adapted to identify multiple benefits of neutrality actions in neighbourhoods, and identify enablers. It is supported by the analysis of 52 Indicators of the City Resilience Index (developed by ARUP, tested by RCities). In the same vein, the 80 indicators of the Liveable Cities Index of CETAQUA, tested in 25 cities will be considered. The multi-criteria adaptation assessment RESCCUE platform by AQUATEC/LNEC will be extended to mitigation actions. GGGI's Green Economy Model will be used to plan pathways to deploy cost effective low-carbon measures. GGGI's climate actions prioritization tool (Climate Prio) will be exploited to analyse combination of actions from different sectors at pilot cities.

While advancing TRL is critical, the project's success is also a function of the ability to advance **Societal and Organisational Readiness Level** (SRL & ORL)[12]. In this context, the local authorities involved in UP2030 have also developed and tested innovative forms of governance and planning: From Rotterdam's "Resilient BoTu 2028" programme that leverages energy transition to strengthen social equity to Belfast's work in aligning climate neutrality with play, and Thessaloniki's Social Rental Agency that matches those under risk of housing exclusion with owners of abandoned buildings. UP2030 will further build on these innovations and combine them with the expertise and solutions provided by the project partners to maximize their impact and scale.

1.2 Methodology

1.2.1 UP2030 transformative change through the 5UP approach

Though systemic approaches for urban sustainability transformational change are gaining attention, practical action on identified interventions that are likely to achieve such change is still limited in the context of climate neutrality. The "**leverage points perspective**" as proposed by Meadows (1999)[13] and further developed by Abson et al. (2017)[14], Romero & Lankao (2018)[15] and Leventon (2021)[16] helps to understand how, where and who to intervene in a system to change its behaviour, trajectories ad outcomes. By explicitly bringing in the socio-technical perspective and combining interventions at both weak (parameters) and more influential, deep leverage points (design and intend), the multidisciplinary Attitudes-Facilitators-Infrastructure (AFI) framework proposed by Akenji and Chen (2016)[17] offers an approach to system-wide transition to sustainable lifestyles. The AFI framework's key determinants are: **(i) attitudes**, which reflect the value orientation of actors, **(ii) facilitators,** institutional arrangements which reflect agency and **(iii) physical infrastructure** that determines default options and locks people into certain behaviour

[12] Bernstein et al., 2022, The Societal Readiness Thinking Tool, https://doi.org/10.1007/s11948-021-00360-3
[13] Meadows, 1999, Leverage Points: Place to Intervene in a System. The Sustainability Institute.
[14] Abson et al., 2017, Leverage points for sustainability transformation, Ambio 46, 30–39, https://doi.org/10.1007/s13280-016-0800-y
[15] Romero-Lankao et al., 2018, Part III Urban transformations to Sustainability, https://doi.org/10.1017/9781316647554
[16] Leventon et al., 2021, Leverage points for sustainability transformations, https://doi.org/10.1007/s11625-021-00961-8
[17] Akenji and Chen, 2016, A framework for shaping sustainable lifestyles. United Nations Environment Programme.

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patterns. These act in concert to enable or constrain sustainable choices, whereas from a policy and practice perspective, they constitute enabling conditions for sustainable living in a systems approach.

Figure 2 illustrates the feedback processes between the key determinants, which shape possible pathways from present to future[18].

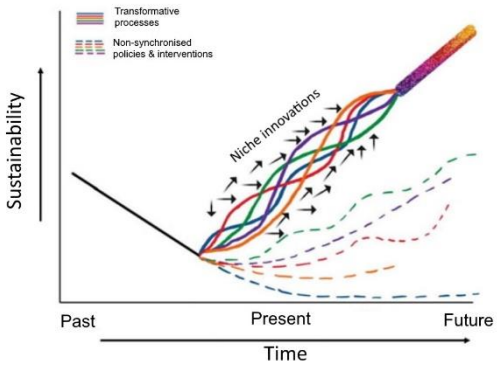

Figure 2: Concept of transformative change

In transformative processes, positive and negative feedbacks inform and influence each other in a synchronised manner, strengthening the system itself. Conversely, non-synchronised processes involve a weaker feedback mechanism, leading to a limited level of sustainability or even ending up with a collapse of the system earlier (hence, for example, the climate emergency today). For instance, in the context of connected neighbourhoods, promoting electromobility (considered a weak intervention point as it changes existing parameters but not "the rules of the game") without taking active steps to promote significant modal shifts will only have a limited impact on GHG emissions reduction. It will also not contribute to equitable mobility considering that the technology remains, economically speaking, inaccessible to the majority of the urban population. It would also exclude large demographic groups like children, much of the elderly population and groups with several disabilities (in the same way fuel engine cars do today). At the same time, addressing opportunities at the streetscape, e.g., policies to reduce space allocated to cars (a deep leverage point) increase overall resilience through the multiple socio-environmental functions that streets and open spaces can play (active mobility, social engagement, greening for aesthetic upgrades and wellbeing).

Against this background, UP2030 adapts the AFI framework for sustainability transformations to tackle **(i)** the attitudes – knowledge - behaviour gaps, **(ii)** the lack of suitable policies, social and market mechanisms in prevailing systems, **(iii)** and technological factors and physical infrastructure that lock in individuals, local authorities, and city stakeholders in carbon intensive decisions. These three interventions levels can be guided by a transformational proposition for renewed urban planning and design as proposed by UP2030.

To accelerate the implementation pace in many cities, upscale solutions and respond to the climate emergency, UP2030 proposes the **5UP-approach** for activating cities and stakeholders through 5 interlinked phases *(Figure 3)*:

UP-Dating: Understand which processes, planning codes, policies should be urgently updated. Identify and address needs and barriers through their Mission vision.

UP-Skilling: Build capacities for urban planning and design transformation pathways. Upskill the entire stakeholder ecosystem, from city departments to urban practitioners through to citizens.

UP-Grading: Prototype the transformation at the suitable physical scale and renew the city's urban planning and design practices.

UP-Scaling: Extend solutions across scales, integrate across sectors. Respond to updating needs by shaping governance arrangements and matching of projects to financial resources.

UP-Taking: Support uptake through knowledge transfer by offering the project's services to the Mission. Extend the project's twinning to create long-lasting Communities of Practice.

Figure 3: The 5UP-approach conceptual framework.

While there is an obvious sequential order in the five components, their outcomes are reinforced by feedbacks between them (*Section 1.2.4* and Pert Chart in *Section 3*). As such, the method differentiates itself from more conventional methodological approaches which focus on testing a particular innovation (e.g., a digital solution) to bring about incremental change. Contrary, **the 5UP approach puts the city at its centre, rather than a proposed solution, offering an integrated strategy for multilevel action on identified leverage points.** The 5UP approach

[18] Maiko et al., 2021, Fostering Transformative Change for Sustainability in the Context of Socio-Ecological Production Landscapes and Seascapes, Springer.

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permeates the project design and structure of the working packages, so that all case studies converge towards fostering Urban Prosperity – thus not treating resilience nor justice as separate tasks.

1.2.2 Data and modelling tools for climate neutral cities

While several technological tools are described below, developed by multiple partners, these are merely the means to help transformational change in cities, and not the goal. The skills brought together by the partnership are key for the effective **last-mile delivery** in the cities. The wealth of tools (some presented indicatively in *Section 1.1.3*) will be leveraged and contextualised to address specific city challenges at the pilot scale. Making sure the digital capacities for the tools' capitalisation are developed at cities (i.e., the data themselves, the data governance, the digital infrastructure) is vital, thus a strong methodological focus is placed on this.

Climate-neutral cities in the Industry 4.0 era: Processes for carbon accounting are becoming widely established. In parallel, as we move into the Industry 4.0 era, technologies for managing and interpreting relevant data are advancing rapidly. Yet, the reality in cities is that resources are stretched, fragmentation of governance drives competing agendas and there is often lack of access to timely, coordinated data to create a holistic assessment for informing investment decisions. UP2030 will help cities assess a systems-level (cross-sector) understanding of carbon consumption and opportunities for reduction. The multi-scale carbon budgeting process will provide **(i)** visibility of carbon consumption, **(ii)** management support for tracking ownership of data and monitoring of data, and **(iii)** ultimately help cities compare investment decisions for carbon reduction.

Building confidence on such a process implies an ability to manage fine-grained and comprehensive geospatial data, thus Big Data infrastructures are needed to enable making sense of large amounts of data from various sources. Such Big Data is key to determine climate baselines on both mitigation and adaptation. UP2030 will provide the infrastructure to support the Big Data processing life-cycle, provide data analytics services for decision making and allow the chaining of value adding activities across multiple platforms.

While UP2030 cities have reported they hold significant volumes of data in the pilot domain interest, it is a fact that some cities in Europe are more data-poor than others, and this naturally limits their abilities to apply emerging applications and take better-informed decisions. The project aims to develop guidance for cities on how to capitalize on - often publicly - available data and resources to address such data poverty issues and support their urban planning analysis. Emphasis will be placed on Earth Observation products[19] (e.g., geospatial data on green infrastructure and the built environment, flooding, population forecasts, air quality, Digital Elevation Models, Land Cover – Land Use, climate data on heatwaves to name a few). Using open geospatial frameworks to leverage the unprecedented volume of data in cities will help them meet their climate goals and develop sustainable urban environments.

Coupled mitigation & adaptation assessments: Existing in-house parametric design and geospatial analysis toolsets will integrate cross-sectoral data-driven design approaches to provide context-specific spatial solutions and help to evaluate the design solutions impact (consistent with the KPIs developed as part of each city's vision). Cities will be guided to integrate and scale up mitigation and adaptation principles by reducing energy consumption in the built environment, strengthening urban climate resilience, and enhancing human comfort and quality of life. Through the participatory engagement of the City Living Labs (LAAs below) in the proposed workshop series, they will demonstrate that through energy-efficient urban planning and design, compact urban districts can work synergistically with high-performance construction and landscape configuration to create interconnected and attractive urban areas that promote mitigation, adaptation, resilience, and transformation (e.g., UCCRN's application in the Isipingo district in Durban, South Africa, 2019)[20].

Urban Design Climate Workshop (UDCW) simulation tools (by UCCRN) are design-friendly tools (GIS + parametric design tools) for heat waves and pluvial flooding hazard/impact modelling considering urban microclimate effect (morphology, land use and cover, building features, etc.), including user guidance. The models are based on the elaboration of climate projections downscaled to include urban microclimate conditions and simulate the impacts of heat waves on population (mortality rate increase, hospitalization, including economic direct and indirect impacts) and on variation of energy demand for building cooling, and impacts of pluvial floods on buildings and open spaces (direct and indirect damage to structure and content). A dedicated module allows users to estimate the effects of adaptation measures applied within new construction interventions, building retrofitting and/or urban redevelopment projects. Model results are integrated in GIS and 3D modelling/computational design (Rhinoceros/Grasshopper). UP2030 will extend capabilities and usability of the tools by introducing the innovation of a predefined set of customizable urban "meta-design strategies" integrating climate mitigation and adaptation, based on a 4 broad "city visions" approach (net-zero city, green-blue city, circular city, 15-minute city). This will make the tools more readily usable by pilot cities.

Consistent with the commitment to support data-poor cities, UP2030 will apply the rapid-CRA tool based on the inhouse BlueEarth Engine (developed by DELTARES, already applied in 10 global cities[21]), which makes use of

[19] ESA, 2020, The Ever-Growing Use Of Copernicus Across Europe's Regions, https://bit.ly/3xXrxK2
[20] UCCRN European Hub, UCCRN European Hub at the Durban Urban Design Climate Workshop (UDCW).
[21] Resilient Cities Network, Making Climate Risk Assessments Accessible.

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publicly available bio-geophysical and socio-economic data to assess climate risk rapidly and at low cost. This will offer the opportunity to cities to quickly identify urban climate vulnerable populations, i.e., areas where they should further focus on intervention measures. Rapid CRAs will inform the CRCT Support Tool, which will support *place-based design* in a city district in a collaborative touch-screen GIS-based environment together with stakeholders. The CRCT approach has proven to be very useful and effective in NBS optioneering and design of streets and neighbourhoods[22] and will be extended to introduce mitigation assessment capabilities.

1.2.3 Digital Twins for sustainable urban energy planning & operation, and GHG emissions reduction

Digital energy Twins will be developed for the cities to allow them **(i)** advance their understanding of real potential on both the demand side (reduction) and supply side (increase), **(ii)** improve decision making on that basis, and **(iii)** improve operational efficiency while supporting engagement with stakeholders who can support implementation of findings.

Energy communities/districts: The decarbonisation of cities and the development of positive energy districts is also an urban planning problem since most of the resources (generation, distribution, storage systems) will be shared by their inhabitants and require a district-level design. Urban planners should be able to characterise the potential demand of any district, and consider any measures available to lower this demand either through technological solutions (envelope, systems) or monitoring and management solutions. This will also allow them to assess the energy needs and potential measures to be developed. A holistic approach should be considered, considering possible alternatives, e.g., DHC networks, potential biomass resources, areas needed for renewable energy generation (PV, wind) either building integrated or on the ground, and energy storage facilities. It is critical to assess potential barriers for sharing this district-level energy and facilities, be it in terms of regulatory barriers or uncertain business cases, where Energy Service Companies (ESCOs) could play a role in terms of financing (T5.3).

Digital *energy* Twins coupling BIM/CIM & GIS: Cities have been increasingly focusing on building energy retrofits and the integration of renewable energy systems. Urban-scale Building Energy Modelling (UBEM), which is the development of a **digital *energy* twin** of a city, is a newly emerging strategy that can help climate-proof cities by offering simulation-based, quantitative insight into the performance of buildings and renewable energy systems. UBEM's capabilities include advanced data-driven techniques (i.e., machine learning (ML)) to accurately predict performance indicators (i.e., heating/cooling energy use, GHG emissions, occupant thermal stress) in different time resolutions using building, context and climate related input features. Such models will offer the project the opportunity to bring participatory planning in housing renovation using 3D BIM tools - building on the previous experience of Fraunhofer (Fernandez et al., 2020).[23]

UP2030 will build upon such data-driven capabilities in the partnership to predict the impact of different energy retrofit scenarios applied on buildings, including improvement of passive envelope systems (i.e., wall, window and roof materials), energy systems (HVAC system efficiencies), occupant behaviours (i.e., heating/cooling setpoints, effective use of natural ventilation) and PV electricity generation potential (e.g., on both rooftops and vertical building facades). As such, data-driven UBEMs will support decision-making by rapid estimation of what-if scenarios and their impact for any future year, e.g., 2030, 2050. The ML training datasets and ML models, previously developed by partners, will be applied at the neighbourhood scale (e.g., see Istanbul pilot). The Urban Modeling Interface (UMI) (ETH collaboration with MIT's Sustainable Design Lab) will serve as a urban modelling platform to evaluate the environmental performance of neighbourhoods and cities with respect to operational and embodied energy use, neighbourhood walkability, access to daylighting, urban food production and district-level energy supply analysis. **This allows for deeper integration of the digital energy twins and the above-mentioned digital tools for climate resilient design.**

Last, the digital twins will be seamlessly integrated in GIS for the 3D visualisation and benchmarking of scenarios. Variables at building level will be incorporated into existent cadastral databases that will be then enhanced with the calculation of complementary attributes (i.e., orientation, external wall surface, height, solar radiation, etc.) through geo-processing supported by Digital Elevation Models and LIDAR imagery in the GIS environment. The integration of BIM/CIM and GIS allows to transform information towards the generation of knowledge and intelligence. For example, by means of an attribute-based selection, clustering techniques and hotspots analysis, the replication potential (those buildings of similar characteristics) at district level can be quantified. The project will gather rich datasets of the buildings in the pilot areas in standard data formats (i.e., CityGML), which can be made public for the use of various stakeholders and purposes. Energy models and libraries for collaborative use of objects will also be gathered in data repositories for future research/development.

Digitisation of circular construction

[22] McEvoy et al., 2019. Evaluating a Planning Support System's Use and Effects in Urban Adaptation, https://doi.org/10.3390/su12010173
[23] Fernandez et al., 2020, Smart Cities for Smarter Citizens, https://doi.org/10.48494/REALCORP2020.9077

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As a major contributor to global CO_2 emissions[24], the construction sector needs to move from a linear to a circular model. As the built environment densifies and evolves rapidly in urban areas, circular economy allows both the repurposing of existing construction materials when dismantled, and the design of new buildings that are flexible, adaptable, and ready for reuse at their end of life. From a life cycle assessment point of view, although operational carbon has been reduced through advances in building technology and efficiency, embodied carbon represents a major barrier to achieving neutrality[25]. Circular economy has shown to have an enormous potential in reducing this embodied carbon by extending the life of building and components, avoiding raw material extraction, material production and transportation as well as waste generation (all having tremendous impact on global biodiversity, too). However, the transition to a circular economy is still hampered by technical and logistical challenges.
In the context of UP2030, digital technologies will be integrated to circular design to overcome some of these challenges. They will enable circular processes over the entire building life cycle, by identifying materials for reuse, predicting material flow, optimizing building design with available materials, developing new techniques for "design for disassembly", connecting construction stakeholders to efficiently trade materials, etc.[26] The techniques will be extended and applied to a variety of local practices through digital technologies. By digitally recognizing the local characteristics of the built environment, circular building design methods that connect dismantled and new projects and identify low embodied carbon pathways will be implemented into pilot urban development practices.

1.2.4 Inclusive engagement and participation towards spatial justice

Making cities more connected and compact towards climate neutrality is an opportunity to make them better places to live for everyone, particularly the most vulnerable. To achieve this synergy, UP2030 will support pilot cities be deliberate towards spatial justice outcomes. As described below methodologically, strengthening local democracy through inclusive participation is key to achieving them.

Spatial justice is concerned with how space and social vulnerability interact, and the impacts spatial planning and other territorial policies at different geographical scales may have on this interaction, mitigating or accentuating socio-spatial inequality. Spatial justice is conceived in two main constituent dimensions, that is **(i)** the geography of the distribution of the burdens and benefits of urban development **(distributive justice**), and **(ii)** the ways by which this distribution is negotiated and decided upon (**procedural justice**). UP2030 will explore the dynamic interplay between the different determinants of inequality and their interface with space and spatial policy in the climate neutrality (just) transition at the pilot environments. It will also map out how space influences the distribution of burdens and benefits of the transition, and how spatial policy impacts this relationship, taking stock of specific governance arrangements and policy implementation processes. With respect to procedural justice, UP2030 will (firstly) focus on policy innovations in different governance environments, that are based on co-creation with stakeholders (see LAAs below) and deliberate digital citizen engagement, and (secondly) on developing local authorities' capacities to identify, measure and implement policy that fosters the just transition, in both distributive and procedural dimensions. The method will build local capacity to co-design spatially just and procedurally fair policies and to mobilise citizens in innovative ways, harnessing their tacit knowledge to enhance spatial justice in "left-behind places" at regional and local scales.

Learning & Action Alliances (LAAs): UP2030 will setup Living Labs (LLs) as "user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real life communities and settings"[27]. LLs have been widely employed as Transition Management Tools in many cities to work on complex urgent societal challenges and have achieved good results[28]. UP2030 will innovate by setting up ***LAAs*** in all pilot cases as a tool for co-creation in just transition pathways, distribution of decision power and tools for feedback and iteration steps; involving all relevant participants: public actors, private actors, users (civil society) and knowledge institutes. The emphasis of LAAs will be on joint *Learning* where there are no established experts rather than on transfer of knowledge in a top-down manner. As a result, mutual ownership will facilitate the identification and adoption of innovative solutions (i.e., the "*Action*" dimension of LAAs) for the complex socio-technical challenges at hand.

Citizen-science to strengthen placemaking & place identity: UP2030 will establish how principles and strategies that originate from citizen science can be leveraged to strengthen placemaking / place-identity in actions contributing to mitigation. To this end, the project will investigate how place identity towards liveable communities (sense of place, but also sense of nature) is formed, and evaluate how this is affected by interventions of participatory urban planning initiatives and citizen science campaigns. The project will also assess how such initiatives influence the citizens' attitude and behaviour: are they taking more pro-environmental/neutrality actions at the project ending, and are they willing to help improve the liveability of their neighbourhood – and is this linked with their place identity? A

[24] Abergel et al., 2019, Global Status Report for Buildings and Construction, https://bit.ly/36Ls2vA
[25] Pomponi and Moncaster, 2016, Embodied carbon mitigation and reduction in the built environment, https://bit.ly/3Lh37zd
[26] De Wolf et al., 2021, Circular Digital Built Environment, https://doi.org/10.3390/su13116348
[27] European Network of Living Labs, European Network of Living Labs.
[28] Steen and Bueren, 2017, Urban Living Labs: A living lab way of working. Amsterdam Institute for Advanced Metropolitan Solutions (AMS).

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toolkit to support cities on how to set up inclusive citizen science activities, especially on urban planning, is still lacking. UP2030 will develop a toolkit that provides templates, guidelines, training, etc to do so.
Inclusive participation: UP2030 will focus on identifying and engaging vulnerable target groups – including through the proposed LAAs. It will identify what are the entry points to "converse" with different groups, as their primary drivers might not always be climate neutrality per se. However, neutrality can be an important co-benefit of their primary interests (e.g., energy costs, noise pollution, accessibility and so on). This is consistent with the ambition of UP2030 to deliver multiple benefits of interventions. For instance - relevant to the pilots of Belfast and Zagreb - UP2030 recognises that children and teenagers have been largely overlooked in urban planning. As young residents, they are still excluded from the decision making and urban planning processes. Child Friendly participatory tools will be developed to enable the successful engagement of children and teenagers. This toolset will foster their active participation into the "citymaking" and elevate their role as equal actors to consider benefits such as access to green space, safe infrastructure specially around schools, low-speed/car-free zones and clean air zones – all benefits that arise from engaging them in the climate neutrality discussion. Ultimately, a city that is friendly to children, is friendly to all – and, in many cases, can have a strong positive impact on gender.

1.2.5 UP2030 Implementation Methodology

While many partners are brough together UP2030 takes a **mixed methodological approach**: **(i)** On the one hand, it sets research questions which are aimed to challenge the way our cities essentially manage the nexus between justice-resilience-sustainability-climate neutrality. Such questions are universal and relevant to diverse contexts, as for instance:

"How to meaningfully engage communities in planning and design in the context of climate neutrality?"
"How to ensure the neutrality vision is an equitable one?"
"How to embed new urban planning and design tools/methods in the day-to-day practice of local authorities?"
"How do policy decisions across sectors affect climate neutrality outcomes and how can neutrality be mainstreamed?"
"What is the role of governance - including digital governance - in facilitating desired neutrality outcomes?"

(ii) On the other hand, it follows a challenge-based innovation testing approach, which aims to answer such questions by means of pilot implementation, thus **helping city stakeholders and local authorities put neutrality on the map of their communities in day-to-day actions and strategic decisions**. To guide implementation at pilot level, the project adopts a straightforward methodological approach, as seen in **Figure 4**. Given the diversity of pilots, each city is expected to adapt the steps to its own context.

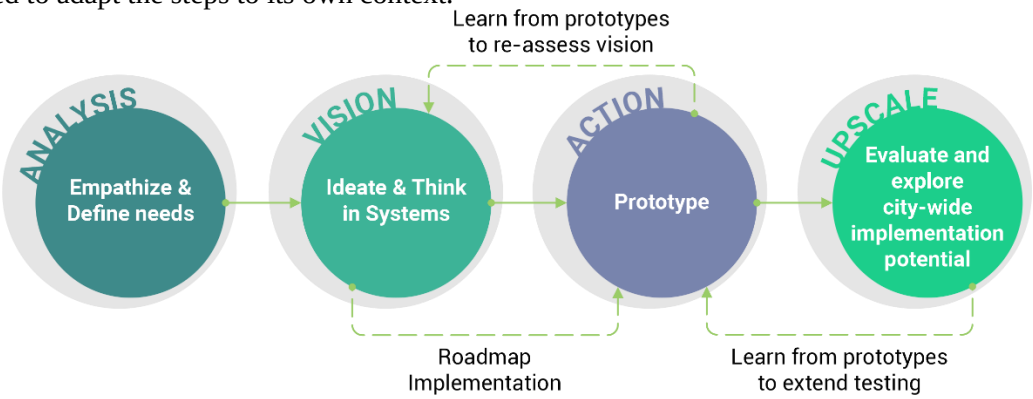

Figure 4: Implementation methodology for LAAs at the pilot environments (adaptation of Design Thinking steps[29])

The process is linear and allows for iteration controls to validate that objectives are met in every step's implementation. This process will guide the LAA living-lab activities *(Work Package (WP) 4)*. These steps are reflected in a series of respective workshops that advance understanding and guide action. Briefly the steps involve:

Step 1 - Analysis: "empathise"[30] to create each pilot case profile. This step supports the identification of needs, baseline conditions and barriers for the city and its stakeholders.

Step 2 - Vision: ideate and think in systems, tap into the creative abilities of participants that typically get overlooked to generate the vision through workshops. Link the vision to metrics and identify high-impact factor actions (prepare implementation roadmaps to move to Step 3 below).

Step 3 - Action: Implement roadmaps to prototype pilot solutions, including designs of physical interventions, digital tools, products and new policies.

[29] IDEOU, What is Design Thinking?.
[30] "Empathise" looks into understanding people/agents deeper (understand the way they do things and why, their physical and emotional needs, how they think about the world, and what is meaningful to them). This can refer to city employees through to specific citizen groups that interventions will target.

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Step 4 - Evaluate: Explore success through validation of metrics and based on new knowledge, examine opportunities for further upscale.

1.2.5.1 UP2030 Case Studies

UP2030 applies its implementation methodology in **10 European city pilots**, shown in **Figure 5**. These cover a wide diversity of socio-economic, demographic, climatic and geographic and cultural conditions, thus offering good opportunities for testing and learning how the UP2030 approach applies in different contexts. Taking into account the urgency of the Mission, all pilots selected in UP2030 build on the pilot's previous experience to minimise the exploration period of the project. Yet, the project fosters creativity in the first two steps of the implementation methodology (as shown above) to make sure the urban planning and design challenge is framed holistically and will deliver multiple benefits - consistent with the project's ambition.

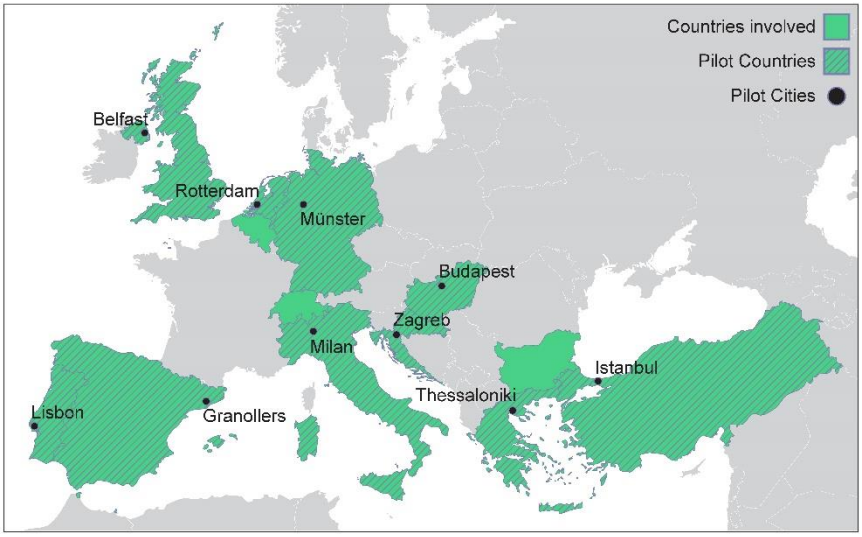

Figure 5: UP2030 City pilots.

Climate neutrality requires global collaboration, as such UP2030 develops an **international transfer pilot** in the Global South to maximise the impact of the Mission globally and promote the EU's science diplomacy. The pilot is in Rio de Janeiro, Brazil, to test the UP2030 approach under critical urbanisation and equity challenges[31]. All pilots are described below.

In addition, it is pointed out that each **Pilot City** is assigned a **City Liaison (CL)** partner. The Liaisons are research/technical partners of the project from the same country as the pilot city for logistical and language reasons, who help the cities engage more efficiently and deeper with the project through direct support. Previous project experience has shown this is a strong asset for integration of the city in projects and better demonstrators (note a similar scheme by NetZeroCities who support cities through Climate Neutral Cities Advisors).

Cities' commitments to implement

Participating cities are committed to climate neutrality actions, having already released climate action plans and being signatories of CoM, GCoM and/or the C40 Deadline-2020 declaration. Six of the UP2030 cities have also applied to the Mission's call for the first cohort of Climate-neutral and Smart Cities and the remaining aim to benefit from engagement through the Horizon Europe. The proposed project measures on the pilot themes described below, will be outcomes of intense co-creation activities which require multi-stakeholder collaboration, i.e. they are not ambitions solely of the local authority. As such, they require further elaboration during project implementation and establishing consensus. For this reason, UP2030 has a dedicated Milestone *(MS9)* whereby the pilot stakeholders sign the "Partnership Agreements" (PAs) toward committing to implement the proposed measures through resource allocation. The PAs will be informed by the methodology followed for the preparation of the Climate City Contract.

City twinning & Strategic learning

Some of the selected cities have advanced certain aspects of their urban planning and design practice more than others and have proven to be excellent innovation test beds for the specific solutions. These cities constitute the **frontrunner** cities of UP2030. **Follower** cities will work on similar thematics but will offer their own context of implementation – e.g., different geography, climate, socio-economic and demographic setting - learning by the frontrunners who are a "step ahead" (WP4 sets out the learning process).

In this context, the distinction between frontrunner and follower primarily applies to a specific approach and does not characterise the entire city. The distinction implies that one city might be a frontrunner with regards to the application of one thematic, but be a follower when it comes to another (e.g. Thessaloniki will learn from Rotterdam on energy efficiency and renewables' installation, but will contribute to the project its experience in addressing social housing needs as frontrunner). **As such, twinning is not one directional and does not lead to a one-to-one city correspondence, rather it creates a web of interactions between cities.** These interactions are coordinated in T4.4. The **draft twinning themes** will be refined during the vision co-creation phase: **(i)** affordable and adequate housing, **(ii)** positive-energy districts, **(iii)** connected, green, healthy neighbourhoods, **(iv)** compact net-zero

[31] It is noted that the Rio de Janeiro pilot does not receive direct funding but only in-kind support. The City has already expressed interest through its Chief Resilience Office (RCities contact point).

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developments, and **(v)** engaging and equitable cities. The project will develop "Replication and Transferability Packages" under WP5 to secure that processes and methods are readily available and adaptable to generate impact in replication cities

Belfast: Creating the first NetZero district through tree planting, green infrastructure and play [CL: MfC]

Challenge and achievements so far: In December 2020, Belfast launched the *Belfast Resilience Strategy* alongside the *Belfast Net Zero Carbon Roadmap* and the *Belfast One Million Trees programme*. Together these form the foundations for the city' s ambitions to achieve carbon neutrality (80% reduction by 2030 and 100% by 2050). The city has also put liveability in its core through the multi-partner strategy '*A Bolder Vision for Belfast'* which aims to create sustainable and mixed-use neighbourhoods in the city centre through the redevelopment of brownfield sites. Belfast's vision is to create a people-focused environment with playful streets and spaces for children and families to live and thrive. The city has been working in aligning play, climate neutrality, tree planting and green infrastructure by developing the award-winning Urban Childhood Report and has been testing these new approaches in the design and implementation of a new city centre multi-functional park and in the Cathedral Gardens. However, the municipality needs to elevate and embed these learning and work across council departments and with city stakeholders in more areas and projects across the city.

To be achieved through UP2030: Through UP2030, Belfast seeks to create a framework that will be applied in all its regeneration projects that integrates tree planting, green infrastructure, play and co-design with young people. The framework will be tested in the Linen Quarter district, which has been identified of becoming the first sustainable and net zero business district in Northern Ireland. Lessons learned from this pilot will be useful to identify opportunities in other neighbourhoods and upscale the concept of net-zero districts across the city. Furthermore, the municipality aims to address the fragmentation in terms of governance and delivery, embedding this project in the upcoming update of Belfast's Community Plan 'The Belfast Agenda'.

Belfast's KPIs: KPI1: > 20 engagement and training campaign with youth forum and public transport providers**; KPI2:** GHG reduction (baseline to be defined)**; KPI3:** > development of Linen Quarter co-created NBS for play, removing car space and reducing traffic.

Budapest: Healthy neighbourhoods for climate neutrality [CL: GGGI]

Challenge and achievements so far: Budapest struggles with air and noise pollution caused by the increasing car traffic. The number of private vehicles increased by 20% and transport CO_2 emissions grew by 24% from 2010 to 2020 - derailing the city's net-zero ambitions. In 2020 there were 48 days where the measured level of PM10 exceeded the EU limits. While urgent interventions are needed, restricting car use is a politically sensitive topic. There have been rather sporadic attempts to transform single streets or smaller neighbourhoods into pedestrian areas, mostly for temporary periods (e.g., one side of the Danube Riverbank in the summer, during the pandemic). The Municipality is currently elaborating the criteria, methodology and funding needs of the Healthy Streets project to be adapted in Budapest. 67 million EUR will be available for district municipalities starting from autumn 2022 to submit and carry out projects that are in line with the Healthy Streets concept.

To be achieved through UP2030: Create a monitoring and impact measuring methodology that will be applied in the Healthy Streets projects. The Budapest Municipality will also combine the Healthy Streets projects with specific walk/bike to school sub-projects in a specific neighbourhood with high vulnerabilities (location TBC). This project will represent an innovative experimental urban development approach in terms of climate action, safety, health (clean air, less noise) and social well-being for Budapest. Evaluating the impact of these projects will enable measuring the CO_2 reduction achieved in Budapest, as well as to provide proof of the multiple benefits of these projects to support further up-scaling in more neighbourhoods.

Budapest's KPIs: KPI1: >1000m of new Healthy Streets; **KPI2:** Ecosystem Service impact (against baseline to be established during project).

Granollers: Balancing between urban growth and climate resilience in the new Rail Station development [CL: AQUATEC]

Challenge and achievements so far: The "Metropolitan Territorial Plan of Barcelona" (PTMB, 2010) presents Granollers as an urban area with strong structural relation with Barcelona, in terms of labour market, public facilities, services and nodes of transport network. Granollers has already started working towards climate neutrality through its commitment to the Covenant of Mayors. The city is also developing Low Emission Zones, Safe and Healthy School Environments and other actions that facilitate traffic calming and the recovery of the pedestrian public spaces. The "Strategic Plan of Granollers by 2030" (in preparation) develops the criteria to transform the area around Granollers Centre railway station into a liveable neighbourhood, resilient to climate change. The planned new metropolitan development around the railway station, will integrate tertiary uses with public facilities and open spaces and a new mobility system.

To be achieved through UP2030: Granollers will focus its interventions in sector 129-La Bòbila around the Rail Station towards creating a low carbon district by identifying the right balance between Grey and Blue/Green infrastructure while maintaining inclusivity and equity - i.e. not drive gentrification. Specific activities to be

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implemented include: **(i)** the creation of a CityLab for urban prosperity, as a space for participation and co-design of policies, initiatives and knowledge, **(ii)** launch open calls for urban innovation projects with the aim of providing financial and technical support for the implementation of high impact projects, **(iii)** create two low-emission neighbourhoods in the area.

Granollers's KPIs: KPI1: update the "2030 Strategic Plan of Granollers"; **KPI2:** assess trade-offs between climate resilient design and inclusivity; **KPI3:** 2 very low-emission neighbourhoods initiated.

Istanbul: Towards positive energy districts through Digital Twin opportunity screening [CL: GUNAM]

Challenge and achievements so far: With a population of 15.8m inhabitants, Istanbul is a dense city despite its urban sprawl. The city is experiencing intense heat waves intensified by climate change. The poor design and low efficiency of existing buildings, particularly in low-income neighbourhoods, have given rise to high energy consumption and emissions. Istanbul is also facing mobility problems: traffic congestion and overcrowded public transport. Istanbul is a signatory of the C40 "The Deadline 2020" initiative committing to "making Istanbul a carbon neutral city by 2050". IMM published its C40 Climate Change Action Plan (CAP) in 2021 presenting its greenhouse emission inventory including future scenarios analysis, targeted greenhouse emission reduction rates by years and prioritisation of actions. Istanbul's Sustainable Urban Mobility Plan aims to address mobility related challenges - including GHG emissions. Yet, there is a gap between strategy and implementation.

To be achieved through UP2030: Through UP2030, Istanbul aims to sharpen decision making to advance its planning agenda by initiating positive energy neighbourhoods with the use of advanced computational methods (i.e., digital energy twin and artificial intelligence) in support of decision-making. Artificial intelligence (machine learning methods) will be used to predict hourly building energy use and PV electricity generation, as well as urban mobility patterns in the selected neighbourhood. We will use deep learning methods, and we will specifically explore Recurrent Neural Networks, Graph Neural Networks and Multi-layer Perceptrons.
The city will engage relevant stakeholders, from households in the selected neighbourhoods to decision-makers in IMM, through a serious game approach as an immersive and interactive Urban Building/Transport Energy Model (UBTEM). The emphasis will be **(i)** on the decarbonisation of buildings and transport systems and the effective integration of photovoltaic systems into building and urban public spaces, **(ii)** on transport, with emphasis on 100% renewables-fed e-bikes deployment, which will target inclusive use (note car ownership/use is male dominated: it is expected that e-bikes will give improved access to women, young, people with certain disabilities and elderly) **(iii)** on measuring social benefits to reduce energy poverty and overheating-related health risks. Furthermore, the digital technologies embedded in the UBTEM will provide easy-to-explore, open-access data to citizens towards well-informed decision-making for all stakeholders.

Istanbul's KPIs: KPI1: develop the UBTEM for the city for one low-income district**; KPI2:** install a new urban PV and e-bike demonstrator stations**; KPI3:** > 4 surveys and 4 public events to engage citizens in the solutions' design and assessments.

Lisbon: Fostering synergies of adaptation and mitigation in underserved parishes [CL: LNEC]

Challenge and achievements so far: Lisbon's population doubles downs daily by residents of the metropolitan region who travel to work, study or enjoy the various services and attractions in the 24 parishes of the city. Lisbon is trying to improve the provision of high-quality multi-functional public spaces, promote healthier lifestyles, and support its climate neutrality targets. Over the last 10 years, new green infrastructure and horticultural parks were created; new playgrounds and seating areas in public spaces were created, and new trees were planted. One key challenge the city is facing is how to measure the benefits of these activities and maximise the city's value-for-money to further accelerate the introduction of new green and blue infrastructure at the neighbourhood level and remove space from cars.

To be achieved through UP2030: Lisbon aims to integrate intelligence in their digital decision-support platform around the level of effort and impact of its climate neutrality and adaptation actions. The approach will be tested and validated at the parish of Alvalade, an area of more than 30,000 inhabitants and characterized by significant climate vulnerabilities and social inequalities. The planned interventions will be focused on the various social facilities located within the parish, such as schools, sport complexes and libraries. Lisbon wishes to assess the needs and define a set of solutions (fit for purpose NBS) to promote climate neutrality and adaptation, taking into account multiple impacts (social, economic, political, environmental, technological and heritage) at the same time. Early engagement will be planned with the local communities achieving an improved understanding of local needs to inform decisions.

Lisbon's KPIs: KPI1: >3 intervention locations within Alvalade**; KPI2:** > 4 community engagement events**; KPI3:** GHG reduction (baseline to be defined)**;KPI4:**>6,000 neighbourhood beneficiaries (300m radius from intervention).

Milan: Net Zero development of the 2026 Olympic "Porta Romana" park and facilities [CL: LINKS]

Challenge and achievements so far: The City of Milan has committed to reducing its CO_2 emissions by 45% by 2030 and becoming carbon neutral by 2050 (signatory of CoM, GCoM, C40 Deadline-2020 declaration). The key challenge for Milan is how to bring the high-level commitments down to the neighbourhood scale and within the

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upcoming regeneration projects. One of the most important regeneration projects is the *Porta Romana Park and Railway Yard* (the Winter 2026 Olympic park), located in the south-eastern part of the city. Over the years, the Porta Romana Train Line (an abandoned line) has played the role of a barrier, reinforcing the distance between north and south and creating a fracture in the design of the city. The city has committed that the regeneration shall align with the goals of the European Green Deal and the Italian Recovery and Resilience Plan: **(i)** decarbonisation of the building stock, **(ii)** creation of a resilient community, **(iii)** circular economy, **(iv)** nature-based solutions. The project's approved masterplan proposes a new model of integrating nature within the city, bringing together residents, athletes and visitors in a community with a strong identity. Residential and working spaces are planned in symbiosis; the integrated planning of the neighbourhood encourages pedestrian movement, creating a car-free area for soft mobility. The central park of the area will be the heart of the project, creating a new public asset rich in biodiversity. The Olympic Village will become a students' village at the end of the Olympic Games to extend the life and value of the facilities.

To be achieved through UP2030: Through UP2030, the city will develop and apply quantitative and qualitative metrics to inform the intervention's plan and design to ensure that it meets its above outlined objectives. These will reflect socioeconomic, demographic characteristics of beneficiaries, as well as adaptation and mitigation metrics. Milan will test for the first time at a neighbourhood scale, the multi-dimensional analysis of the City Resilience Index tool. Through this process, the city will develop a robust monitoring and evaluation system that will be replicated in all similar regeneration projects of the city.

Milan's KPIs: KPI1: > 20 sustainability metrics assessed**; KPI2:** > 1000 citizens/future users from different groups engaged from neighbouring areas**; KPI3:** improved soft connectivity and GHG reduction (baseline to be defined)**; KPI4:** > 8,000 sqm of NBS with co-benefits calculated; **KPI5:** Circular economy in construction models achieved.

Münster: Shaping climate neutral and resilient compact neighbourhoods [CL: Fraunhofer]

Challenge and achievements so far: Münster urgently needs to address urban sprawl – a main driver of increased emissions - by supporting more compact neighbourhoods. However, creating more compact neighbourhoods leads to densification that might decrease the adaptation capacity of the city. Thus, the city needs to understand how to balance its mitigation and adaptation measures (flooding, Urban Hear Island (UHI) effect). One major challenge, therefore, for the city is to create liveable dense neighbourhoods, with retrofitted buildings and new high-quality ones, with green infrastructure and open spaces that support both water retention and mitigation of the UHI effect – which disproportionately affects the elderly of the city. Münster has already developed climate-focused engagement programmes both with citizens (ongoing living labs) and private sector (e.g., the Münster Alliance for Climate Protection). The city needs technical support to develop the strategy for retrofitting the building stock, public spaces and infrastructure with multiple benefits, as well as updating governance and urban planning procedures to respond to the retrofit challenge.

To be achieved through UP2030: The city of Münster will develop capacity to improve data/digital governance and mainstream the use of digital twins to take informed decisions (e.g., UDCW and UMI tools, for solutions that consider climatic, hydrological, air quality, traffic and building stock data). Through UP2030, the city will identify optimal pathways to accelerate the reduction of GHG. It aims to increase the energy efficient housing stock and increase installation rate of renewable energy (solar panels and heat pumps in the districts). Münster will identify measures to reduce the UHI effect and promote water sensitive urban design (NBS including green roofs, swales, rain gardens etc.). Lastly, the municipality will extend the successfully implemented climate training (Train the Trainer) to address behavioural change in climate mitigation and adaptation. Ultimately, the city shall develop new design guidelines for climate resilient neighbourhoods for the future improvement of public spaces and outdoor sport facilities, cool areas (e.g., benches for elderly people, drinking water facilities, tree covered areas for picnic places). This will be coupled with strong educational campaigns to strengthen the climate identity of the citizens.

Münsters's KPIs: KPI1: > 2 neighbourhoods with project-strategy; **KPI2:** > update data governance policy; **KPI3:** > 2 new tools for decision making; **KPI4:** > 500 residents engaged in each of the 2 neighbourhoods.

Rotterdam: Energy transition as a driver for urban prosperity in vulnerable neighbourhoods [CL: RCities]

Challenge and achievements so far: The districts of Bospolder and Tussendijken (BoTu) located in the west of Rotterdam city centre, account for more than 14,000 residents. Both districts have a high density of population and a high degree of diversity among their residents, with a prevalence of relatively young people of non-Dutch background. According to the social index in 2018, these districts were considered among the poorest in the Netherlands. To strengthen social cohesion and create economic opportunities, the municipality launched in 2019 the innovative programme "Resilient BoTu 2028". BoTu has been identified as one of the first districts in becoming net zero by 2030. The programme builds on this commitment and tries to use energy transition as the entry point to achieve transformative change at the district level by enhancing social cohesion and economic prosperity for its residents. Several interventions and initiatives have already taken place to eliminate the use of natural gas, combat energy poverty and build community. Thanks to ad-hoc capacity-building modules it was possible to train energy coaches and energy ambassadors to spread awareness within the neighbourhood. At the same time, employment

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opportunities were created by educating people on how to install solar panels and car charging stations. Schools and public areas are being redesigned to be more sustainable and climate-adaptive. Ongoing challenges remain the scaling up of these actions to maximize impact, the retrofitting of the housing stock (which takes time) and how to replicate this model to other neighbourhoods within Rotterdam.

To be achieved through UP2030: Through UP2030, the ambition is to upscale the level of interventions to raise social resilience, energy efficiency and renovation of housing stock, as well as increase the amount of people involved in upskilling within the two districts. Upscaling for BoTu means also to replicate these interventions in other neighbourhoods in Rotterdam (starting in Spangen, in the vicinity of BoTu). This requires developing a blueprint of a "district first" approach towards Net Zero, collecting lessons learned from impact assessments to inform new urban policies, removing barriers and facilitating new mechanisms to start the replication process.

Rotterdam's KPIs: KPI1: > 2 new local energy saving/clean energy projects that create jobs; **KPI2:** employ 6 BoTu residents formerly dependent on welfare for a 6 month period of training and work experience; **KPI3:** train 10 local residents to become energy coaches; **KPI4:** >1500 residents engaged through district activities; **KPI5:** implement small energy saving measures in >500 low income households, resulting in CO_2 reduction of > 125,000 kg per year.

Thessaloniki: Addressing energy poverty and housing affordability for the most vulnerable [CL: MDAT]

Challenge and achievements so far: The most pressing challenge for the City of Thessaloniki is the lack of affordable and adequate housing for its most vulnerable communities (homeless, elderly, refugees, other citizens in precarity). Without a stock of affordable and adequate housing, efforts to tackle homelessness and provide sustainable housing solutions for vulnerable groups are doomed to fail. Key characteristics of its current housing problem are: **(i)** population is ageing, as young people move abroad or to the suburbs, **(ii)** residential use is declining due to competing uses of the tertiary sector (tourism), creating pressure to the low/middle income households **(iii)** many households are susceptible to energy poverty due to the ageing and energy-intensive building stock. While there is a lack of affordable housing in Thessaloniki, there is also a large number of abandoned buildings. Based on this, Thessaloniki (through MDAT) set up a Social Rental Agency to initiate the implementation of an Action Plan based on the "housing first" model for the promotion of socially inclusive and financially affordable housing (funded by ROOF - URBACT III). The model matches those under risk of housing exclusion with owners of abandoned buildings. A range of opportunities were identified in both private and public buildings, and a number of policies, governance frameworks and incentives were developed.

To be achieved through UP2030: Through UP2030 the city will advance the Action Plan to return empty housing stock back to the market at affordable prices and, in tandem, improve its energy performance through the use of energy upgrading financial mechanisms (mainly RRF and ERDF funds). UP2030 will focus on the area of Sfageia/Laxanokipoi, at the west side of the city. Key objectives of this work include: **(i)** identifying the interconnections between housing and the other city systems of the neighbourhood (i.e., mobility, social infrastructure, green spaces), **(ii)** further advancing and promoting circularity by repurposing the abandoned stock, **(iii)** improving the energy efficiency of the building stock to tackle energy poverty, **(iv)** integrate upgrades in the housing first model city wide.

Thessaloniki's KPIs: KPI1: > 5 identified housing options explored; **KPI2:** >200 beneficiary households; **KPI3:** > 3 funding streams assessed; **KPI4:** > 4 policy recommendations developed for city stakeholders.

Zagreb: A circular economy approach to low-carbon urban food systems [CL: VM]

Challenge and achievements so far: Zagreb is a city rich in natural and cultural heritage with a strong agricultural history. Residents of Zagreb love to spend time outdoors and opt for locally grown food. The area surrounding the city, the "Zagreb ring", is home to many farms that provide food for the city through markets and temporary selling points. As part of its neutrality journey, as well as health and livelihood improvement plans, Zagreb aims to promote a *"closing the circularity loop"* logic when it comes to urban food systems. The City of Zagreb has extended its green infrastructure network within the city. Through the H2020 proGIreg project, Zagreb - a frontrunner city within the project - developed an urban farming with therapeutic gardening in the neighbourhood of Sesvete. These gardens have been designed to target disabled users. The city wants to build on this experience and further extend urban agriculture within school communities across the city. To date, some schools in the city have gardens and orchards which produce food, however, these activities have not been seen from a neutrality nor circularity point of view.

To be achieved through UP2030: In the context of UP2030, Zagreb will redefine urban agriculture by creating and closing the loop from *School Farming - Food Production - Food Consumption - Food Waste - Composting, and back to School Farming*. The project will: **(i)** shape healthy diet choices of students, away from meat and high embodied CO_2, **(ii)** offer climate educational opportunities, **(iii)** increase food resilience. In parallel, given that some schools have limited space for green, a prototype of a modular indoor system will also be developed in one of these schools to secure inclusive participation and offer opportunities for greening and STEM activities. The project will actively engage the students, their teachers and their families as well as the local communities surrounding the schools. Lastly, the planned school green will also contribute to the city's goal of cooling down the city and

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mitigating heat impacts.
Zagreb's KPIs: KPI1: > 4 student communities of different age groups engaged to develop and sustain healthier diet choices; **KPI2**: >50% of school students engaged in educational activities concerning food-related carbon footprint; **KPI3**: demonstrate reduction in food system's embodied carbon (baseline TBD); **KPI4**: cooling the school environment (mitigating heat - baseline TBD).
Rio de Janeiro: The just energy transition challenge in informal settlements [CL: TUD]
Challenge and achievements so far: Rio's informal settlements, also known as favelas, are typically seen as segregated parts of the city, spatial manifestations of urban poverty and intra-urban inequality. The challenges of day-to-day stresses and intermittent shocks are exponentially higher for individuals living in favelas, often lacking formal tenure, with insufficient public space and facilities, inadequate access to municipal services, and non-compliance with planning and building regulations. When it comes to energy use, communities still struggle to secure access to safe and dependable energy. Despite their many setbacks, informal settlements are a reality on the ground and provide housing to over 1.5m citizens. Favela upgrading and community-based urbanisation is the only viable solution, and the challenge lies in converting these settlements to liveable, healthy, and inclusive living environments. The energy transition could propel this solution, but any attempt to engage informal settlements with the neutrality agenda will need to be founded on the principles of equity, inclusion and community participation. The City of Rio de Janeiro has ongoing initiatives, e.g., re-blocking informal settlements for a safer public realm with convenient paths for pedestrians and essential community facilities. Recent energy efficiency programmes (appliances and training for consumption reduction) and engagement to reduce non-technical losses (i.e., energy theft) are proving particularly successful. The city counts with strong community engagement and local solutions are being tested on a daily basis: favela Babylon already installed PV capacity of 12kWp in 2 retails and 1 community centre, while Morro de São Carlos favela is currently mapping its solar potential. Housing upgrades can have even further impact, if one considers thermal comfort and overall living conditions in favelas. Beyond climate concerns, the transition is vital for participation, well-being and inclusion.
To be achieved through UP2030: Rio will explore opportunities for the participation of favelas and their communities in the climate neutrality mission through inclusive favela upgrading. The pilot will focus on the Morro de São Carlos favela as a starting point to explore how adequate and affordable housing can be designed and delivered with low full life-cycle carbon, and will assess the feasibility of adapting or transforming existing housing units. In addition, it will assess the current community-based entrepreneurship environment to understand how to leverage projects that are being implemented on the ground to create scale. It will also identify what alternative sources of energy can be installed in informal settlements to ensure an affordable, reliable and sustainable supply. Lastly, UP2030 will identify those parameters of housing and renewable energy provision projects that qualify them for funding from public and private sources (e.g. national funds, international development banks, foreign aid, donors).
Rio's KPIs: KPI1: > 500 people engaged in household surveys; **KPI2:** > 3 housing prototypes analysed; **KPI3:** > 3 energy sources assessed for their technical, social, financial feasibility/relevance.

1.2.6 Interdisciplinary Approach

Urban planning and design is, by definition, interdisciplinary. Thus, UP2030 brings together skills from a range of professions, including planners, architects, engineers, geographers, computer, economists, social and political scientists. In this context, UP2030 aims to integrate across scientific disciplines to support urban planning and design solutions that will be used to guide the socio-technical transitions required by cities to meet their Mission targets. This multidisciplinary consortium combines diverse, complementary skills in the domains of urban planning and design, architectural innovation, carbon budgeting, sustainability transitions, mobility, digital technologies, energy efficiency, NBS, climate risk assessments (CRAs), innovative and integrated governance, financing, citizen engagement and spatial justice, among others. UP2030 recognises the difficulties that may arise from trans-disciplinary collaboration[32], such as the different language and terminology used among different disciplines and the different levels of scientific understanding and cognitive structures, and to this end it will follow the fundamentals of the Methodology in Interdisciplinary Research (MIR) framework that has already been successfully used in other European projects. It is worth pointing out that T.2.1 focuses on building consensus on the vision of the project, thus driving collaboration from the onset of the project. In addition, UP2030 will employ a quality assurance process through each task of the project WPs to ensure that all trans-disciplinary aspects are integrated in the developed solutions. This will create a meta-knowledge about all the different disciplines, methods and epistemologies involved and help the UP2030 consortium learn how to purposefully and reflectively integrate and synthesise different perspectives to develop successful solutions to facilitate cities in participating successfully in the Mission.

[32] MacLeod, 2018, What makes interdisciplinarity difficult?, https://doi.org/10.1007/s11229-016-1236-4

1.2.7 Integration of Social Sciences and Humanities

Embedding UP2030 solutions in the social, cultural, political, and economic context of cities is a key indicator for the project, thus Sciences and Humanities (SSH) research has been integrated in the project across different tasks and will be very present during the project's implementation *(Section 3)*. To name a few critical integration points as examples, **(i)** spatial interventions are analysed to explore their potential societal impact, **(ii)** governance arrangements are assessed in how they could support the pilot objectives, **(iii)** behavioural change across citizen groups as to their interaction with infrastructure is studied. In addition, the analysis of legal and ethical aspects of UP2030 is fundamental to comply with the diverse regulations that may affect the project activities.

A human-centred approach will be followed in all project activities to foster social innovation. Different stakeholders and professionals will be involved to identify the cities' needs, concerns and behaviours that should be considered in the design of solutions, thus improving interaction, and enhancing acceptability by the cities. Last, contextualization will be required for different cities, to embed the multilevel socio-technological innovations.

1.2.8 Gender Dimension in the UP2030 Project

Challenges
Interactions between humans and the urban environment show differences among genders. Gender mainstreaming is gradually gaining traction in international climate change scenarios, as it threatens to increase existing inequalities. Addressing gender inequality is fundamental for urban and community transformations – i.e., a transformation that does not address it is not desired nor is viable. Gender inequalities are observed in cities and therefore urban planning and design, and their governance plays a major role in addressing them33. To highlight the importance of design, Barcelona is following gender-sensitive design principles and has been termed 'Feminist City'[34] (best practices will be extended in the Granollers pilot, which is within the metropolitan region of Barcelona). Stark gender differences are especially evident in aspects concerning restricted or limited access to services, political decisions, and economic resources and opportunities in cities. In this respect, UP2030 will consider the influence of gender differences and inequalities in urban planning and design and promote gender equality throughout the activities of the project.
Exposing and Understanding Gender Differentiated Urban Planning and Design Practices
To develop solutions that will help cities reach their climate neutrality targets by 2030, it is essential to understand and expose gender-differentiated urban planning and design practices, gendered knowledge acquisition and usage. To this end, in the context of the UP2030 project, the gender dimension will be intersected with other social dimensions, with regards to **(i)** technologies, digitalisation, new business and governance models, and social and environmental innovation, **(ii)** socially disadvantaged regions, **(iii)** representation and voice in multi-stakeholder partnerships, and **(iv)** approaches to fair and just pathways, all of which will be investigated and assessed. The main outcome of the gender analysis and the intersectional factors, such as ethnicity and socioeconomic status, would be to ensure environmentally friendly measures that support social equality, including gender equality, and avoid social harms.
Encouraging Equal Access to Resources and Services
Current urban planning and design practices tend to favour the male population. However, urban planning and design become more effective and efficient when all genders are empowered to participate as equals in information sharing and generation, education and training, technology transfer, organisational development, financial assistance, policy development. To this end, UP2030 will **(i)** address all of its project results in all genders equally and be adjusted according to their profile and needs, **(ii)** seek connection with gender organisations and EU institutes, academic departments studying gender, national gender equality bodies etc. for information and knowledge acquisition, participate in activities and provide data and statistics for gender tracking in EU gender statistic database or other databases, and **(iii)** consider issues of access, information content, education, use, digital skills, language, privacy and security for the UP2030 capacity building activities and trainings, especially during the pilots' execution.
Gender Situation Analysis and Needs Assessment (GSANA)
A GSANA will be undertaken to ensure that project objectives, activities, results (e.g. urban planning and design solutions), management arrangements, resource allocation and indicators for monitoring are gender-sensitive. The GSANA will help understand how people of different genders are affected by a variety of political, social, cultural, historical and legal factors in relation to the project and what their potentially different needs might be. During meetings, a balanced participation of genders will be ensured and techniques that allow individuals to speak freely will be used. The cities involved will ensure a balanced sampling of human participants, taking into account gender and diversity by balancing in terms of sex, age, culture and social factors like education, occupation and residence. Methods of the design process will be complemented by gender-specific aspects. A variety of tools will be considered in order to integrate gender analysis into the project, such as gender specific questionnaires and checklists (i.e., Yellow Window, IGAR tool, Eige), gender specific guidelines and research methodologies. **MfC** brings extensive gender expertise and will lead GSANA, including networking with experts on gender equality.

[33] Libertun de Duren et al., 2020, Gender Inequalities in Cities, Inter-American Development Bank, http://dx.doi.org/10.18235/0002241

[34] Seitz, Designing Cities for Women: Lessons from Barcelona's 'Feminist City'.

1.2.9 Open Science Practices in the UP2030 project

UP2030 wholeheartedly supports the Open Science Policy under the European Commission[35] and will therefore adopt open data practices in order to guarantee easy and wide access to the project outputs to researchers as well as to other stakeholders relevant to the project's domain. In this respect, UP2030 commits fully to open-source policies through the following measures:

- **Project results will be made publicly available** as soon as possible via the project website unless specific exceptions apply (e.g., confidentiality issues)
- **Open access will be provided to all scientific publications** of UP2030's results by featuring in peer-reviewed journals through immediately available open access publishing ('gold' open access) or within a period of 6 months through self-archiving ('green' open access). The decision will be based on the publisher and law regulations as mentioned in the GA, the scope of the article (results it shares) as well as the partners who have contributed to the publication. All publications will be stored in trusted repositories (e.g., Zenodo). The cost of open access journal publications will be allocated to the partners participating in these publications.
- Open Research Europe and other open review platforms will be considered for UP2030 publications
- Suitable and trusted repositories will be investigated via OpenAIRE, the Registry of Open Access Repositories, and the Directory of Open Access Repositories
- **Open availability of Digital Tools** will be provided for download via a cloud Software-as-a-Service (SaaS) paradigm to support their use and sustainability
- **Supportive measures will be taken to ensure reproducibility of research outputs** such as deposit of data, clear presentation of methodological steps in reports. The reproducibility of the research outputs focuses mainly on the developed architecture, algorithms and tools.

1.2.10 Research Data Management

The management of UP2030's research data and results will be based on the incorporation of the FAIR (Findable, Accessible, Interoperable, Reusable) principles. UP2030 will clearly state the type of data and research outputs that will be generated throughout the project, how it will be exploited or made accessible for verification as well as sharing and re-use, and how it will be preserved and curated (even after the lifespan of the project). Moreover, a dedicated deliverable, Data Management Plan (DMP), is foreseen early in the project, which will describe in detail the management of the aforementioned data. This deliverable will constitute a living document, i.e., it will be updated during the project (see list of Deliverables). The following table presents an overview of UP2030's approach to research data management.

Table 2: UP2030's research data management

Types of data/research outputs	Different types of data will be used and a combination of new and existing ones will be processed. Data may include: administrative and financial data, personal (only as required for the implementation of the project) and organisational details of participants and stakeholders. Additionally, reports and data from pilots and their evaluation as well as digital tools such as databases, modelling and simulation tools will be produced.
Findability of data/research outputs	In case of UP2030's outputs such as deliverables, scientific publications etc. which are text-based, DOIs will be used as well as key words, abstracts and will be linked on the project's website.
Accessibility of data/research outputs	The tools and data produced or used in the project will be made openly available via the project website and the service platform; however, in case some data may not be openly available due to confidentiality or data protection issues, it will be thoroughly presented in the DMP. Furthermore, open availability will be provided for the Digital Tools for download via a cloud Software-as-a-Service (SaaS) service.
Interoperability of data/research outputs	The UP2030 project will develop digital tools with technical partners most likely to use openly available software, following the standard of the smart city engineering framework[36]. Moreover, regarding accessibility and usability of reports and documents by all partners and the wider public project partners will use common, standardised file formats (e.g., .docx, .xslx, .pdf). Wherever possible, the consortium will use open file standards.
Reusability of data/research outputs	In order to ensure reusability, licences such as Creative Commons, Open Data Commons will be used. Additionally, all tools and data produced or used in the project will be made openly available (restrictions will be implemented in case of confidentiality or data protection issues).
Curation and storage /preservation costs	Estimation of the costs for data management according to the FAIR principles as described above as well as the allocation of the necessary resources will be presented in the DMP (see WP1, section 3.1).

[35] EC, The EU's open science policy.
[36] ISO/IEC 30145-3:2020 | IEC Webstore

Section 2. Impact

2.1 Project's pathways towards impact

UP2030 will deliver a set of methods, resources, and tools (termed solutions hereafter) to guide the socio-technical transitions required by cities to meet their Mission's target by 2030. During the course of the project, these solutions will be tested and validated in various city scales by 8 European cities, 2 cities from an Associate Country and 1 knowledge-transfer city from the Global South, to lead the path towards more connected, compact, net-zero cities. The wide dissemination of these solutions through various city and practitioners' networks, the Mission Platform and through the collaboration with other European projects and activities will facilitate the **Up-date, Up-skill, Up-grade, Up-take and Up-scale** of these solutions, as defined by the 5UP approach, and will set the foundations for the continued deployment and institutionalization of these solutions within the urban practice after the project is over. **Table 3** demonstrates the expected impact of each of the 5UP approach steps.

Table 3: 5UP approach expected impact.

5UP approach	Expected Impact
UP-Dating	By updating the urban processes, planning codes and policies cities are using, cities will be able to accelerate their pathway towards sustainability and unlock their potential in reaching their climate targets.
UP-Skilling	Local communities, urban practitioners, city leaders will strengthen their capabilities and understanding on how to use and embed the proposed solutions within existing city processes. This will strengthen their ability to materialize their vision towards a more sustainable way-of-living through systemic transformation.
UP-Grading	The testing of the solutions (prototypes) at various city scales, will lead to the development of solutions that are more responsive to the needs of the cities advancing the urban planning and design practice across regions.
UP-Scaling	The integration of the project's solutions across sectors will lay the foundations for their continues deployment, ensuring city wide impact and transformation potential. It also ensures UP2030's sustainability after the project is over.
UP-Taking	The solutions will be structured in packages that allow meaningful dissemination towards replication. Offering the project's solutions to the Mission cities and beyond, will multiply exploitation potential.

Key to creating impact is structuring outputs in ways that stakeholders can readily use in order to navigate the complexity of urban development the UP2030 impacts are targeted to specific stakeholder groups, as listed in **Table 4** (worth noting that new quadruple helix partnerships shall uptake these solutions to apply them).

Table 4: Target groups impacted by UP2030.

Target Group	Relevant bodies (list non-exhaustive)	Key message
A. Cities and networks	Covenant of Mayors (EU), Global Covenant of Mayors, **ICLEI**, **Resilient Cities Network**, Eurocities, EnergyCities, Climate-KIC, C40, Cities Alliance, UN-Habitat	"UP2030 provides robust and replicable methods to identify needs, assess baselines, address barriers and create visions for a just and resilient transition towards climate neutrality by 2030"
B. Policy- & decision-makers	Committee of the Regions, Major Cities of Europe, ERRIN, FEDARENE, ETIP Smart Networks for Energy Transition, DG ENV, DG ENER, DG CLIMA, DG MOVE, national governments / ministries	"UP2030 provides ready to use data, information and white papers to create an evidence base for integrative policies on urban planning and design, energy efficiency and climate adaptation".
C. NGOs	URBACT, SMART CITY HUB, Urbanistes du Monde, UIA, WRI	"UP2030 provides innovative tools and methods to encourage inclusive citizen participation and promote citizens to adopt sustainable behaviours to minimise their environmental footprint and contribute to the cities' transitions".
D. Citizens, vulnerable & disadvantaged/ marginalized groups	Disabled people's organisations, organisations for women, minorities and people at precarity, pedestrian & cyclist associations, neighbourhood associations, elderly, women, children,	
E. Mission & associated projects	RTD-HE-MissionCities, NetZeroCities	"UP2030 and associated Mission projects will engage in deep collaboration to identify common narratives and provide tested solutions and best practices to contribute to the Mission's vision".
F. Scientific community	Aqua Research Collaboration, BDVA/DAIRO, Association of European Operational Research Societies, European Energy Research Alliance	"UP2030 provides cost-effective socio-technical solutions based on an innovative framework for better urban planning and design which will open the path for further research opportunities".

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G. Urban planning experts and SMEs	**ISOCARP, UCCRN (Global)**	"UP2030 provides solutions which address impacts on climate and the environment while fostering trust with consumers and investors through environmental accountability".
H. International standardisation bodies and research infrastructures	OGC, ISO, Cloud, EOSC, EGI, GAIA-X, DG INFRA	"UP2030 makes the participatory approaches and social impact assessments of neutrality interventions standard practice"; "UP2030 data and tools validated and open for research and policy".

2.1.1 Contribution of UP2030 towards Achieving the Expected Outcomes of the Call Topic

UP2030 intends to address and significantly contribute to the EO of the HORIZON-MISS-2021-CIT-02-01.

UP2030's approach towards: *"Contribution to the implementation… in line with the European Green Deal ambition and objectives".*
UP2030 contributes to the Urban Agenda for the EU, the New Leipzig Charter, the European partnership on Driving Urban Transitions for a sustainable future (DUT) and the New European Bauhaus Initiative through its suite of tools and methods for digital spatial planning and adaptation- mitigation synergy analysis. In addition, the project's solutions for positive-energy districts, carbon budgets, circularity in construction, NBS integration, mobility and air quality assessment provide a valuable asset for the Fit for 55 Strategy, the Zero Pollution Action Plan, the Biodiversity Strategy and the Circular Economy Action Plan. Ultimately, the UP2030 solutions accelerate the Climate-Neutral and Smart Cities Mission and the European Green Deal's ambition for the cities' transitions to climate neutrality by 2030.
Main target groups: A, B, E, G, H
UP2030's approach towards: *"Transparent and efficient decision-making processes for people-centric urban planning and… enhanced cross-sectoral integration".*
The UP2030 suite of tools and methods provide insights on the cities' fundamental needs for reaching their climate neutrality by 2030. Governance, policy and legal recommendations for an integrated climate-neutral planning and design approach are provided, enabling the identification of a common vision for viable and sustainable pathways, based on the values of justice, resilience, sustainability, and neutrality, for the cities socio-technical transitions. Existing urban planning and design policies are assessed and reformulated with innovative concepts, tools and methods towards higher collaboration. In the scope of the project these are achieved through the UP2030 LAA activities, where stakeholders design collaboratively appropriate pathways to simultaneously address the multiple challenges of urban planning and design and climate neutrality and consider the non-linear connections among different processes affecting them. Technological solutions, including simulation models, visualisations, and digital twins, will constitute the platform for deeper collaboration and debates among the stakeholder communities.
Main target groups: A, B, C, G, H
UP2030's approach towards: *"Effective management of trade-offs and ownership of transformative changes… including people with disabilities, older people and youth".*
UP2030 brings together diverse viewpoints and objectives of stakeholders across different economic, social, political and technological scales, and promotes joint learning, co-creation and dialogue for negotiating solutions that generate multiple benefits through its spatial justice, participation and engagement approaches (e.g., LAAs, child friendly participatory toolset, use of the AST tools), tools using geospatial socio-economic indicators (see rapid CRAs) and quality of associated built environment indicators (see UDCW). This implies active multi-stakeholder participation and collaboration at multiple levels, appreciation of cultural and religious values, and enhancement of knowledge and well-being of communities. Mutual ownership will increase adaptive capacity and facilitate the identification and adoption of pathways for addressing the complex challenges of urban planning and design and climate neutrality. The participatory nature of the project will help stakeholders themselves – including vulnerable populations - clearly identify trade-offs, cascading and cross-sectoral impacts.
Main target groups: A, C, D
UP2030's approach towards: *"Innovative urban planning and design practices, harnessing, compiling and mainstreaming local knowledge… via data space for smart communities and sectoral data spaces".*
UP2030 provides numerous digital tools to support the cities transitions towards climate neutrality, i.e., a digital energy twin application environment for net-zero decision-making towards positive energy districts, a digital planning and design toolset for spatial mitigation/adaptation trade-off analysis and co-benefits oriented decision-making, an interactive toolkit for performing a planning & design needs, barriers and opportunity analysis, as well as a toolset for catalysing inclusive participation and spatial justice. These solutions are developed based on the needs of the actual end-users, who are also testing and validating their added value to provide better urban planning and design practices. Last but not least, UP2030 puts special emphasis on addressing data poverty and the digital divide among cities, through standardising how existing resources (e.g., remote sensing) can be used in urban

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planning and design applications. The ultimate success factor is making sure that cities do collect data, but they do this purposefully by designing processes where these data are used in decision making.
Main target groups: A, F, G, H
UP2030's approach towards: *"Solutions that ensure a more equitable, just, synergetic and optimal use of urban spaces integrating… biodiversity and reduced urban environmental footprint".*
Connected, compact, net zero cities are central to optimal use of urban spaces and the methods proposed put equity and justice in their centre (e.g., spatial justice assessments, LAAs, participatory mapping with citizen science, child-friendly design). UP2030 solutions and roadmaps support cities in their process of prototyping to meet 4 broad visions: net-zero city, green-blue city, circular city, 15-minute city – consistent with the outcome. UP2030 provide data, information and knowledge that open the way towards climate neutral and smart cities (e.g., carbon budgets, mobility assessments/models, digitisation of circular construction and LCA towards passive buildings). Data (e.g., energy data, environmental data, etc.) from existing infrastructures, programmes and initiatives, such as the European Science Open Cloud (EOSC), Copernicus, etc. are also exploited.
Main target groups: A, B, E, F, G, H

2.1.2 Contribution of UP2030 towards Achieving Long-term and Wider Impacts in the Mission

UP2030 also aims to make a difference **beyond the immediate scope of the project** by outlining **Key Impact Pathways (KIPs)** to address the wider expected impacts (I) as specified in **Mission: Climate neutral and smart cities.**

UP2030's approach towards: *"Capacity building among European cities, in particular the 100 cities under the Cities Mission, to design and roll out their Climate City Contracts and reach climate neutrality by 2030".*
The UP2030 solutions and 5UP approach are specifically centred around upskilling. Co-design, co-development and co-implementation is not only focusing on local authority but extends to building capacity of the ecosystem of relevant stakeholders (quadruple helix) - as such also leading a paradigm shift to engage citizens as agents of change. In addition, the *"Partnership Commitments"* led by cities to secure buy-in of the enabling stakeholder environment that will be accomplished in the context of the project, has been inspired by the climate city contract concept, and will be connected with the overall CCC process that some of the participating cities will be running as part of the Mission, while further mobilize those that will not yet be part of the 100 Mission Cities. .
UP2030's approach towards: *"Sector integration, cross-sectorial collaboration and synergies, supported by digital solutions… and enhanced competitiveness of the European industry".*
The integrated design solutions developed in UP2030 are utilised to achieve the project's main vision of connected, compact and low carbon neighbourhoods which is fundamental to achieving energy and resource efficiency "by design" as well as promoting liveability. In addition, UBEM and BIM/CIM coupling in GIS support better design decision making (put simply *"where to do what, how and when"*) e.g., by taking better energy planning and achieving better operation. Circular economy promoted through digital circular construction solutions is key to improving material efficiency, thus advancing net zero through a life-cycle approach (digital life cycle inventories will quantify actual impact). These solutions are at the cutting edge of European R&D and shall influence how European industry in the years to come.
UP2030's approach towards: *"Deployment of inclusive, replicable deep renovation… related energy transition planning and implementation, prevention and reduction of energy poverty".*
UP2030 presents tangible pathways to the cities' representatives for positive energy districts. Opportunities in specific city context will be sought towards equitable energy transition, but also participatory planning through Digital Twins and of interventions. The tools applied help characterise the impact of alternative solutions (whether on renewable penetration in cities or energy efficiency measures) and understand their costs and benefits.
UP2030's approach towards: *"Deployment and increased modal share of inclusive, clean, shared and alternative mobility modes and… to avoid mobility-poverty".*
UP2030 gives special emphasis on connectedness by means of active and equitable mobility. Building upon the 15-minute city and healthy streets concepts, UP2030 also addresses externalities by offering safer streets promoting a modal shift at least at the neighbourhood scale. Particular attention is placed on access for children, elderly, low-income and people with disabilities (given differential access to mobility modes)
UP2030's approach towards: *"Establishment of innovative and inclusive local and/or regional governance models and institutional partnerships… digitisation and (big) data handling".*
One of primary project intended impacts relates to the promotion of innovative/enabling governance arrangements that allow for cross-sectoral collaboration in urban planning and design towards neutrality. This is key for upscaling the solution prototypes, and means that the decision-making process needs to have institutional collaboration mechanisms "built in" (i.e. the transition cannot be achieved by the local authority on its own). The LAAs instigate these collaborations in the project's pilots while the proposed "Partnership Commitments" aim at institutional agreements to collaborate (MoU). The proposed UP2030 digitisation towards accurate carbon accounting will also strengthen collaboration through creating information flows. This will increase the cities' innovation capacity level,

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as well as allow them to integrate smart solutions to their action plans. Lastly, through carbon budgeting, cities themselves will also be tasked with screening pipeline projects for their neutrality contribution.
UP2030's approach towards: *"Development of new co-creation and co-management method … better integration of their needs within the community's strategies and plans".*
UP2030 delivers tangible ways to secure active participation of citizens and stakeholders in the co-creation of urban planning and design practices, which strengthens local democracy and produces strategies based on the citizens' actual needs.
UP2030's approach towards: *"Establishment/development of interoperable, scalable and replicable digital innovative solutions… open source software where relevant".*
The project places emphasis on strengthening data governance and the digital infrastructure of cities. It offers the UP2030 service platform, including interactive digital toolkits and digital twin application environments, and provides open access to its resources (e.g., models, databases) for them to be easily accessible for further use by Mission cities, thus helping them reach their climate targets by 2030.
UP2030's approach towards: *"Contribute to the availability of relevant data in the European common Data spaces for Mobility, Green Deal and Energy to enable further reuse of information to support the wider community".*
Cities and the wider community working on urban innovation will have access to harmonised and homogenised quality-controlled data which will be produced during the project (or will be capitalised by it). These data will be offered transparently and interoperably for further uptake (see examples of data sources in **Section 1.2**).
UP2030's approach towards: *"Increased synergies and complementarities with all the relevant EU policies, programmes and initiatives linked to cities, in particular the DIGITAL programme and the Covenant of Mayors for Climate and Energy".*
UP2030's urban planning and design integrated approaches meet the objectives of integrative European policies, inform other programmes (e.g., URBACT, UIA), bring digital technology closer to the European citizens and public administrations, and offer new resources for cities to support their engagement with the Covenant of Mayors.

2.1.3 Potential Barriers to Achieve Impact and Identified Mitigation Measures

The UP2030 consortium is fully committed to mobilise all resources required to realise the envisaged impact. However, despite the project impacts being tangible, there may exist external factors and barriers over which the partners have limited control on, and which may affect the project impacts. Potential barriers and the established mitigation measures to overcome them, are presented below.

Barrier 1: Cities follow specific administrative and decision-making processes that are linked to regional and national scale policies and may show reluctance to integrate the UP2030 solutions.
Mitigating measures: As UP2030 will introduce innovative solutions, it is possible for end-users to face them with scepticism or be unable to integrate them in their portfolio due to jurisdiction issues. To mitigate this barrier, UP2030 answers to this scepticism with its co-creation approach regarding the cities' needs (WP4), as well as with the proposed urban planning and design policies (WP5). Workshops as well as documentations are planned at each pilot, producing concrete products (e.g., videos) which will also to easily transfer not only the technical know-how and methods developed, but also the living experience of a successful cross-sectoral alliance connected by UP2030's 5UP approach.
Barrier 2: Digital skills shortage among cities' representatives.
Mitigating measures: UP2030 will provide technical support to the cities through a series of online, open access webinars (specific training and workshops) and supporting resources (WP4). By doing so, the consortium aims to support capacity building and data informed policy making (WP5). All of the developed training material and the courses will be publicly available through open repositories.
Barrier 3: Differences in urban planning and design policies and regulations in different regions can obstruct the development, integration, validation and post-project exploitation of the UP2030 solutions.
Mitigating measures: From the early stages of the project, the consortium will undertake an analysis concerning policies and regulations, and legal standards resulting to a protocol that addresses the solutions' compliance with ethical, legal and regulatory requirements that pertain to the different countries involved in the project. As this is of high importance of the project, partners with legal and policy expertise are part of this consortium.
Barrier 4: Interoperability Issues/ Standardisation
Mitigating measures: During the project implementation interoperability issues will be addressed and solved with respect to tools and communication technologies to be used in the pilot cases. The proposed solutions will be designed to fit the widely adopted technologies, as well as to be fully interoperable with the technologies and products of the project partners, including the cities who will be the main beneficiaries of the project's outcomes. Ultimately, UP2030 will turn its approaches into standard practice, which for example can be adopted in the standardisation mechanism CEN TC 465 Sustainable and Smart Cities and Communities and validated by their use in commercial projects (WP6).

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2.1.4 Significance and Scale of Project's Contributions

The estimated scale and significance of UP2030's contribution towards the expected outcomes and impacts is presented in the following table, along with the indicators in which the application of the project's solutions is expected to have a positive impact.

Table 5: Scale, significance and application indicators of UP2030's solutions.

Scale	• Uptake of the UP2030 tools: 25 stakeholders express an interest to integrate the solutions (after they have been customised to their specific needs); 5 of them to sign contracts with service providers. • Uptake of the UP2030 Tools and Methods: 30 researchers. • Uptake of LAA guidelines: 10 additional partnerships. • High use of UP2030 scientific knowledge generation: at least 30 publications referring to UP2030 • Ongoing collaboration with at least 15 projects/initiatives supporting the Mission.
Significance	• UP2030 applicability in at least 90% of development policies targeted. • Adoption of pathways proposed by UP2030 in 90% of cases (9 cities). • Full participation of at least 70% of city stakeholders involved. • User acceptance of UP2030's solutions > 80%.
Indicator	• Expected tons of CO_2 Reductions from interventions. • Improvement of existing urban planning and design practices. • Support of more just and sustainable cities. • Community and Institutional Engagement and Capacity Building.

2.2 Measures to maximise impact

2.2.1 Dissemination, Communication and Exploitation in UP2030

UP2030 Dissemination Strategy: A variety of dissemination activities will be carried out during the lifespan of UP2030, which will primarily target the project's end-users (cities and citizens) and solutions providers, while also attempting to attract additional stakeholders. **Table 6** presents the key dissemination activities that will be conducted as well as their main target audiences and KPIs.

Table 6: Dissemination Plan - Measures, Target Audience and KPIs.

Scientific Publications	Key Decision Influencers, Decision-making Actors, National Ministries of Environment, Energy and Climate Change, Urban Planning and Design Agencies, Academia and Researchers, relevant Consortia.
Peer-reviewed Scientific Journals: Int. Journal of Urban Planning and Smart Cities, Cities, Planning Practice & Research, Int. Journal of Urban Planning and Development, Journal of Urban Affairs, Sustainable Cities and Society, Journal of Environmental Management, Environmental Research: Infrastructure and Sustainability, Int. Journal of Environmental Research and Public Health, Int. Journal of Sustainable Energy, Citizen Science: Theory and Practice, Science of the Total Environment, Frontiers in Sustainable Cities **Scientific Conferences:** Urban Affairs Association Conference, AESOP Annual Congress, RC21 Urban and Regional Development Conference, Int. Conference on Urban Drainage, European Climate Change Adaptation Conference, Urban Future, Int. Conference on Urban Health, Energy Cities Annual Conference, IEEE Int. Smart Cities Conference, Child in the City Int. Conference, European Urban Resilience Forum	
KPIs: Publishing in Peer-Reviewed Journal articles > 30; Presenting in Scientific Conferences > 50; At least 1 special edition led by UP2030 guest editors in a high impact Journal	
Technical Publications	European Commission Relevant Offices, Urban Planning and Design Studios, Decision-makers, Public and Private Actors.
Technical results will be disseminated through blog posts, articles, position/white papers, catalogues, books or any other outlets for technology providers, as well as publications related to the case study domains under consideration. Excellent examples of this kind of contribution are the upcoming editions of: Applied Sciences, IEEE Geoscience and Remote Sensing Letters, European Journal of Operational Research, Computers & Industrial Engineering, Journal of Simulation, Sustainable Energy Technologies and Assessments, UCCRN publications	
KPIs: Publishing Technical Publications >20, Presenting in Technical Conferences > 20	
Workshops & Trainings	Governmental Bodies, Policy Officers, Municipalities, Urban Planning & Design Practitioners, Potential Investors, Funding Organisations, ICT SMEs, Academic and Research Communities.
In the lifespan of the project, consortium partners will participate in and organise relevant workshops and webinars as a means of knowledge transfer, capacity building, wider outreach and sustainability. Training sessions on the use of the project's solutions, the development of climate action plans and climate risk assessments for cities, resilient and nature-based solutions for sustainable urban planning and design will also be carried out.	
KPIs: Workshops >10 in 8 different countries; Training Tutorials >8; Webinars >10.	
Joint Activities with relevant Initiatives	All Stakeholders with special focus on Urban Planning & Design Professionals, Policy- and Decision-making Actors, Key Environmental Influencing Organisations, relevant Public Bodies.

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To further amplify and maximise the impact and outreach of the project's solutions and to achieve their integration to other cities beyond the consortium, joint dissemination activities will be carried out with relevant initiatives. Project partners have already strong cooperation with ongoing relevant partnerships, networks and bodies, indicatively including NetZeroCities, Cities Alliance, UN-Habitat (World Urban Campaign Urban Thinkers Campus), Eurocities, EnergyCities, BDA, DGNB, Covenant of Mayors, ECSA, etc.	
KPIs: Relevant initiatives to establish links >15; Co-organised events >20; Fairs to Participate >20.	
Source Code Repository	Ecosystem of Open-Source Developers, Incubators, Associations and Digital Innovation Hubs, ICT SMEs, Researchers, relevant Consortia.
UP2030 will make accessible its software repositories through well-known distributed source code platforms in order to encourage a transparent and open-source culture. Indicative well-established repositories are GitHub and Bitbucket. Links to such platforms will be made available through the project's website.	
KPIs: Number of Publicly Available Deliverables (24); Source code: publish to >2 different repositories.	
Policy briefs	Standards Developing Organisations, Certification Committees, Open-Source Communities, Policy-Makers, Urban Planning & Design Agencies, Relevant Public Bodies, Local Agencies.
Analytical insights of the project results will be disseminated through the preparation of policy briefs throughout the project targeting policymakers and public administrators in the sector of urban planning and design. Consortium partners have a vast experience in providing consultations for better decision-making, thus the policy briefs will include information on addressing barriers, leveraging institutional resources, etc., regarding the implementation of innovative technologies in better urban planning and design practices.	
KPIs: Policy recommendations & best practices > 11 (at least 1 per pilot)	

UP2030 Communication Strategy: **Table 7** presents the communication activities that will be carried out throughout the lifespan of the project.

Table 7: Communication Plan – Measures and KPIs.

Visual identity	UP2030's visual identity will be designed in M1 of the project. It will include the project logo and colour palette that will be used in all the dissemination and communication activities of UP2030. Project materials (e.g., deliverables, papers, etc.) will be prepared following these identity guidelines in order to achieve the overall homogeneity of the project. Project templates, such as templates for deliverables and PowerPoint presentations, will also be prepared and distributed to partners.
	KPIs: Prepared in M1.
Project website	A project website will be designed and developed, and will act as UP2030's main communication tool. It will provide information about the project's objectives and activities and special effort will be made to provide access and customise content to the stakeholders of interest (including vulnerable groups). It will be maintained and updated regularly and will also have a dedicated page for regular (rota-based) blog posts prepared by the consortium partners regarding innovations in the project domains. The website will include access to the Story Maps as these are developed.
	KPIs: Online by M3, Unique visitors by M36: >4,000.
Social Media	UP2030 aims to build a strong online presence in the most commonly used Social Media Platforms (Facebook, Twitter and LinkedIn) to extend its circle of influence and reach out to a wider audience.
	KPIs: Number of posts: 1 per week, Size of online community by M36: > 4,000.
e-Newsletters and Email Campaigns	e-newsletters will be prepared when key results of the project have been delivered in order to broadcast them to relevant stakeholders. In addition, project messages will be communicated to a targeted pool of contact points via emails, since this tool is deemed as a highly effective measure of engagement, especially when promoting events and outcome among different domains.
	KPIs: Total number of distributed e-Newsletters: 12; Total Mailing List Contact Points: >1,500.
Press Releases	Press releases will be produced when relevant pieces of news will be available in the project, especially targeting local and European electronic media.
	KPIs: Total number of press releases: 4
Innovation Portfolio	High-impact success stories deriving from the UP2030 solutions will be collected and presented to the public in a dedicated publication.
	KPIs: Number of success stories: story maps for all cities
Comms. Kit	Promotional material, such as brochures and posters, will be designed and distributed in every given opportunity. Printed material, it will be kept to a minimum or will be environmentally friendly in an effort to reduce the project's environmental footprint and also promote the project's vision.
	KPIs: Number of events to be distributed through by end of project >30.

UP2030 Joint Exploitation Strategy: An Exploitation and Sustainability Plan will be delivered and will provide information on the strategy and actions required to maximise the footprint and sustainability of the project's solutions for societal, scientific, and economic purposes. The UP2030 exploitation strategy will ensure the optimal use of the Key Exploitable Results (KERs) of the project which are presented in **Table 8**. This is foreseen to speed up the KERs

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uptake by targeted stakeholders, ensuring wide use and maximum impact to the society, science and technology, through formulating and communicating their Unique Value Proposition (UVP).

Table 8: UP2030 Key Exploitable Results.

KER 1: Tools for energy efficiency - Digital infrastructure
UVP: Guided decision-making for energy efficiency and renewable integration interventions based on state-of-the-art digital tools and end-to-end solutions for digital governance and data collection, processing, analysis and geospatial visualisation. **Customers:** Policy and Decision-makers, SMEs. **Partners:** TECH, R&I, CITY
KER 2: Digital spatial planning and design tools for climate resilience
UVP: A toolkit of digital solutions validated through the execution of the case studies to support better decision-making in the design of climate adaptation and mitigation actions. **Customers:** Policy and Decision-makers, SMEs. **Partners:** TECH, R&I, CITY
KER 3: Participation and engagement tools
UVP: Knowledge on citizen engagement based on state-of-the-art methods and digital tools, and on building multi-stakeholder partnerships to support better decision-making on spatial solutions. **Customers:** Policy and Decision-makers, NGOs, SMEs. **Partners:** DC, ICA, TUD, MfC, VUB.
KER 4: Data validation - Multi-Criteria and Cost-Benefit analysis
UVP: Open-source data analysis package integrating data validation of the UP2030 tools to contribute to the identification of the multiple benefits of neutrality actions in neighbourhoods, develop mitigation actions and analyse combination of actions. Advanced data analysis for experts and non-experts. **Customers:** Academia, Policy makers. **Partners:** TECH, NET, R&I
KER 5: Scientific knowledge – scientific publications and datasets
UVP: Up-to-date scientific knowledge, validated through the execution of the case studies and incorporated with feedback from policy and decision makers within cities, relevant projects and associations, for better-informed policy formulation. **Partners:** R&I, CITY, TECH.
KER 6: Academic knowledge – educational material
UVP: Influencing university curricula across the disciplines that engage with urban climate neutrality by capitalizing on the innovative and multi-disciplinary training programme. **Partners:** UCAM, TUD, UIC.

Taking into consideration the above-mentioned KERs, all the partners have developed initial individual exploitation plans. **TECH** partners will use UP2030's KERs to improve and broaden their current portfolios of commercial services in the domain of urban planning and design and acquire new customers. **NET** partners will disseminate the results among their members, showcasing the role and participation of citizens and cities. **CITY** partners will use UP2030's solutions to strengthen urban planning and design policy and decision-making. **R&I** partners will exploit the UP2030 outputs via their research and/or education activities, international cooperation activities, capacity development projects, creating products and services for policy, sustaining analytical tools as part of their work with local communities, strengthening governance through technological and methodological tools.

2.2.2 UP2030 Intellectual Property Management Strategy

As UP2030 will produce significant research results and technological innovations, defining and correctly handling all the intellectual property (IP) matters is of high importance. A strategy dedicated to this task will be developed under **Task 6.3**, to create an encouraging environment for further exploitation of the generated products, discoveries and knowledge. All information regarding the Intellectual Property Rights (IPR) handling will be clearly defined in the 'Consortium Agreement' (CA). UP2030 will handle IP management on a three-level approach:

1. Proposal phase IPR: All partners' background assets (i.e., scientific studies, methods, tools), and the potential IPR attached to them (i.e., patent, copyright), likely to be needed for the implementation of the project and/or for the use of the expected results that can be subject to IPR, have been already taken under consideration during the proposal preparation. In addition, the consortium has carried out a prior art analysis in order to refrain from using similar characteristics to an IPR. Specifically, preliminary searches were performed, using open resources (Google Patents, Patent Lens) and tools provided by EUIPO (Espacenet, eSearch plus), EUIPN (TMview) and WIPO (Global Brand Database). The analysis revealed that there are no trademarks on UP2030's acronym, logo and its full title. **2. IPR during the project:** The Horizon IP Scan service will be utilised at the project's Grant preparation phase in order for the partners to carry out a preliminary assessment of intangible assets with the aim to identify any IP issues that the consortium will potentially encounter. During the project, the newly generated knowledge and IP will be recorded, recognised, captured and assessed. Protective and supportive measures, such as the obligation to sign Non-Disclosure Agreements, will be undertaken by the consortium to create confidence to the involved participants, ensuring a transparent allocation of IPRs. In addition, the consortium plans to openly publish the overall project results and all publications will be stored in trusted repositories (e.g., Zenodo). **3. Post-project IPR:** Confidentiality obligations, transfer of results, obligations to protect results capable of commercial exploitation will also be considered after the end of the project. A Freedom-to-Operate (FTO) analysis has been carried out which resulted in no barriers, and therefore UP2030's pre-identified and newly generated IPRs can and will be protected.

2.3 Summary

SPECIFIC NEEDS	EXPECTED RESULTS	D & E & C MEASURES
· Many cities have already set ambitions targets to become Net Zero, outside of their participation in the Mission. There are plenty of local plans, policies, and strategies undertaken by the municipalities in terms of climate action. One of the major problems is the disconnection between strategy-making and implementation. **Need: to connect strategy to fast deployment of high-impact transformative interventions on the ground.** · Though tools and approaches in the service of climate neutrality are proliferating, their uptake is lagging behind (in varying degrees across cities). **Need: to support "last mile delivery" of solutions.** · The synergies between different agendas and policies are under-explored and not taken full advantage of. **Need: to bring social cohesion, resilience, and net zero agendas closer together in tangible ways.** · Cities are attributed an enormous responsibility, but local authorities cannot succeed in this transition alone. **Need: social innovation through quadruple helix engagement, and citizen participation towards meeting Mission targets.**	**Successful neighbourhood demonstrators:** Trial in 11 neighbourhoods of the transformation-enabling 5UP approach for connected, compact, net-zero neighbourhoods, building on participation, digital solutions and natural capital approaches. **Digital resources & toolkits** · Interactive toolkit for performing a planning & design needs, barriers and opportunity analysis. · Digital twin application environment for net-zero decision-making towards positive energy districts. · Digital planning and design toolset for spatial trade-off analysis and decision-making. · Toolset for catalysing inclusive participation and spatial justice. **Methods:** The 5UP approach as an overarching framework for mainstreaming net zero in planning and design, · Methodology for co-designing net zero visions and implementing transformative pathway roadmaps · Method for carbon budgeting for accounting and decision-making · Method to mediate strategic learning in city twinning programmes · Guidelines with governance, policy and legal recommendations for an integrated climate-neutral planning and design approach · Guidelines for financial valuation, business case development and alternative financing schemes assessments **Other legacy resources** · Online training programme on planning and design for just and resilience net zero cities · Net Zero neighbourhood story maps · UP2030 service platform	**Dissemination:** · Peer-Reviewed Journal articles > 30; Scientific Conference articles/presentations > 50 · Technical Publications > 20; Technical Conference presentations > 20 · Workshops >10 in 8 different countries; Training Tutorials >8; Webinars >10 · Synergies>15; Co-organised events >20; Fairs to Participate >20 · Source code >2 different repositories · Policy recommendations & best practices >11 (at least 1 per pilot) **Communication:** · Visual Identity ready by M1 · Website Online by M3; >4,000 unique visitors by M36 · Size of online community >4,000; 1 post per week · Newsletters: 12; Total Mailing List Contact Points: >1,500 · Press releases > 4 · Number of success stories: story maps for all cities · Distribution of communication materials> 30 events **Exploitation:** Open version of the UP2030 Tools, Methods, Models, and Data Repository, and Practical Guidelines; Service platform hosted in Smart cities marketplace; Custom services post project under a fee to ensure sustainability.

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TARGET GROUPS	OUTCOMES	IMPACTS
Direct users and responsible for further uptake, include local authorities from: · 8 **European cities** of diverse social, demographic, economic, geographical and climatic characteristics *[Milan (IT), Rotterdam (NL), Zagreb (HR), Thessaloniki (EL), Granollers (ES), Budapest (HU), Lisbon (PT), Muenster (DE)]* · 2 **cities from Associate countries** *[Istanbul (TR), Belfast (UK)]* · **1 city from the Global South** *[Rio de Janeiro (BR)]* **Beneficiaries include:** · **Departments within the local authorities** who will use the developed tools and methods; incl. department employees to be upskilled. · **Citizens** in the selected pilot intervention areas, particularly the most vulnerable to exclusion given prioritisation of actions and justice emphasis of the project. · **Other cities** that will access available resources and engage in dissemination activities. · **Mission and associated projects,** including Net Zero Cities. · **Scientific community, SMEs and experts** in urban planning and design, and related disciplines.	· Influence Mission cities adopting the 5UP socio-technical framework and supporting results, validated in the UP2030 pilots, to mainstream climate neutrality in their built & natural environment. Influence ICLEI and RCities network members through the organisations' channels. · Accessing the resources of UP2030 to apply its implementation methodology, all Mission cities can robustly co-analyse their needs, co-create visions, and turn these into roadmaps of actions. Cities to validate the success of actions to increase accountability in strategy development and implementation towards their citizens and the Commission. · Mission requesting UP2030 partners to provide recurring delivery of the Online Training Programme for new cities as they join the Mission. · High use of the UP2030 service platform (measured by the # of subscribers, enquiries in the marketplace and advisory requests) · More than 30% of Mission cities adopt the data governance mechanisms for drawing carbon budgets. · Making the participatory approaches and social impact assessments of neutrality interventions standard practice (adoption in standardisation mechanism CEN TC 465 Sustainable and Smart Cities and Communities, validation by their use in commercial projects) · Cities engaging citizens effectively with their neutrality plans through Story Maps	**Societal Impact:** Involvement through LAAs will create ownership and consensus among participants, providing the foundations for community building. Wider understanding of the scientific process and its limitations will be beneficial for debate within society about the cities' transitions to climate neutrality. Promotes participation of citizens in the neutrality agenda and behaviour change. **Environmental Impact:** Connected compact cities driving mitigation of climate change and contributing to energy and resource efficiency **Scientific Impact:** Improved understanding of cities' needs to reach their climate targets by 2030 and provision of valuable scientific knowledge in the sector of urban planning and design. **Economic Impact:** The commercial exploitation of the UP2030 solutions is expected to unlock new business opportunities and help service providers to enter the emerging market of climate neutral cities.

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Section 3. Quality and efficiency of the implementation

3.1 Work plan and resources

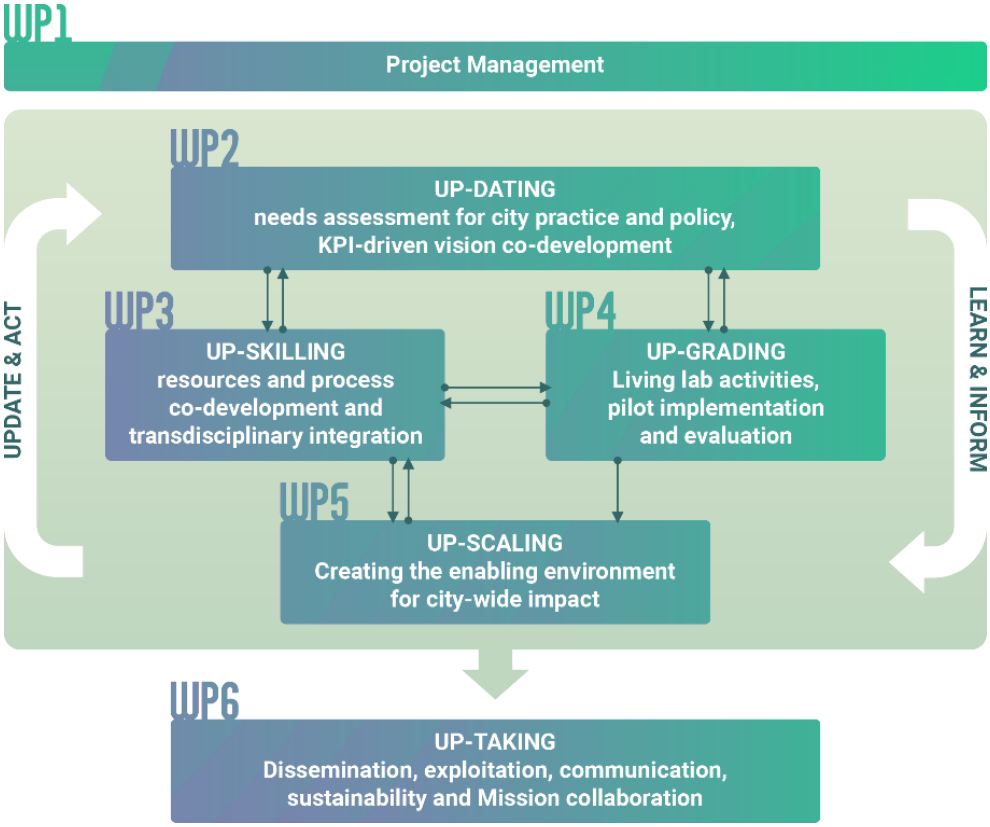

Figure 6: PERT diagram.

The UP2030 project implementation follows an agile approach, with multiple iterations of critical tasks in short cycles to facilitate early integration and rapid delivery, constant feedback generation and unanimous acceptance of the expected outputs. The work plan shown in the PERT diagram of **Figure 6** is structured in a way to strengthen core-interdependencies of the 5UP-approach towards meeting the project's core objectives. As such, the Work Packages (WPs) follow the steps of the 5UP-approach connecting organically excellence, impact and implementation. The project puts emphasis in milestones to timely and successfully meet all intermediate targets that have been set.

WP1 ensures effective and efficient project, scientific, risk, gender, legal, ethics and innovation management. In **WP2,** city needs and barriers are assessed, which in turn inform city context-specific vision. In **WP3**, the necessary resources and processes are co-developed by/with the stakeholder ecosystem (link to WP4) to upskill on identified capacity needs. In **WP4**, cities set up their living labs (the LAAs) and apply the resources/processes of WP3 to prototype at selected neighbourhoods. In WP4 they also learn from each other through twinning, as well as explore ways to scale up in collaboration with WP5. **WP5** supports cities to create the enabling environment for upscaling towards city-wide impact. In addition, through a training programme for cities, WP5 lays the foundation for up-skilling in WP3, and updating in WP2 – hence, the need for *Learning & Action feedbacks* between WP2 and WP5. Finally, **WP6** maximises the project's impact, contributes to relevant initiatives and devise plans to exploit the KERs.

3.1.1 UP2030 Gantt Chart Overview

The Gantt chart of UP2030 is shown in **Figure 7**, illustrating the timing of WPs and Tasks over a total project duration of 36 months. Consistent with the proposed agile approach, a number of iterations/interactions between and within WPs are planned, described in **Section** Fehler! Verweisquelle konnte nicht gefunden werden.. Milestones and deliverables are represented with MS# and letter D, respectively.

Work Packages and Tasks		Lead	Month																																				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
WP1	**MANAGE: Project Management**	**FhG**																																					
T1.1	Administrative Management: Quality Procedures Metric Definitions, EU Liaison, Reporting and Reviewing	FhG		D																																			
T1.2	Technical Management: Quality Control, Leadership and Technical WP Reporting	FhG																		D																			D
T1.3	Data Management	DRAXIS						D												D																			D
T1.4	Security, privacy and ethics	LIF						D												D																			
WP2	**UP-DATING: Understanding cities' and stakeholders' needs for upgrading, and co-designing visions of urban transformations**	**UIC**																																					
T2.1	Project Vision Consensus - The 5UP approach	FhG						D																															
T2.2	Benchmarking against the state of the art in urban planning and design	UIC						D						D																									
T2.3	City & stakeholder engagement for the identification of needs for upgrading, barriers and drivers of change	MfC								D																													
T2.4	Co-designing pilot shared visions and adaptive pathways for transformation	TSPA												D																									
WP3	**UP-SKILLING: Empowering the city's stakeholder ecosystem to co-develop urban planning and design-enabled transformation pathways**	**TUD**																																					
T3.1	Roadmap implementation through solution integration	DRAXIS												D												D													D
T3.2	Digital Twins of urban environments for energy integration and GHG emissions reduction	CIRCE																		D																			D
T3.3	Data governance and digital planning and design tools for climate neutral cities	UCAM																		D																			D
T3.4	Tools and approaches for promoting inclusive participation and spatial justice	TUD																		D																			D
WP4	**UP-GRADING: Piloting and demonstrating**	**RCities**																																					
T4.1	Pilots coordination & implementation of solutions & processes	RCities			D									D																									
T4.2	Learning and Action Alliances' setup and activities	ICA						D																															
T4.3	Monitoring, Evaluation and KPI Validation	UPV												D						D																			D
T4.4	Cross-pilot exchange Community of Practice and Strategic Learning	RCities																																		D			
WP5	**UP-SCALING: Implementation and mainstreaming through renewed policy development and decision-making**	**ICLEI**																																					
T5.1	Enabling governance environment, integrative policy development	ADELPHI																D																D					
T5.2	Replication and Transferability Packages	ICLEI																																					D
T5.3	Financing the transition	GGGI																				D														D			
T5.4	Training program for climate neutral and smart cities	UIC								D																								D					
WP6	**UP-TAKING: Dissemination, Exploitation, Communication and Sustainability of UP2030**	**DRAXIS**																																					
T6.1	Target-Driven Dissemination and Communication Strategy	UCCRN			D												D																						
T6.2	Dissemination and communication actions	DRAXIS						D												D																			D
T6.3	Exploitation, Standardisation and Market Readiness	ISOCARP												D																				D					
T6.4	Collaboration with the Mission and related projects	ICLEI																		D																			D

Figure 7: UP2030 Gantt Chart.

3.1.2 Critical risks management and mitigating actions

The scientific and technical risks' management are under the responsibility of the Project Coordinator (PC), the Technical Manager (TM) and Innovation Manager (IM) in collaboration with the WP leaders. Risk management will be part of the regular meetings of the Executive Board (ExB) where they participate.

3.1.3 Resources to be committed

The requested EU contribution is **11,081,846.00€.** In total, almost 83% corresponds to personnel costs and 7.2% to other direct costs.

The beneficiaries must base their contracts/subcontracts according to the principles for best value for money and absence of any conflict of interest (according to Articles 6.2 and 9.3 of GA). Beneficiaries that are 'contracting authorities' or 'contracting entities' (within the meaning of the EU public procurement Directives 2004/18/EC and 2004/17/EC or any EU legislation that replaces these Directives) must moreover comply with the applicable national law on public procurement.

Table 9: 'Subcontracting costs' items.

	Cost (€)	Description of tasks and justification
10/UIC	25,000	Design & development of capacity-building material (videos, etc) by external party. This input will be used for T5.4 and T6.2; used and disseminated through WP5 and WP6.
33/Budapest	13,000	External expertise on communication, including online and offline advertisement. The city does not have internally communication experts. This input will be used for T6.2; disseminated through WP6.

All depreciation costs for equipment, infrastructure or other assets in the project are in compliance with Article 6 and will be recorded in the appropriate beneficiary's accounts, purchased in accordance with Article 6.2.C of the grant agreement and written off in accordance with international accounting standards and the beneficiary's usual accounting practices.

Table 10: 'Purchase costs' items (travel and subsistence, equipment and other goods, works and services).

	Cost (€)	Justification
24/CIRCE: Equipment	25,350	Total cost equipment: 23,350.00€ Cost breakdown: €1,000 for MatLab licence €8,500 for SimaPro licence €9,850 for Revit licence €6,000 for Server. The equipment is 100% used for the project (in table 100% for the 36 months duration of the project). The purchase and use of equipment will be carried out to encourage use of the full capacity of the purchase as much as possible during the project lifetime. The usage of the purchased equipment will be reported, and depreciation costs will be adjusted accordingly.
Remaining purchase costs	16,000	€8,000 for travelling to annual progress and review meetings. €2,000 for dissemination material consumables, €2,000 for the organization of local workshops with the city of Istanbul; €4,000 for open access costs.
Total	41,350	
27/GUNAM: Equipment	70,000	Total cost equipment: 70,000.00€ Cost breakdown: €50,000 for PV installation of 20-25 kW – property of Istanbul post-project. A small Photovoltaic system will be integrated to park or bus station shades located in a central and visible region of the selected area of the pilot project. The system will provide electricity to the electrical vehicles like e-bikes, e-cars, and even e-bus. It can be replicable and scalable to larger deployment. The system will also be adaptable to building integration. Energy generation and contribution to the CO_2 emission reduction will be displayed on a monitoring unite attached to

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		the system, which will enhance the public awareness of such system. The electrical power of the system will be around 25kW. The budget will be used to purchase solar modules, inverters, cables, control equipment, software and construction material, etc. €20,000 for high performance computing to be used for building energy and PV modelling and simulations of the selected neighbourhood. The equipment is 100% used for the project (in table 100% for the 36 months duration of the project). The purchase and use of equipment will be carried out to encourage use of the full capacity of the purchase as much as possible during the project lifetime. The usage of the purchased equipment will be reported, and depreciation costs will be adjusted accordingly.
Remaining purchase costs	12,500	€8,000 for travelling to annual progress and review meetings. €3,000 for the organization of local workshops with the city of Istanbul; €1,500 for audit costs.
Total	82,500	
32/VM: Equipment	60,000	Cost for the installation of an urban farm that will be the complete property of the city of Zagreb after the end of the project. Total: 60,000€ Cost breakdown: 5,000€ for preparation for the container placement (fundaments where the container will be placed) 20,000€ for container prepared for the indoor farm with delivery 5,000€ for equipment for microclimate management (vents, dehumidifier, HVAC) 6,000€ for growing equipment (pots, shelves, construction, trays, irrigation, valves) 9,000€ for repromaterials (substrate, seeds, nutrients, disinfection) 10,000€ for LED growing lights (with installation and cabling) 5,000€ for IoT solution for automatization and management of microclimate. The equipment is 100% used for the project (in table 100% for the 36 months duration of the project). The purchase and use of equipment will be carried out to encourage use of the full capacity of the purchase as much as possible during the project lifetime. The usage of the purchased equipment will be reported, and depreciation costs will be adjusted accordingly.
Remaining purchase costs	11,000	€8,000 for travelling to progress meetings and review meetings of the project. €3,000 for the organization of local workshops, since VM is LC of the city of Zagreb.
Total	71,000	
33/Budapest: Other goods, and services	10,000	€5,000 for the design and development of dissemination material (e.g., recording of a video, printing of flyers, etc.); €5,000 for the organisation of local workshops.
Remaining purchase costs	8,000	Travelling to annual progress meetings and review meetings of the project.
Total	18,000	
35/Istanbul: Other goods and services	11,000	€6,000 for the design and development of dissemination material (e.g., recording of a video, printing of flyers, etc.); €5,000 for the organisation of local workshops.
Remaining purchase costs	8,000	Travelling to annual progress meetings and review meetings of the project.
Total	19,000	
36.1/E-NOVA: Travel & subsistence	8,000	Travelling to annual progress meetings and review meetings of the project.
Other goods and services	5,000	€5,000 for the organization of local workshops in the city of Lisbon.
Total	13,000	

3.2 Capacity of participants and consortium as a whole

The UP2030 consortium is considered large, comprising of a total **39 partner organisations** from **11 EU countries** and **4 partners** from **2 associated countries**, and **3 partners** from **transitional arrangement countries**. One

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international organisation (GGGI) receives direct funding. The transfer demonstrator pilot, Rio de Janeiro, Brazil, is supported with only in-kind efforts from their side and does not direct funding. 4 partners (ETH, MfC, UCAM & BELFAST) will participate in the action as 'associated partners' with their own funding source. The large size is well justified by the need to cover the multi-disciplinarity of the proposed work, as well as the extensive geographical spread and number of the UP2030 pilots. **Fraunhofer** has extensive experience in coordinating large projects (see profile) which is reassuring for effective implementation (see risk mitigation).

Figure 8: Value chain towards impact generation presenting key partners' position[37].

Together, the partners form a comprehensive group that brings the necessary expertise, skills, interdisciplinary knowledge and resources to constitute a **representative value chain of actors** ***(Figure 8)***, capable of achieving the ambitious project goals. Specifically, the consortium comprises of **8 EU cities** (BUDAPEST, GRANOLLERS, LISBON, MILAN, MUENSTER, ROTTERDAM, THESSALONIKI, ZAGREB; including MDAT, E-NOVA as the operational arms of THESSALONIKI & LISBON respectively), **1 associated country city** (ISTANBUL), and **1 transitional arrangement city** (BELFAST), **14 renowned Academic and Research Institutions** (Fraunhofer, TUD, UCAM, ETH, VUB, UIC, UPV, USTUTT, LNEC, CERTH, LINKS, CIRCE, METU, ADELPHI), **16 SMEs** (BH, DC, GreenAdapt, ICA, TSPA, AQUATEC, CETAQUA, LIF, MfC, DELTARES, DRAXIS, GUNAM, K3Y, LINKS, MAG, VM) and **4 network organisations** (ICLEI, RCities, UCCRN, GGGI).

This well-balanced composition of partner typologies guarantees that UP2030 can **(i)** go beyond the state-of-the-art in innovating in cities, **(ii)** maintain strong connection to professional practice and **(iii)** disseminate knowledge very effectively.

The consortium partners have **complementary skills and competences**, which cover all the project activities, including generation of ideas, co-design and co-development of methods and tools, implementation, integration, and evaluation. The partnership also has significant strengths in impact maximisation **(i)** directly in the pilots through approaches that secure high-social acceptance of solutions, and **(ii)** externally through wide dissemination and communication, exploitation, and policy outreach. All partners have been allocated with adequate resources to meet their intended roles during implementation. Apart from each partner's competences, past collaborations and experience were also considered while forming the consortium. With regards to the **integration of social sciences and humanities,** the project builds on activities that promote inclusive participation, sustainable behavioural change, and spatial justice. These constitute core building blocks of the socio-technical transition proposed by UP2030.

High quality of the project results is of utmost importance for all the partners. This will be secured by the **Project Coordinator** (Mrs. Trinidad Fernandez (F), Fraunhofer). A **Technical Manager** has been appointed (Dr Anastasios Karakostas (M), DRAXIS) to support the coordinator with the technical decisions, oversee the project's technical direction and technical risk management. UP2030 puts special efforts in making sure solutions are relevant, therefore has appointed an **Innovation Manager** (Dr Leon Kapetas (M) RCities)), to ensure successful exploitation. **Table 11** presents the key contribution of all partners.

UP2030 has confirmed the **External Advisory Board** members. They have been carefully selected to give diverse perspectives to the project and steer it accordingly. Their engagement is planned for two physical and three online meetings. The members are: 1. Joanna Williams (F) Prof. of Sustainable Development, The Bartlett School of Planning, UCL; 2. Shoshanna Saxe (F), Ass. Prof. of Sustainable Urban Infrastructure, University of Toronto's Department of Civil and Mineral Engineering; 3. Guillermo Diaz-Fanas (M), Infrastructure Climate Consultant, World Bank Group; 4. Grainia Long (F), Chief Executive, Northern Ireland Housing Executive.

Table 11: Partners' contribution to UP2030.

Fraunhofer is the PC, leading WP1. Fraunhofer is responsible for building consensus on the proposed approach (T2.1). Fraunhofer supports connecting with the Mission, and the Service Platform to the marketplace. Fraunhofer bring urban planning expertise, participatory planning in 3D BIMs, and methods for living labs. Fraunhofer is liaison partner to MUENSTER.
ADELPHI leads T4.1 and deliver governance and policy research and recommendations for the cities. ADELPHI supports the typology building for targeting replication packages to European cities (GreenAdapt led).
BH an interdisciplinary engineering and urban planning consultancy, will lead the climate action inventorying and planning for the neighbourhoods and cities, based on their experience from 26 CAPs for C40 cities.

[37] Partners primary roles are presented – as such, the presented value chain is providing a simplified representation of value creation.

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DC, a design studio for inclusive places & services, is responsible for developing and applying the proposed child friendly participatory toolset. They also support mobility assessments for walkability/active mobility.
GreenAdapt leads data-driven city typology structuring for the replication packages, and contributes to the development of governance and policy research complementing ADELPHI's lead.
ICA, an SME dedicated on social innovation for climate resilience, will extend its methodologies on Learning & Action Alliances to apply them in the challenges of the UP2030 pilots. As such, it leads T4.2.
ISOCARP, the centre for excellence of the *International Society of City and Regional Planners*, will lead Exploitation and Market Readiness, as such leads T6.3.
TSPA, an architecture and planning practice with focus on sustainable urban development and design leads T2.4 on the metric driven city visioning. It develops and applies its parametric design and geospatial analysis tools.
TUD (Department of Urbanism) is responsible of delivering work on spatial justice, leads WP3 and T3.4 which integrates social science and humanities in the project. It is liaison of the transfer demonstrator in Rio de Janeiro.
UIC bring urban planning expertise to benchmark against the SotA, leading T2.2. UIC leads the Learning Programme (T5.4) capitalising on its extensive professional education experience.
GGGI, will bring its expertise in supporting strong, inclusive and sustainable economic growth; it leads the work on financing the climate neutrality transition as in T5.3. GGGI is liaison partner for BUDAPEST.
ICLEI, leads upscaling (T5.2), and collaboration with the Mission and related initiatives and projects (T6.4). It sets up UP2030 service platform within the marketplace and leads standardisation of the project's outputs (T6.3).
RCities coordinates pilot implementation and city twinning activities (leads WP4, T4.1, T4.4). RCities will be the IM of the project and thus is expected to contribute to T6.3 & T6.4. RCities is liaison partner for ROTTERDAM.
UCCRN, an international multidisciplinary community of urban climate change practitioners and experts, leads T6.1 and significantly contribute to the Learning Programme (T5.4), and apply its UDCW simulation tools (T3.3).
AQUATEC is responsible for the multi-criteria and cost-benefit analysis of implementation measures using spatially distributed modelling – including ES benefits. AQUATEC is the liaison for GRANOLLERS.
CETAQUA, building on relevant project experience and its in-house liveable cities tool, is leading the development of indicators. As such, contributes firstly to T2.4 and secondly to T4.3 (indicator development through to evaluation)
LIF, legal experts, is responsible for issues of security, privacy and ethics, as such lead T1.4. They are also contributing to the policy analysis of T5.1 by offering legal perspectives on how policies can be assessed/deployed.
LNEC will contribute to the multi-criteria geospatial assessments (MCGA) and cost-benefit analysis (CBA) led by AQUATEC/GGGI respectively. LNEC is the liaison partner for LISBON.
MDAT is the operational arm of the City of Thessaloniki, thus will lead the technical aspects of the pilot to address housing needs. They have helped setup the Social Rental Agency in the city on which the UP2030 innovation in the pilot will build on. MDAT is liaison for THESSALONIKI.
METU contributes to the development of the digital energy twins (UBEM) using ML to predict performance indicators (heating/cooling energy use, GHG emissions, occupant thermal stress) in different time resolutions using building, context and climate related inputs.
MfC will lead participatory mapping services to understand better the needs of stakeholders in the pilot cities and help better shape the respective opportunities. MfC is responsible for the respective Task, T2.3 and contributor to T3.4. Moreover, MfC is responsible for assuring the UP2030 approaches take due consideration of gender perspectives. MfC is the liaison partner of the BELFAST pilot.
UCAM (Dept. of Engineering) leads activities on data governance for robust carbon accounting, and on carbon budgeting for cities. This includes the entire data infrastructure cities build which help assess emissions better and improve decision and policy making. UCAM leads T2.3.
USTUTT brings urban planning expertise on living lab methodologies for sustainable urban development. It contributes to NBS derived-ES assessments through participatory approaches (supporting LINKS lead).
VUB explores the link between place-identify and climate-conscious actions by citizens. VUB leads the research approach for the Story Maps to be developed. VUB also leads work on citizen engagement contributing thus to T2.3.
CERTH will lead the technical delivery of Story Maps (T6.2) in support of the scientific lead by VUB. CERTH will also lead the use of social-media sensing for citizen opinions to feed the needs assessment and Story Maps.
CIRCE is responsible for bridging the methodologies for positive energy districts and the proposed connected-compact-net-zero neighbourhoods of UP2030. CIRCE leads the co-development of BIM/CIM/GIS integrated solutions. CIRCE leads T3.2.
DELTARES will lead the application of their rapid-CRA tool for data-poor cities so they can quickly scan areas/populations of higher vulnerability. Cities will then use interactive-GIS CRCT tool for NBS optioneering.
DRAXIS is the projects technical manager. It leads data management and T1.3. It also leads user stories and requirements for cities building upon the implementation roadmaps (T3.1). DRAXIS is responsible for integration and interoperability. DRAXIS is WP6 and T6.2 lead.

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GUNAM leads the UBEM developments for positive energy districts. GUNAM will lead energy integration systems for optimal demand/supply/storage management. It contributes to BIM/CIM/GIS integration for sustainable energy decision making and GHG emissions reduction. GUNAM is liaison partner of ISTANBUL.
K3Y will lead the technical delivery of data infrastructure by managing the Big Data life-cycle allowing the chaining of value adding activities across multiple platforms, incl. geospatial data processing.
LINKS leads the capitalisation of Earth Observation for urban planning and design activities. LINKS leads the ES assessments. It also leads air quality modelling & forecasting using remote sensing. LINKs is the liaison of MILAN.
MAG will apply its multi-criteria route optimisation models for transport planning (both active and vehicle transport) for connected neighbourhoods. It leads "mobility as a service" & "last-mile deliveries" as niche domains.
UPV is responsible for monitoring, evaluation and KPI validation, leading T4.3. UPV is also responsible for smart mobility assessment and planning for connected neighbourhoods.
VM will lead the development of a circular-economy closing the loop approach for urban food systems. VM is responsible for setting up Zagreb's urban modular farm. VM is the liaison partner for ZAGREB.
ETH, lead work on LCA and digitisation for circular construction. ETH applies the UMI and deQo to carry out assessments and identify opportunities for reducing GHG emissions in the built environment.
E-NOVA, Lisbon's Municipality operational arm for Energy and Environment will carry out the technical activities of the project, i.e., the digital intelligence activities indicated. E-NOVA is an affiliated entity to the pilot city LISBON. E-NOVA is an affiliated entity and legally linked to the beneficiary Lisbon (P39) in Portugal. E-Nova (P39.1) is a private, non-profit organisation and is associated to Lisbon as founding member and main associate. According to the statutes, the Mayor of Lisbon is the chairman of the board of the general meeting, who is responsible for appointing both the President and Executive Administrator of our Board of Directors. E-NOVA will play an active role in the implementation of the pilot (WP4) and will support the activities to be conducted by the pilot city Lisbon.
DreVen, is an affiliated entity from DRAXIS, as DRAXIS are affiliated entities, as DRAXIS owns 80% of DreVen and has its direct control. DreVen will undertake all the dissemination and communication activities of DRAXIS in the project (including the lead of WP6 & T6.2). Taking advantage of its location in Brussels, DreVen can provide additional channels of communication to relevant user communities and important stakeholders resulting in increased impact of the project.
Pilot Cities: BUDAPEST, GRANOLLERS, LISBON, MILAN, MUENSTER, ROTTERDAM, THESSALONIKI, ZAGREB, BELFAST and ISTANBUL participate in multiple initiatives and networks (e.g., CoM, C40, ICLEI, RCities) and 6 of them have applied to the Mission's Call. They will be implementation space for the proposed innovations: they form/maintain LAAs, test/adopt tools, update policies and prototype. Cities will receive training for all activities they are involved.

Section 4. Ethics

4.1 General ethical policy of UP2030

The fundamental principles outlined in the Charter of European Fundamental Rights, such as human dignity, integrity of the person, the protection of personal data to ensure privacy, will be fully respected and promoted in the project. The wellbeing of the participants, their safety and comfort are among the primary goals of all experiments and evaluation studies that will be performed in the project. It will be essential that the conduct of experiments with any subject is safe and the collected data is properly used. We will also follow the current local, institutional, national, and EU guidelines concerning work with human subjects.

4.1.1 Informed consent:

We will not include persons in our studies that cannot communicate and therefore cannot express assent or dissent.

4.1.2 Involvement of human participants:

The UP2030 activities involve human participants in pilot cities, including participative activities such as workshops with local stakeholders and structured interviews will be conducted.
As research is involving human participants the safety, rights, dignity and well-being of participants must be ensured. Our research respects the rights of the involved research participants, with interviews not involving sensitive or confidential issues.

The project will not collect data about religion, sexual orientation, ethnic origin or any other data whose collection is prevented by law.

All participants are expected to enter into the research freely and willingly, know and understand what they are agreeing to, and be aware of a time frame for participation. Participants will not be forced to partake against their

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will, will be made aware that participation is voluntary. The participants will also be made aware that they are not required to give reasons for refusal and can pull out of the study at any time without reason. Wherever possible, anonymity and confidentiality also will be maintained.

The project partners are aware that prior to any participation detailed information must be provided to the participants, in language and terms understandable to them. Participants will have the right:

- To know that participation is voluntary
- To ask questions and receive understandable answers before making a decision to participate
- To know who will benefit from participation and of any potential commercial exploitation (if applicable)
- To know how their data will be collected, protected, eventually reused by whom and for how long, a maximum conservation time will be provided. To be informed that their personal data will be encrypted and their information will be anonymized such that although respondents will undergo classification for analytical purposes, it will not be possible to infer individual identities.
- To withdraw themselves and their data at any time

These rights will be explained formally to the participants during the recruitment phase, and the participants will be reminded of their rights on each participation event.

4.1.3 Procedures and criteria to identify and recruit participants are:

- Research participants for workshops and interviews will be selected through a process of expert/ purposive sampling- thus focus is on individuals with specific knowledge and expertise and the choice of research participants is theoretical driven. Experts are sampled from relevant institutions and organisations (public sector, companies, research institutions and civil society) which are identified through the contact with local representatives within UP2030.
- Participants may represent their own personal views, or the views of the organizations that they represent.
- Contacts within the networks from the partners might be invited as participants will be for contribution.
- Searches in own customer data bases will be undertaken to identify participants from different sectors and ensure a good balance of participants from different stakeholder groups including citizens, cities, industry and academia.
- Internet search: Participants will be selected by reference to their publically available expertise profile (i.e. Biographical details published in journal and conference papers or on their institutional websites).
- The project team will actively endeavor to achieve a fair gender balance

4.1.4 Informed consent procedure:

- According to the precondition of informed consent procedures as an important feature of the UP2030 project, participants will be informed fully and meaningfully in regard to what the research is about and how it will be disseminated. This will be done by providing information about the research so that the prospective participants can make an informed decision about their possible involvement. This information will be supplied in written form and signed off by the research participants to ensure that the research is conducted in an open and transparent way.
  Furthermore, participants will be informed on their right to refuse participation. Moreover the participants are being informed, for whom this will bring benefit (EC for new research programs, SMEs/industry to stay competitive, the broad public).
- Next to information on the content, the participants will be informed on the duration of the activity they are participating (questionnaire, interview, workshop, etc.).
- The full, informed and voluntary consent of the participant will be obtained before the investigation begins
- Consent is obtained by the participant that the data provided will be anonymized and is treated statistically.

4.1.5 Withdrawal from Investigations:

Participants will be free to withdraw from the investigation at any stage, without having to give any reasons, and should be told they have this right. However an opportunity should be provided in this event for participants to discuss privately their wish to withdraw. It is recognized that it may not always be possible to disaggregate data from the study once it has been anonymized and this should be clearly explained to participants at an early stage.

4.1.6 Collection of personal data

Data collection, protection, storage, retention and destruction:

Data will be collected, stored, protected and destroyed according to the national/EU regulation/legislation.

Data collection:

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Questionnaires, interviews and other data-gathering exercises will be developed within each WP's and a quality check will be performed by appointed consortium members. Data will be collected through surveys and interviews by project partners through questionnaires send by email, questionnaires accessible on the UP2030 website, questionnaires accessible via web-based platforms, face-to-face or telephone interviews.

Protection of personal data:

- Personal data will be encrypted and their information will be anonymised such that although respondents will undergo classification for analytical purposes, it will not be possible to infer individual identities.
- Access to these data will be restricted to the relevant project partner, and for archiving purposes (and revieweing in case required) to coordinator and other relevant artners.
- Data will be stored by the partner that organised its collection. For each set of data, storage will be compliant with EU, National or organisation's rules, whichever are the stricter. Personal data will be destroyed as soon as possible. Anonymous, statistically-treated data will be held for whatever duration is deemed necessary according to legal requirements, or as deemed scientifically-necessary and agreed with the Project Officer.
- Retention of the data from individuals will be for the period specified in EU or national legislation, or until the end of the project, after which it will be destroyed by complete erasure. Data arising from analytical procedures will be kept for as long as is required by EU or national agencies, whichever is the longer.

4.1.7 Legal disclaimer:

In UP2030, we will act under the general and particular regulations such as the following:

INTERNATIONAL REGULATIONS:

- United Nations: Guidelines concerning computerized personal data files adopted by the General Assem-bly on 14 December 1990.

EUROPEAN LAWS:

- Charter of the Fundamental Rights on the European Union (2000), chapter II, article 8;
- Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and the free movement of such data;
- Directive 97/66/EC of the European Parliament and of the Council of 15 December 1997 concerning the processing of personal data and the protection of privacy in the telecommunications sector;
- Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services
- Regulation (EU) 2016/679 of the European Parliament and of the Council of April 27, 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation (GDPR)

NATIONAL LAWS:

All partners will fully adhere to the existing national laws.

4.1.8 Publishing:

UP2030 partners aim to publish the gathered information in form of publicly available documents (to be put on the website) including impact analysis, roadmaps and task-force reports. Explicit consent for the publication of such material will be obtained from the originators.

ANNEX 2

ESTIMATED BUDGET FOR THE ACTION

	Estimated eligible[1] costs (per budget category)										Estimated EU contribution[2]			
	Direct costs								Indirect costs	Total costs	EU contribution to eligible costs			Maximum grant amount[6]
	A. Personnel costs			B. Subcontracting costs	C. Purchase costs			D. Other cost categories	E. Indirect costs[3]		Funding rate %[4]	Maximum EU contribution[5]	Requested EU contribution	
	A.1 Employees (or equivalent) A.2 Natural persons under direct contract A.3 Seconded persons		A.4 SME owners and natural person beneficiaries	B. Subcontracting	C.1 Travel and subsistence	C.2 Equipment	C.3 Other goods, works and services	D.2 Internally invoiced goods and services	E. Indirect costs					
Forms of funding	Actual costs	Unit costs (usual accounting practices)	Unit costs[7]	Actual costs	Actual costs	Actual costs	Actual costs	Unit costs (usual accounting practices)	Flat-rate costs[8]					
	a1	a2	a3	b	c1	c2	c3	d2	e = 0,25 * (a1 + a2 + a3 + c1 + c2 + c3)	f = a + b + c + d + e	U	g = f * U%	h	m
1 - Fraunhofer	0.00	509 350.00	0.00	0.00	30 000.00	2 000.00	24 000.00	0.00	141 337.50	706 687.50	100	706 687.50	706 687.50	706 687.50
2 - ADELPHI	235 200.00	0.00	0.00	0.00	8 000.00	2 000.00	0.00	0.00	61 300.00	306 500.00	100	306 500.00	306 500.00	306 500.00
3 - BH	220 500.00	0.00	0.00	0.00	8 000.00	0.00	0.00	0.00	57 125.00	285 625.00	70	199 937.50	199 937.50	199 937.50
4 - DC	188 000.00	0.00	0.00	0.00	8 000.00	0.00	4 000.00	0.00	50 000.00	250 000.00	70	175 000.00	175 000.00	175 000.00
5 - GreenAdapt	210 000.00	0.00	0.00	0.00	8 000.00	0.00	0.00	0.00	54 500.00	272 500.00	70	190 750.00	190 750.00	190 750.00
6 - ICA	201 412.00	0.00	103 068.00	0.00	8 000.00	0.00	1 000.00	0.00	78 370.00	391 850.00	70	274 295.00	274 295.00	274 295.00
7 - ISOCARP	181 300.00	0.00	0.00	0.00	8 000.00	0.00	2 000.00	0.00	47 825.00	239 125.00	100	239 125.00	239 125.00	239 125.00
8 - TSPA	285 064.40	0.00	49 935.60	0.00	8 000.00	2 000.00	0.00	0.00	86 250.00	431 250.00	70	301 875.00	301 875.00	301 875.00
9 - TUD	300 000.00	0.00	0.00	0.00	20 000.00	2 000.00	6 000.00	0.00	82 000.00	410 000.00	100	410 000.00	410 000.00	410 000.00
10 - UIC	240 000.00	0.00	0.00	25 000.00	20 000.00	3 000.00	5 000.00	0.00	67 000.00	360 000.00	100	360 000.00	360 000.00	360 000.00
11 - GGGI	288 300.00	0.00	0.00	0.00	8 000.00	0.00	0.00	0.00	74 075.00	370 375.00	100	370 375.00	370 375.00	370 375.00
12 - ICLEI	307 500.00	0.00	0.00	0.00	20 000.00	2 000.00	9 000.00	0.00	84 625.00	423 125.00	100	423 125.00	423 125.00	423 125.00
13 - RCities	467 500.00	0.00	0.00	0.00	20 000.00	0.00	25 000.00	0.00	128 125.00	640 625.00	100	640 625.00	640 625.00	640 625.00
14 - UCCRN	243 000.00	0.00	0.00	0.00	8 000.00	0.00	1 000.00	0.00	63 000.00	315 000.00	100	315 000.00	315 000.00	315 000.00
15 - AQUATEC	303 620.00	0.00	0.00	0.00	8 000.00	0.00	0.00	0.00	77 905.00	389 525.00	70	272 667.50	272 667.50	272 667.50
16 - CETAQUA	72 000.00	0.00	0.00	0.00	8 000.00	0.00	0.00	0.00	20 000.00	100 000.00	100	100 000.00	100 000.00	100 000.00
17 - LIF	117 600.00	0.00	0.00	0.00	8 000.00	0.00	0.00	0.00	31 400.00	157 000.00	100	157 000.00	157 000.00	157 000.00
18 - LNEC	162 189.00	0.00	0.00	0.00	8 000.00	0.00	3 000.00	0.00	43 297.25	216 486.25	100	216 486.25	216 486.00	216 486.00
19 - MDAT	140 000.00	0.00	0.00	0.00	8 000.00	0.00	10 000.00	0.00	39 500.00	197 500.00	70	138 250.00	138 250.00	138 250.00
20 - METU	102 500.00	0.00	0.00	0.00	8 000.00	0.00	1 500.00	0.00	28 000.00	140 000.00	100	140 000.00	140 000.00	140 000.00
21 - USTUTT	69 300.00	0.00	0.00	0.00	8 000.00	0.00	0.00	0.00	19 325.00	96 625.00	100	96 625.00	96 625.00	96 625.00
22 - VUB	249 600.00	0.00	0.00	0.00	8 000.00	0.00	7 500.00	0.00	66 275.00	331 375.00	100	331 375.00	331 375.00	331 375.00
23 - CERTH	259 200.00	0.00	0.00	0.00	8 000.00	6 000.00	2 000.00	0.00	68 800.00	344 000.00	100	344 000.00	344 000.00	344 000.00
24 - CIRCE	196 650.00	0.00	0.00	0.00	8 000.00	25 350.00	8 000.00	0.00	59 500.00	297 500.00	100	297 500.00	297 500.00	297 500.00
25 - DELTARES	223 408.00	0.00	0.00	0.00	8 000.00	0.00	2 000.00	0.00	58 352.00	291 760.00	100	291 760.00	291 760.00	291 760.00
26 - DRAXIS	390 742.00	0.00	46 058.00	0.00	18 000.00	12 000.00	11 000.00	0.00	119 450.00	597 250.00	70	418 075.00	418 075.00	418 075.00
26.1 - DreVen	144 000.00	0.00	0.00	0.00	2 000.00	0.00	8 000.00	0.00	38 500.00	192 500.00	70	134 750.00	134 750.00	134 750.00
27 - GUNAM	165 000.00	0.00	0.00	0.00	8 000.00	70 000.00	4 500.00	0.00	61 875.00	309 375.00	100	309 375.00	309 375.00	309 375.00
28 - K3Y	149 696.20	0.00	66 503.80	0.00	8 000.00	3 000.00	0.00	0.00	56 800.00	284 000.00	70	198 800.00	198 800.00	198 800.00
29 - LINKS	232 200.00	0.00	0.00	0.00	8 000.00	0.00	5 000.00	0.00	61 300.00	306 500.00	100	306 500.00	306 500.00	306 500.00
30 - MAG	211 500.00	0.00	0.00	0.00	8 000.00	1 000.00	0.00	0.00	55 125.00	275 625.00	70	192 937.50	192 937.50	192 937.50
31 - UPV	247 800.00	0.00	0.00	0.00	8 000.00	2 000.00	4 000.00	0.00	65 450.00	327 250.00	100	327 250.00	327 250.00	327 250.00

	Estimated eligible[1] costs (per budget category)										Estimated EU contribution[2]			
	Direct costs								Indirect costs	Total costs	EU contribution to eligible costs			Maximum grant amount[6]
	A. Personnel costs			B. Subcontracting costs	C. Purchase costs			D. Other cost categories	E. Indirect costs[3]		Funding rate %[4]	Maximum EU contribution[5]	Requested EU contribution	
	A.1 Employees (or equivalent) A.2 Natural persons under direct contract A.3 Seconded persons		A.4 SME owners and natural person beneficiaries	B. Subcontracting	C.1 Travel and subsistence	C.2 Equipment	C.3 Other goods, works and services	D.2 Internally invoiced goods and services	E. Indirect costs					
Forms of funding	Actual costs	Unit costs (usual accounting practices)	Unit costs[7]	Actual costs	Actual costs	Actual costs	Actual costs	Unit costs (usual accounting practices)	Flat-rate costs[8]					
	a1	a2	a3	b	c1	c2	c3	d2	e = 0,25 * (a1 + a2 + a3 + c1 + c2 + c3)	f = a + b + c + d + e	U	g = f * U%	h	m
32 - VM	145 000.00	0.00	0.00	0.00	8 000.00	60 000.00	3 000.00	0.00	54 000.00	270 000.00	70	189 000.00	189 000.00	189 000.00
33 - Budapest	76 000.00	0.00	0.00	13 000.00	8 000.00	0.00	10 000.00	0.00	23 500.00	130 500.00	100	130 500.00	130 500.00	130 500.00
34 - Granollers	139 200.00	0.00	0.00	0.00	8 000.00	0.00	5 000.00	0.00	38 050.00	190 250.00	100	190 250.00	190 250.00	190 250.00
35 - Istanbul	94 000.00	0.00	0.00	0.00	8 000.00	0.00	11 000.00	0.00	28 250.00	141 250.00	100	141 250.00	141 250.00	141 250.00
36 - Lisbon	130 200.00	0.00	0.00	0.00	8 000.00	5 000.00	5 000.00	0.00	37 050.00	185 250.00	100	185 250.00	185 250.00	185 250.00
36.1 - LISBOA E-NOVA	33 210.00	0.00	0.00	0.00	8 000.00	0.00	5 000.00	0.00	11 552.50	57 762.50	100	57 762.50	57 762.50	57 762.50
37 - Milan	144 000.00	0.00	0.00	0.00	8 000.00	0.00	5 000.00	0.00	39 250.00	196 250.00	100	196 250.00	196 250.00	196 250.00
38 - Muenster	193 050.00	0.00	0.00	0.00	8 000.00	0.00	5 000.00	0.00	51 512.50	257 562.50	100	257 562.50	257 562.50	257 562.50
39 - Rotterdam	200 000.00	0.00	0.00	0.00	8 000.00	0.00	5 000.00	0.00	53 250.00	266 250.00	100	266 250.00	266 250.00	266 250.00
40 - Thessaloniki	97 500.00	0.00	0.00	0.00	8 000.00	0.00	0.00	0.00	26 375.00	131 875.00	100	131 875.00	131 875.00	131 875.00
41 - Zagreb	106 400.00	0.00	0.00	0.00	8 000.00	0.00	5 000.00	0.00	29 850.00	149 250.00	100	149 250.00	149 250.00	149 250.00
42 - ETH														
43 - MfC														
44 - UCAM														
45 - Belfast														
Σ consortium	8 163 341.60	509 350.00	265 565.40	38 000.00	418 000.00	197 350.00	202 500.00	0.00	2 439 026.75	12 233 133.75		11 081 846.25	11 081 846.00	11 081 846.00

[1] See Article 6 for the eligibility conditions. All amounts must be expressed in EUR (see Article 21 for the conversion rules).
[2] The consortium remains free to decide on a different internal distribution of the EU funding (via the consortium agreement; see Article 7).
[3] Indirect costs already covered by an operating grant (received under any EU funding programme) are ineligible (see Article 6.3). Therefore, a beneficiary/affiliated entity that receives an operating grant during the action duration cannot declare indirect costs for the year(s)/reporting period(s) covered by the operating grant, unless they can demonstrate that the operating grant does not cover any costs of the action. This requires specific accounting tools. Please immediately contact us via the EU Funding & Tenders Portal for details.
[4] See Data Sheet for the funding rate(s).
[5] This is the theoretical amount of the EU contribution to costs, if the reimbursement rate is applied to all the budgeted costs. This theoretical amount is then capped by the 'maximum grant amount'.
[6] The 'maximum grant amount' is the maximum grant amount decided by the EU. It normally corresponds to the requested grant, but may be lower.
[7] See Annex 2a 'Additional information on the estimated budget' for the details (units, cost per unit).
[8] See Data Sheet for the flat-rate.

ANNEX 2a

ADDITIONAL INFORMATION ON UNIT COSTS AND CONTRIBUTIONS

SME owners/natural person beneficiaries without salary (Decision C(2020) 7115[1])

Type: unit costs

Units: days spent working on the action (rounded up or down to the nearest half-day)

Amount per unit (daily rate): calculated according to the following formula:

{EUR 5 080 / 18 days = **282,22**}
multiplied by
{country-specific correction coefficient of the country where the beneficiary is established}

The country-specific correction coefficients used are those set out in the Horizon Europe Work Programme (section Marie Skłodowska-Curie actions) in force at the time of the call (see Portal Reference Documents).

HE and Euratom Research Infrastructure actions[2]

Type: unit costs

Units[3]: see (for each access provider and installation) the unit cost table in Annex 2b

Amount per unit*: see (for each access provider and installation) the unit cost table in Annex 2b

* Amount calculated as follows:

For trans-national access:

$$\frac{\text{average annual total trans-national access costs to the installation (over past two years[4])}}{\text{average annual total quantity of trans-national access to the installation (over past two years[5])}}$$

For virtual access:

$$\frac{\text{total virtual access costs to the installation (over the last year[6])}}{\text{total quantity of virtual access to the installation (over the last year[7])}}$$

Euratom staff mobility costs[8]

Monthly living allowance

Type: unit costs

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1 Commission Decision of 20 October 2020 authorising the use of unit costs for the personnel costs of the owners of small and medium-sized enterprises and beneficiaries that are natural persons not receiving a salary for the work carried out by themselves under an action or work programme (C(2020)7715).

2 Decision of 19 April 2021 authorising the use of unit costs for the costs of providing trans-national and virtual access in Research Infrastructure actions under the Horizon Europe Programme (2021-2027) and the Research and Training Programme of the European Atomic Energy Community (2021-2025).

3 Unit of access (e.g. beam hours, weeks of access, sample analysis) fixed by the access provider in proposal.

4 In exceptional and duly justified cases, the granting authority may agree to a different reference period.

5 In exceptional and duly justified cases, the granting authority may agree to a different reference period.

6 In exceptional and duly justified cases, the granting authority may agree to a different reference period.

7 In exceptional and duly justified cases, the granting authority may agree to a different reference period.

8 Decision of 15 March 2021 authorising the use of unit costs for mobility in co-fund actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025).

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit*: see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

* Amount calculated as follows from 1 January 2021:
{**EUR 4 300** multiplied by
country-specific correction coefficient** of the country where the staff member is seconded}[9]

**Country-specific correction coefficients as from 1 January 2021[10]

EU-Member States[11]

Country / Place	Coefficient (%)
Bulgaria	59,1
Czech Rep.	85,2
Denmark	131,3
Germany Bonn Karlsruhe Munich	101,9 95,8 98 113,9
Estonia	82,3
Ireland	129
Greece	81,4
Spain	94,2
France	120,5
Croatia	75,8
Italy Varese	95 90,7
Cyprus	78,2
Latvia	77,5
Lithuania	76,6
Hungary	71,9
Malta	94,7
Netherlands	113,9
Austria	107,9
Poland	70,9
Portugal	91,1
Romania	66,6
Slovenia	86,1

[9] Unit costs for living allowances are calculated by using a method of calculation similar to that applied for the secondment to the European Commission of seconded national experts (SNEs).

[10] For the financial statements, the amount must be adjusted according to the actual place of secondment.
The revised coefficients were adopted in the Decision authorising the use of unit costs for the Fusion Programme co-fund action under the Research and training Programme of the European Atomic Energy Community 2021-2025. They are based on the 2020 Annual update of the remuneration and pensions of the officials and other servants of the European Union and the correction coefficients applied thereto (OJ C 428, 11.12.2020) to ensure purchasing power parity. The revised coefficient are applied as from 1 January 2021 through an amendment to the grant agreement.

[11] No correction coefficient shall be applicable in Belgium and Luxembourg.

Slovakia	80,6
Finland	118,4
Sweden	124,3

Third countries

Country/place	Coefficient (%)
China	82,2
India	72,3
Japan	111,8
Russia	92,7
South Korea	92,3
Switzerland	129.2
Ukraine	82.3
United Kingdom	97.6
United States	101,4 (New-York) 90,5 (Washington)

Mobility allowance

Type: Unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit: **EUR 600** per person-month; see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

Family allowance

Type: unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit: **EUR 660** per person-month; see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

Education allowance

Type: Unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit*: see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

*Amount calculated as follows from 1 January 2021:
{EUR 283.82 x number of dependent children[12]**}**

[12] For the estimated budget (Annex 2): an average should be used. (⚠ For the financial statements, the number of children (and months) must be adjusted according to the actual family status at the moment the secondment starts.)

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ADELPHI RESEARCH GEMEINNUTZIGE GMBH (ADELPHI), PIC 999693350, established in ALT-MOABIT 91, BERLIN 10559, Germany,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

BURO HAPPOLD GMBH (BH), PIC 890231372, established in PFALZBURGER STRASSE 43-44, BERLIN 10717, Germany,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

DESIGN CLIPS IDIOTIKI KEFALAIOUCHIKI ETAIREIA (DC), PIC 891899675, established in VAKCHOU 1, THESSALONIKI 54629, Greece,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

GREENADAPT GESELLSCHAFT FUER KLIMAANPASSUNG MBH (GreenAdapt), PIC 891661055, established in LUISENSTRASSE 53, BERLIN 10117, Germany,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

I-CATALIST SL (ICA), PIC 937459605, established in CALLE BORNI 20, LAS ROZAS DE MADRID 28232, Spain,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Elena LOPEZ-GUNN with ECAS id nloezgel signed in the Participant Portal on 14/12/2022 at 09:46:27 (transaction id SigId-7738-6Iiazq1JlGPYfhCVMiUSusjawBjarBUb93BzWRT79zpsTzV0oqReY6yrzK5sOM2YQGmTpykAOn7m8eifAoSWV9D-jpJZscgsw0KZVg27Mazu7zG-3btji7BcMGiBpJtyqAFw81vDzac9TQba7MPVOw9mKNETMpVQANnVepRyktPtZDtFQU0TSxED0F79hBEcpO1Cn8). Timestamp by third party at 2022.12.14 09:46:32 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

STICHTING ISOCARP INSTITUTE CENTER OF URBAN EXCELLENCE (ISOCARP), PIC 905424870, established in WALDORPSTRAAT 17, THE HAGUE 2521 CA, Netherlands,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Didier VANCUTSEM with ECAS id nvancudi signed in the Participant Portal on 13/12/2022 at 23:15:49 (transaction id SigId-3208-OfgOzO1fUcFQFc1iKdmsKguy1IaPYGYAD2p7wc8KH1oUzmOKm1klRlgFakMJb19GlEYRzRM5xqGua0BI1qcS3vG-jpJZscgsw0KZVg27Mazu7zG-EGdzb28IzUVUFNKYvM3bMzGghqy76ARrTQFixMf8Qy9ToygwMHH6osfMJl5izJFwt960bHJxzhu3IV3vR9qsTbq). Timestamp by third party at 2022.12.13 23:15:55 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

STELLMACH THOMAS (TSPA), PIC 913084960, established in WILHELM STRASSE 7, BERLIN 10963, Germany,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

TECHNISCHE UNIVERSITEIT DELFT (TUD), PIC 999977366, established in STEVINWEG 1, DELFT 2628 CN, Netherlands,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Dick van Gameren with ECAS id n002ncxo signed in the Participant Portal on 14/12/2022 at 16:32:52 (transaction id SigId-24326-ibVqzX0ntoXbjGHWKal8iK3RaSEA0uJkWEs05suaMbwlIhpd19HGgdKyYlmGT5jDN3001xzMBNpcOsE5yyncVO-jpJZscgsw0KZVg27Mazu7zG-zXZPF1PCwJf9UbMlezRygISpZsIejA8y6LeAQzWifgIp6gh9QyJvZi3MwWVR7duVIfKoJsywiGizziWg7znj2XS0). Timestamp by third party at 2022.12.14 16:32:58 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSITAT INTERNACIONAL DE CATALUNYA (UIC), PIC 994972069, established in C INMACULADA 22, BARCELONA 08017, Spain,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

GLOBAL GREEN GROWTH INSTITUTE (GGGI), PIC 945102429, established in 19FL JEONGDONG BLDG 15-5 JEONG DONG JUNG GU, SEOUL, South Korea,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ICLEI EUROPEAN SECRETARIAT GMBH (ICLEI EUROPASEKRETARIAT GMBH) (ICLEI), PIC 998341364, established in LEOPOLDRING 3, FREIBURG IM BREISGAU 79098, Germany,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

STICHTING GLOBAL RESILIENT CITIES NETWORK (RCities), PIC 892204158, established in KORTE HOOGSTRAAT 31, ROTTERDAM 3011 GK, Netherlands,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Magdalini LIAKOU with ECAS id nliakoli signed in the Participant Portal on 14/12/2022 at 08:53:30 (transaction id SigId-6044-YzlvjzV7n4auSjWgWcn4fUdIOdHxwzr5Le0o677Kv8BpvS9DbVmdr9FKkHzXSpVYZvFLfA9P8THzbNEjIV9Ye56-jpJZscgsw0KZVg27Mazu7zG-OZQpsnoU4zOnMVNjXiaogLBf1WeI5GdlJOKzsYYNQPByOZzeEFsJe2da6C9FjskSzTxzhdZMFxMX5J7COU0GdFv). Timestamp by third party at 2022.12.14 08:53:35 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

URBAN CLIMATE CHANGE RESEARCH NETWORK - EUROPEAN HUB APS (UCCRN), PIC 889096181, established in VIA VENTAGLIERI 74, NAPOLI 80135, Italy,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

AQUATEC PROYECTOS PARA EL SECTOR DEL AGUA SA (AQUATEC), PIC 972702033, established in CALLE SANTA LEONOR 39, MADRID 28037, Spain,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Angel Villanueva with ECAS id n002pg24 signed in the Participant Portal on 13/12/2022 at 19:33:28 (transaction id SigId-1841-KNGlGnyzGMVTB9ha8qTLnuBiQbQzVHfzQbakhBbTpifSuOXzmxMdGcvNmzaaWJ2ZhKxwYmZe2kBN02YV6fC79eD-jpJZscgsw0KZVg27Mazu7zG-zQEklihCQcl6IizQOvR9Cj4s00hESHEDGXuXwa4bBhaLzlCOzGKZiXZkddWQqSfYIofZNQzMrtfPQcFoxbXrCeD). Timestamp by third party at 2022.12.13 19:33:33 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

CETAQUA, CENTRO TECNOLOGICO DEL AGUA, FUNDACION PRIVADA (CETAQUA), PIC 998224285, established in CARRETERA D'ESPLUGUES 75 LOCAL 1-2, CORNELLA DE LLOBREGAT BARCELONA 08940, Spain,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Jordi GÓMEZ with ECAS id ngomejrd signed in the Participant Portal on 14/12/2022 at 08:37:23 (transaction id SigId-5695-F81UfMzog4E79bMYpFAOhUcwRcmdiB8Fv8zhx0yiZGP6RVH8Y3SXGn3JXuPaNbWlzqARdzZrgzPzKG3SKzJNXXUe-jpJZscgsw0KZVg27Mazu7zG-yIXlnTnJqYF0iUTCIQGkcPR8WP5YR8ZIeqkW9SC6NQLSr5Das51G91KgluQldMnXUcX08TskmrCzi7TWPczaj6). Timestamp by third party at 2022.12.14 08:37:29 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

PRAVO I INTERNET FOUNDATION (LIF), PIC 996838155, established in 54 BALGARSKA MORAVA STR FL 7, SOFIA 1000, Bulgaria,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

GEORGE DIMITROV with ECAS id ndimitrg signed in the Participant Portal on 14/12/2022 at 17:05:57 (transaction id SigId-25698-i7blhoD317cuLkFHcpiADbAzzOvZxWAmRwysShcnto0oFELIpAxSdbh6XsXEdSHerdFmsIl2xE3ize2zoSUiPdG-jpJZscgsw0KZVg27Mazu7zG-Riu21A6vAmnfLih7NM1sinyBZhiM6zzJ3v1T9pzfeKBox5fqlQtjPTK00wiPborJrQjpa9klx8lyrHVQhQY6kvG). Timestamp by third party at 2022.12.14 17:06:07 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

LABORATORIO NACIONAL DE ENGENHARIA CIVIL (LNEC), PIC 998850517, established in AV DO BRASIL 101, LISBOA 1700-066, Portugal,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Laura CALDEIRA with ECAS id ncaldeil signed in the Participant Portal on 13/12/2022 at 20:04:41 (transaction id SigId-2136-OSrvKN3QOR7F9k1fbhpJnTARSzl6gYjvJixQze5Xs0fBONSeoRvVOQx9680LgGfh84PYzcEKJP7znkI2GkzazMeG-jpJZscgsw0KZVg27Mazu7zG-iJPauEGRdTtgAQunko7XiMoEtKk5n0GrNkoKMQT5nhOiHL4X7ZT4qusJuEnARq5zrEtVFsvnSJrFy5x8Kcw9EW). Timestamp by third party at 2022.12.13 20:04:46 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ANAPTYXIAKI MEIZONOS ASTIKIS THESSALONIKIS AE - ANAPTYXIAKOS ORGANISMOS TOPIKIS AUTODIOIKISIS (MDAT), PIC 939158754, established in V. GEORGIOU A 1, THESSALONIKI 546 40, Greece,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Maria KARAGIANNI with ECAS id n005l8s0 signed in the Participant Portal on 14/12/2022 at 10:15:19 (transaction id SigId-8785-rLN7zJkUxCAKLpWOgowbtNIrmJF0PXGvkb3kL1RXnJYZyskVyJLGlJcMCRePUUOi2kzN9rLzYzIFjsASC1Q8Are-jpJZscgsw0KZVg27Mazu7zG-W2H6QNg0ds86kA7OQxCPU8XL7ArSibcnoreLOlZ53xKlRhrwmTxPAeVKk48t0om671XQaMmvL4zR2JdjYEfHPC). Timestamp by third party at 2022.12.14 10:15:29 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

MIDDLE EAST TECHNICAL UNIVERSITY (METU), PIC 999643492, established in DUMLUPINAR BULVARI 1, ANKARA 06800, Turkiye,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Mehmet ZEYREK with ECAS id nzeyreme signed in the Participant Portal on 14/12/2022 at 09:18:54 (transaction id SigId-6785-sncUOSuzT6cbEs7GOPCkBrjEfB3xKVXCjJAdcYWxDiqDesaqZEQk6K7zODrx3scY3iB2Reol7hppCzm4zs7zYe8-jpJZscgsw0KZVg27Mazu7zG-JXmlJV4HcbpeszqS7LzWV9aCkP1Lx26L9uxmE7zTvUb39OzJ91RF8EFqCxe74bI3INobqnm7zZ9vg4zfD6QyNPX0). Timestamp by third party at 2022.12.14 09:18:59 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSITY OF STUTTGART (USTUTT), PIC 999974747, established in KEPLERSTRASSE 7, STUTTGART 70174, Germany,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

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SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

VRIJE UNIVERSITEIT BRUSSEL (VUB), PIC 999902094, established in PLEINLAAN 2, BRUSSEL 1050, Belgium,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

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SIGNATURE

For the beneficiary

Sonja Haesen with ECAS id n002k29d signed in the Participant Portal on 14/12/2022 at 08:58:14 (transaction id SigId-6161-Q5CngCXAzu0KIwaZrzm2k9EYmgq5xds2jWOyUG09ipGFsA126qWzN88MO4CFQGjzXEyeA7sRNk67RieLlNzTfbH-jpJZscgsw0KZVg27Mazu7zG-gqAlC3j6UO9a0tXiYHAyw4cOfxo71TWUfEaVza0NkIjthwodsM3dLaTOxUN7ZD72wqCbrW6zqbKST5tpySTZs2). Timestamp by third party at 2022.12.14 08:58:19 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (CERTH), PIC 998802502, established in CHARILAOU THERMI ROAD 6 KM, THERMI THESSALONIKI 57001, Greece,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

Dimitrios TZOVARAS with ECAS id ntzovadi signed in the Participant Portal on 14/12/2022 at 08:20:23 (transaction id SigId-5369-H1lRM3OyzlzZ2xrgo10sO5Ngq6zxIJfiLqGf2W94pZJsJVZuCm31jFMZ2ZN3zppCleh12wsd0SYSzNGgzKiDNRIW-jpJZscgsw0KZVg27Mazu7zG-niuGMQaciqL0IEabh9zUQjvd8ttGcCiQrflRyFXjdmZw2D5JCIKuUQakihvj2XfetLXjsDlpPhzzZZhfqBaqW4G). Timestamp by third party at 2022.12.14 08:20:28 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS (CIRCE), PIC 999516907, established in PARQUE EMPRESARIAL DINAMIZA, AVDA. DE RANILLAS, 3D, ZARAGOZA 50018, Spain,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

STICHTING DELTARES (DELTARES), PIC 999520302, established in BOUSSINESQWEG 1, DELFT 2629 HV, Netherlands,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Bianca Peters with ECAS id n008n6vd signed in the Participant Portal on 15/12/2022 at 10:22:48 (transaction id SigId-36852-vTI5EgV3cmnhlfE3fyxZEBFEas7HXAPoxrX67GgZ7qACAP5mkClHEnzSXwyzlve2O3UsQsvH2RgrfHKsjJBXyU-jpJZscgsw0KZVg27Mazu7zG-DzaIEjPFiYhG4gsY1FFaSwm5qP01GTVzHtrDe1iJl74RSnHmHBO6Cze5r1dUAhMZA98LJ2JfO72UxnuaQVX2WEW). Timestamp by third party at 2022.12.15 10:22:56 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

DRAXIS ENVIRONMENTAL SA (DRAXIS), PIC 996151686, established in THEMISTOKLI SOFOULI STR 54-56, THESSALONIKI 54655, Greece,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Stavros TEKES with ECAS id ntekesta signed in the Participant Portal on 14/12/2022 at 09:47:06 (transaction id SigId-7765-QmpWgmCPlNLC6zaa7TYggDviC3auzh638w8U6yCQUfe2ANCLUY0oCYIsk1M3SB9xXj2JKsFc8Iw8VoBD4W3BEi-jpJZscgsw0KZVg27Mazu7zG-w0znNcfPFgFhfNnOXQDknSerTRzy6ZHSxfNaszxzefTVrLdl3m8FZ61Wxdf9OqAnj0uzil2okwwvYtiX6AyDeRD). Timestamp by third party at 2022.12.14 09:47:11 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ODTU GUNES ENERJISI UYGULAMA VE ARA STIRMA MERKEZI (GUNAM), PIC 891143657, established in UNIVERSITELER MAH. DUMLUPINAR BULVARI NO:1, ANKARA 06800, Turkiye,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

K3Y (K3Y), PIC 905140563, established in BOROVO RESIDENT BLOCK.227 ENTR.A FLOOR.6 AP.19 KRASNO SELO REGION, SOFIA 1680, Bulgaria,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

FONDAZIONE LINKS - LEADING INNOVATION & KNOWLEDGE FOR SOCIETY (LINKS), PIC 916573856, established in VIA PIER CARLO BOGGIO 61, TORINO 10138, Italy,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

MAGGIOLI SPA (MAG), PIC 996621457, established in VIA DEL CARPINO 8, SANTARCANGELO DI ROMAGNA 47822, Italy,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

PAOLO MATTARELLI with ECAS id nmatpaol signed in the Participant Portal on 14/12/2022 at 08:22:59 (transaction id SigId-5415-F2PmMKNgrk83rzRPxR2X6HQzGzo2COQIofwSSSzSQGBwsEXFFFbehMa2Y5ekzQRtcnERgzzsGC5jszxVfetCRbjS-jpJZscgsw0KZVg27Mazu7zG-7bzye4f9PsIYbOB0apdWWW36uFFKzHi1kv5GEVKWBoc0U4wWLGIFPQyiq7zq8rlLTMI7OhBM5dBrdtCZJRdunpG). Timestamp by third party at 2022.12.14 08:23:07 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSITAT POLITECNICA DE VALENCIA (UPV), PIC 999864846, established in CAMINO DE VERA SN EDIFICIO 3A, VALENCIA 46022, Spain,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

María Belén PICÓ-SIRVENT with ECAS id n0075tgw signed in the Participant Portal on 15/12/2022 at 09:32:19 (transaction id SigId-34538-IGUOocco50pwY86xgAyFaVcXQuOwJjZGpFnRSuu6G1zVEEvUl8O3XytWzQqeqoDJoC29htzVEVl8uAzVBfU7ZCC-jpJZscgsw0KZVg27Mazu7zG-NmfFUHJheUeeSUqSR3JgazyPWP2bc6ZAUKXCjqXgwLcZzRvJzHFzzI5q5LiidekWokJQ08s2Tlyy7BZmzi5lMsN0). Timestamp by third party at 2022.12.15 09:32:26 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

VESELA MOTIKA D.O.O. ZA PROIZVODNJU TRGOVINU I USLUGE (VM), PIC 887783965, established in MARTICEVA ULICA 67, ZAGREB 10000, Croatia,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Sergej Lugovic with ECAS id n008vfzm signed in the Participant Portal on 15/12/2022 at 07:22:11 (transaction id SigId-31883-waDDVK6xxUYV3L6qtzQQdxreiO58eIF1PEu4nJRRqnMmuGzyUmY3XDZLJalzzkxr4IYPCXhdu7HDwwzqtMxcY6o-jpJZscgsw0KZVg27Mazu7zG-AMA5OZgLzdwJm5sWOP2jn5qM9ZzQQhlfAzfRMxzaIBU2wIzYgkfDU7ExhECJjJKZqner3DtdkoxpnFhiRkFf4WI). Timestamp by third party at 2022.12.15 07:22:18 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

BUDAPEST FOVAROS ONKORMANYZATA (Budapest), PIC 959102439, established in VAROSHAZ UTCA 9-11, BUDAPEST 1052, Hungary,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

AJUNTAMENT DE GRANOLLERS (Granollers), PIC 950897306, established in PLACA DE LA PORXADA 6, GRANOLLERS 08401, Spain,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

Istanbul Metropolitan Municipality (Istanbul), PIC 998498795, established in ISTANBUL METROPOLITAN MUNICIPALITY SARACHANE/FATIH, Istanbul 34478, Turkiye,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Y.BARBAROS BUYUKSAGNAK with ECAS id n00blaty signed in the Participant Portal on 14/12/2022 at 08:27:31 (transaction id SigId-5498-SE9RXTjzVMoX4aKYFYEzOXLmqnd5P9ke1D4tdv1sowkhEgS2W692g0dBkU2fxxJBixeUWGhBzIzzygFsfykH3Hl-jpJZscgsw0KZVg27Mazu7zG-hXoIpyzHezSzmaCTmHGlkCnzvHonzfr56cbYKzL9S5AzIqWA3bDTVCUWzUSj1Hd2eZ1zlRDFQLqezT5g7ZzKo9ZUH). Timestamp by third party at 2022.12.14 08:27:36 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

CAMARA MUNICIPAL DE LISBOA (Lisbon), PIC 972290171, established in PACOS DO CONCELHO PRACA DO MUNICIPIO, LISBOA 1100-365, Portugal,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

COMUNE DI MILANO (Milan), PIC 998702204, established in PIAZZA DELLA SCALA 2, MILANO 20121, Italy,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Angelo Pascale with ECAS id n0028v1k signed in the Participant Portal on 14/12/2022 at 16:36:54 (transaction id SigId-24517-otHbziSAi0b4T4p4zIibX9YwczfgGCB2FyusopDBgB5g8HcAoi4y7un4XmH4umEm9zJ6sRLfTKaY0F6B9XkjDG0-jpJZscgsw0KZVg27Mazu7zG-239cvzv2HSsGQfusDBh1kb3vrzlLCDCrghWNzIQpCEpBzuYajAjvNsSNzewZt6nNYvTe2NvicCi0XVqwmyg5eQ7). Timestamp by third party at 2022.12.14 16:37:00 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

STADT MUNSTER (Muenster), PIC 941423316, established in KLEMENSSTRASSE 10, MUNSTER 48143, Germany,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Juergen KUPFERSCHMIDT with ECAS id nkupfejn signed in the Participant Portal on 14/12/2022 at 11:25:24 (transaction id SigId-11864-2loAsoM4yF4ssEea9JH0Cpbv0fYfZ5pux34ZRpFVsUqOLhjrFCuMlvKymLUFb4nRhKtuUAPF6b4ZrwUzHiJave-jpJZscgsw0KZVg27Mazu7zG-3EElwzqoYf0T36pZzNzs086VCJMm9L5zUcmMHuH1jeadCSY3cRujpAeHWZwczGTPgzqxzqiwHQYv4A3kUQ3iDscu). Timestamp by third party at 2022.12.14 11:25:31 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

GEMEENTE ROTTERDAM (Rotterdam), PIC 998914925, established in COOLSINGEL 40, ROTTERDAM 3011 AD, Netherlands,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

DIMOS THESSALONIKIS (Thessaloniki), PIC 965342449, established in VASILEOS GEORGIOU 1A, THESSALONIKI 546 36, Greece,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 (‘the Agreement’)

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** (‘EU executive agency’ or ‘granting authority’), under the powers delegated by the European Commission (‘European Commission’),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

Mihalis Koupkas with ECAS id n0034jtt signed in the Participant Portal on 14/12/2022 at 13:27:44 (transaction id SigId-16465-KZ2KYzK3aaHAsFukkzuU93q5t7mHzXzjPNUp0LzKd0UFyUnYcVhtMRLP1zt6lsGfiDhZh34rME6t8hg5r34ZZ9ym-jpJZscgsw0KZVg27Mazu7zG-raesmoFryGyDtx6DZPQAtu7fLVednq2mRiUYzYdmoueCdhYHLwwGADS89OLQoNAxwEWdo17MKmanRSAEbT6axm). Timestamp by third party at 2022.12.14 13:27:52 CET

Associated with document Ref. Ares(2022)8638840 - 13/12/2022

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

GRAD ZAGREB (Zagreb), PIC 989531727, established in TRG STJEPANA RADICA 1, ZAGREB 10 000, Croatia,

hereby agrees

to become beneficiary

in Agreement No 101096405 — UP2030 ('the Agreement')

between FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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SIGNATURE

For the beneficiary

FINANCIAL STATEMENT FOR [PARTICIPANT NAME] FOR REPORTING PERIOD [NUMBER]

	Eligible[1] costs (per budget category)																	EU contribution[2]				Revenues
	Direct costs															Indirect costs	Total costs	EU contribution to eligible costs			Total requested EU contribution	Income generated by the action
	A. Personnel costs			B. Subcontracting costs	C. Purchase costs			D. Other cost categories								E. Indirect costs[2]		Funding rate %[3]	Maximum EU contribution[4]	Requested EU contribution		
	A.1 Employees (or equivalent) A.2 Natural persons under direct contract A.3 Seconded persons		A.4 SME owners and natural person beneficiaries	B. Subcontracting	C.1 Travel and subsistence	C.2 Equipment	C.3 Other goods, works and services	[D.1 Financial support to third parties]	D.2 Internally invoiced goods and services	[D.3 Transnational access to research infrastructure unit costs]	[D.4 Virtual access to research infrastructure unit costs]	*[OPTION for HE PCP/PPI:* D.5 PCP/PPI procurement costs*]*	*[OPTION for Euratom Programme Cofund Actions:* D.6 Euratom Cofund staff mobility costs*]*	*[OPTION for HE ERC Grants:* D.7 ERC additional funding*]*	*[OPTION for HE ERC Grants:* D.8 ERC additional funding (subcontracting, FSTP and internally invoiced goods and services)*]*	E. Indirect costs						
Forms of funding	Actual costs	Unit costs (usual accounting practices)	Unit costs[5]	Actual costs	Actual costs	Actual costs	Actual costs	[Actual costs]	Unit costs (usual accounting practices)	[Unit costs[5]]	[Unit costs[5]]	[Actual costs]	[Unit costs[5]]	[Actual costs]	[Actual costs]	Flat-rate costs[6]						
	a1	a2	a3	b	c1	c2	c3	[d1a]	d2	[d3]	[d4]	[d5]	[d6]	[d7]	[d8]	e = 0,25 * (a1 + a2 + a3 ~~+ b~~ + c1 +c2 + c3 ~~+ d1a + d2 + d3 + d4 + d5[+ d6]~~ [+d7] ~~[+ d8]~~)	f = a+b+c+d+e	U	g = f*U%	h	m	n
XX – [short name beneficiary/affiliated entity]																						

The beneficiary/affiliated entity hereby confirms that:

The information provided is complete, reliable and true.

The costs and contributions declared are eligible (see Article 6).

The costs and contributions can be substantiated by adequate records and supporting documentation that will be produced upon request or in the context of checks, reviews, audits and investigations (see Articles 19, 20 and 25).

For the last reporting period: that all the revenues have been declared (see Article 22).

ⓘ Please declare all eligible costs and contributions, 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 costs/contributions that are found to be ineligible.

[1] See Article 6 for the eligibility conditions. All amounts must be expressed in EUR (see Article 21 for the conversion rules).

[2] If you have also received an EU operating grant during this reporting period, you cannot claim indirect costs - unless you can demonstrate that the operating grant does not cover any costs of the action. This requires specific accounting tools. Please contact us immediately via the Funding & Tenders Portal for details.

[3] See Data Sheet for the reimbursement rate(s).

[4] This is the *theoretical* amount of EU contribution to costs that the system calculates automatically (by multiplying the reimbursement rates by the costs declared). The amount you request (in the column 'requested EU contribution') may be less.

[5] See Annex 2a 'Additional information on the estimated budget' for the details (units, cost per unit).

[6] See Data Sheet for the flat-rate.

ANNEX 5

SPECIFIC RULES

CONFIDENTIALITY AND SECURITY (— ARTICLE 13)

Sensitive information with security recommendation

Sensitive information with a security recommendation must comply with the additional requirements imposed by the granting authority.

Before starting the action tasks concerned, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task. The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary.

For requirements restricting disclosure or dissemination, the information must be handled in accordance with the recommendation and may be disclosed or disseminated only after written approval from the granting authority.

EU classified information

If EU classified information is used or generated by the action, it must be treated in accordance with the security classification guide (SCG) and security aspect letter (SAL) set out in Annex 1 and Decision 2015/444[1] and its implementing rules — until it is declassified.

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

Action tasks involving EU classified information may be subcontracted only with prior explicit written approval from the granting authority and only to entities established in an EU Member State or in a non-EU country with a security of information agreement with the EU (or an administrative arrangement with the Commission).

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

ETHICS (— ARTICLE 14)

Ethics and research integrity

The beneficiaries must carry out the action in compliance with:

- ethical principles (including the highest standards of research integrity)

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

and

- applicable EU, international and national law, including the EU Charter of Fundamental Rights and the European Convention for the Protection of Human Rights and Fundamental Freedoms and its Supplementary Protocols.

No funding can be granted, within or outside the EU, for activities that are prohibited in all Member States. No funding can be granted in a Member State for an activity which is forbidden in that Member State.

The beneficiaries must pay particular attention to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of persons, the right to non-discrimination, the need to ensure protection of the environment and high levels of human health protection.

The beneficiaries must ensure that the activities under the action have an exclusive focus on civil applications.

The beneficiaries must ensure that the activities under the action do not:

- aim at human cloning for reproductive purposes
- intend to modify the genetic heritage of human beings which could make such modifications heritable (with the exception of research relating to cancer treatment of the gonads, which may be financed)
- intend to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer, or
- lead to the destruction of human embryos (for example, for obtaining stem cells).

Activities involving research on human embryos or human embryonic stem cells may be carried out only if:

- they are set out in Annex 1 or
- the coordinator has obtained explicit approval (in writing) from the granting authority.

In addition, the beneficiaries must respect the fundamental principle of research integrity — as set out in the European Code of Conduct for Research Integrity[2].

This implies compliance with the following principles:

- reliability in ensuring the quality of research reflected in the design, the methodology, the analysis and the use of resources
- honesty in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair and unbiased way

[2] European Code of Conduct for Research Integrity of ALLEA (All European Academies).

- respect for colleagues, research participants, society, ecosystems, cultural heritage and the environment
- accountability for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider impacts

and means that beneficiaries must ensure that persons carrying out research tasks follow the good research practices including ensuring, where possible, openness, reproducibility and traceability and refrain from the research integrity violations described in the Code.

Activities raising ethical issues must comply with the additional requirements formulated by the ethics panels (including after checks, reviews or audits; see Article 25).

Before starting an action task raising ethical issues, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task, notably from any (national or local) ethics committee or other bodies such as data protection authorities.

The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary, which shows that the documents cover the action tasks in question and includes the conclusions of the committee or authority concerned (if any).

VALUES (— ARTICLE 14)

Gender mainstreaming

The beneficiaries must take all measures to promote equal opportunities between men and women in the implementation of the action and, where applicable, in line with the gender equality plan. They must aim, to the extent possible, for a gender balance at all levels of personnel assigned to the action, including at supervisory and managerial level.

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

Definitions

Access rights — Rights to use results or background.

Dissemination — The public disclosure of the results by appropriate means, other than resulting from protecting or exploiting the results, including by scientific publications in any medium.

Exploit(ation) — The use of results in further research and innovation activities other than those covered by the action concerned, including among other things, commercial exploitation such as developing, creating, manufacturing and marketing a product or process, creating and providing a service, or in standardisation activities.

Fair and reasonable conditions — Appropriate conditions, including possible financial terms or royalty-free conditions, taking into account the specific circumstances of the request for access, for example the actual or potential value of the results or background to which access is requested and/or the scope, duration or other characteristics of the exploitation envisaged.

FAIR principles — ‘findability’, ‘accessibility’, ‘interoperability’ and ‘reusability’.

Open access — Online access to research outputs provided free of charge to the end-user.

Open science — An approach to the scientific process based on open cooperative work, tools and diffusing knowledge.

Research data management — The process within the research lifecycle that includes the organisation, storage, preservation, security, quality assurance, allocation of persistent identifiers (PIDs) and rules and procedures for sharing of data including licensing.

Research outputs — Results to which access can be given in the form of scientific publications, data or other engineered results and processes such as software, algorithms, protocols, models, workflows and electronic notebooks.

Scope of the obligations

For this section, references to ‘beneficiary’ or ‘beneficiaries’ do not include affiliated entities (if any).

Agreement on background

The beneficiaries must identify in a written agreement the background as needed for implementing the action or for exploiting its results.

Where the call conditions restrict control due to strategic interests reasons, background that is subject to control or other restrictions by a country (or entity from a country) which is not one of the eligible countries or target countries set out in the call conditions and that impact the exploitation of the results (i.e. would make the exploitation of the results subject to control or restrictions) must not be used and must be explicitly excluded from it in the agreement on background — unless otherwise agreed with the granting authority.

Ownership of results

Results are owned by the beneficiaries that generate them.

However, two or more beneficiaries own results jointly if:

- they have jointly generated them and
- it is not possible to:
  - establish the respective contribution of each beneficiary, or
  - separate them for the purpose of applying for, obtaining or maintaining their protection.

The joint owners must agree — in writing — on the allocation and terms of exercise of their joint ownership (‘**joint ownership agreement**’), to ensure compliance with their obligations under this Agreement.

Unless otherwise agreed in the joint ownership agreement or consortium agreement, each joint owner may grant non-exclusive licences to third parties to exploit the jointly-owned results (without any right to sub-license), if the other joint owners are given:

- at least 45 days advance notice and
- fair and reasonable compensation.

The joint owners may agree — in writing — to apply another regime than joint ownership.

If third parties (including employees and other personnel) may claim rights to the results, the beneficiary concerned must ensure that those rights can be exercised in a manner compatible with its obligations under the Agreement.

The beneficiaries must indicate the owner(s) of the results (results ownership list) in the final periodic report.

Protection of results

Beneficiaries which have received funding under the grant must adequately protect their results — for an appropriate period and with appropriate territorial coverage — if protection is possible and justified, taking into account all relevant considerations, including the prospects for commercial exploitation, the legitimate interests of the other beneficiaries and any other legitimate interests.

Exploitation of results

Beneficiaries which have received funding under the grant must — up to four years after the end of the action (see Data Sheet, Point 1) — use their best efforts to exploit their results directly or to have them exploited indirectly by another entity, in particular through transfer or licensing.

If, despite a beneficiary's best efforts, the results are not exploited within one year after the end of the action, the beneficiaries must (unless otherwise agreed in writing with the granting authority) use the Horizon Results Platform to find interested parties to exploit the results.

If results are incorporated in a standard, the beneficiaries must (unless otherwise agreed with the granting authority or unless it is impossible) ask the standardisation body to include the funding statement (see Article 17) in (information related to) the standard.

Additional exploitation obligations

Where the call conditions impose additional exploitation obligations (including obligations linked to the restriction of participation or control due to strategic assets, interests, autonomy or security reasons), the beneficiaries must comply with them — up to four years after the end of the action (see Data Sheet, Point 1).

Where the call conditions impose additional exploitation obligations in case of a public emergency, the beneficiaries must (if requested by the granting authority) grant for a limited period of time specified in the request, non-exclusive licences — under fair and reasonable conditions — to their results to legal entities that need the results to address the public emergency and commit to rapidly and broadly exploit the resulting products and services at fair and reasonable conditions. This provision applies up to four years after the end of the action (see Data Sheet, Point 1).

Additional information obligation relating to standards

Where the call conditions impose additional information obligations relating to possible standardisation, the beneficiaries must — up to four years after the end of the action (see Data Sheet, Point 1) — inform the granting authority, if the results could reasonably be expected to contribute to European or international standards.

Transfer and licensing of results

Transfer of ownership

The beneficiaries may transfer ownership of their results, provided this does not affect compliance with their obligations under the Agreement.

The beneficiaries must ensure that their obligations under the Agreement regarding their results are passed on to the new owner and that this new owner has the obligation to pass them on in any subsequent transfer.

Moreover, they must inform the other beneficiaries with access rights of the transfer at least 45 days in advance (or less if agreed in writing), unless agreed otherwise in writing for specifically identified third parties including affiliated entities or unless impossible under the applicable law. This notification must include sufficient information on the new owner to enable the beneficiaries concerned to assess the effects on their access rights. The beneficiaries may object within 30 days of receiving notification (or less if agreed in writing), if they can show that the transfer would adversely affect their access rights. In this case, the transfer may not take place until agreement has been reached between the beneficiaries concerned.

Granting licences

The beneficiaries may grant licences to their results (or otherwise give the right to exploit them), including on an exclusive basis, provided this does not affect compliance with their obligations.

Exclusive licences for results may be granted only if all the other beneficiaries concerned have waived their access rights.

Granting authority right to object to transfers or licensing — Horizon Europe actions

Where the call conditions in Horizon Europe actions provide for the right to object to transfers or licensing, the granting authority may — up to four years after the end of the action (see Data Sheet, Point 1) — object to a transfer of ownership or the exclusive licensing of results, if:

- the beneficiaries which generated the results have received funding under the grant
- it is to a legal entity established in a non-EU country not associated with Horizon Europe, and
- the granting authority considers that the transfer or licence is not in line with EU interests.

Beneficiaries that intend to transfer ownership or grant an exclusive licence must formally notify the granting authority before the intended transfer or licensing takes place and:

- identify the specific results concerned
- describe in detail the new owner or licensee and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or licence on EU interests, in particular regarding competitiveness as well as consistency with ethical principles and security considerations.

The granting authority may request additional information.

If the granting authority decides to object to a transfer or exclusive licence, it must formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information it has requested).

No transfer or licensing may take place in the following cases:

- pending the granting authority decision, within the period set out above
- if the granting authority objects
- until the conditions are complied with, if the granting authority objection comes with conditions.

A beneficiary may formally notify a request to waive the right to object regarding intended transfers or grants to a specifically identified third party, if measures safeguarding EU interests are in place. If the granting authority agrees, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

Granting authority right to object to transfers or licensing — Euratom actions

Where the call conditions in Euratom actions provide for the right to object to transfers or licensing, the granting authority may — up to four years after the end of the action (see Data Sheet, Point 1) — object to a transfer of ownership or the exclusive or non-exclusive licensing of results, if:

- the beneficiaries which generated the results have received funding under the grant
- it is to a legal entity established in a non-EU country not associated to the Euratom Research and Training Programme 2021-2025 and
- the granting authority considers that the transfer or licence is not in line with the EU interests.

Beneficiaries that intend to transfer ownership or grant a licence must formally notify the granting authority before the intended transfer or licensing takes place and:

- identify the specific results concerned
- describe in detail the results, the new owner or licensee and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or licence on EU interests, in particular regarding competitiveness as well as consistency with

ethical principles and security considerations (including the defence interests of the EU Member States under Article 24 of the Euratom Treaty).

The granting authority may request additional information.

If the granting authority decides to object to a transfer or licence, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

No transfer or licensing may take place in the following cases:

- pending the granting authority decision, within the period set out above
- if the granting authority objects
- until the conditions are complied with, if the granting authority objection comes with conditions.

A beneficiary may formally notify a request to waive the right to object regarding intended transfers or grants to a specifically identified third party, if measures safeguarding EU interests are in place. If the granting authority agrees, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

Limitations to transfers and licensing due to strategic assets, interests, autonomy or security reasons of the EU and its Member States

Where the call conditions restrict participation or control due to strategic assets, interests, autonomy or security reasons, the beneficiaries may not transfer ownership of their results or grant licences to third parties which are established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) — unless they have requested and received prior approval by the granting authority.

The request must:

- identify the specific results concerned
- describe in detail the new owner and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or license on the strategic assets, interests, autonomy or security of the EU and its Member States.

The granting authority may request additional information.

Access rights to results and background

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

Requests to exercise access rights and the waiver of access rights must be in writing.

Unless agreed otherwise in writing with the beneficiary granting access, access rights do not include the right to sub-license.

If a beneficiary is no longer involved in the action, this does not affect its obligations to grant access.

If a beneficiary defaults on its obligations, the beneficiaries may agree that that beneficiary no longer has access rights.

Access rights for implementing the action

The beneficiaries must grant each other access — on a royalty-free basis — to background needed to implement their own tasks under the action, unless the beneficiary that holds the background has — before acceding to the Agreement —:

- informed the other beneficiaries that access to its background is subject to restrictions, or
- agreed with the other beneficiaries that access would not be on a royalty-free basis.

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

Access rights for exploiting the results

The beneficiaries must grant each other access — under fair and reasonable conditions — to results needed for exploiting their results.

The beneficiaries must grant each other access — under fair and reasonable conditions — to background needed for exploiting their results, unless the beneficiary that holds the background has — before acceding to the Agreement — informed the other beneficiaries that access to its background is subject to restrictions.

Requests for access must be made — unless agreed otherwise in writing — up to one year after the end of the action (see Data Sheet, Point 1).

Access rights for entities under the same control

Unless agreed otherwise in writing by the beneficiaries, access to results and, subject to the restrictions referred to above (if any), background must also be granted — under fair and reasonable conditions — to entities that:

- are established in an EU Member State or Horizon Europe associated country
- are under the direct or indirect control of another beneficiary, or under the same direct or indirect control as that beneficiary, or directly or indirectly controlling that beneficiary and
- need the access to exploit the results of that beneficiary.

Unless agreed otherwise in writing, such requests for access must be made by the entity directly to the beneficiary concerned.

Requests for access must be made — unless agreed otherwise in writing — up to one year after the end of the action (see Data Sheet, Point 1).

Access rights for the granting authority, EU institutions, bodies, offices or agencies and national authorities to results for policy purposes — Horizon Europe actions

In Horizon Europe actions, the beneficiaries which have received funding under the grant must grant access to their results — on a royalty-free basis — to the granting authority, EU institutions, bodies, offices or agencies for developing, implementing and monitoring EU policies or programmes. Such access rights do not extend to beneficiaries' background.

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

For actions under the cluster 'Civil Security for Society', such access rights also extend to national authorities of EU Member States for developing, implementing and monitoring their policies or programmes in this area. In this case, access is subject to a bilateral agreement to define specific conditions ensuring that:

- the access rights will be used only for the intended purpose and
- appropriate confidentiality obligations are in place.

Moreover, the requesting national authority or EU institution, body, office or agency (including the granting authority) must inform all other national authorities of such a request.

Access rights for the granting authority, Euratom institutions, funding bodies or the Joint Undertaking Fusion for Energy — Euratom actions

In Euratom actions, the beneficiaries which have received funding under the grant must grant access to their results — on a royalty-free basis — to the granting authority, Euratom institutions, funding bodies or the Joint Undertaking Fusion for Energy for developing, implementing and monitoring Euratom policies and programmes or for compliance with obligations assumed through international cooperation with non-EU countries and international organisations.

Such access rights include the right to authorise third parties to use the results in public procurement and the right to sub-license and are limited to non-commercial and non-competitive use.

Additional access rights

Where the call conditions impose additional access rights, the beneficiaries must comply with them.

COMMUNICATION, DISSEMINATION, OPEN SCIENCE AND VISIBILITY (— ARTICLE 17)

Dissemination

Dissemination of results

The beneficiaries must disseminate their results as soon as feasible, in a publicly available format, subject to any restrictions due to the protection of intellectual property, security rules or legitimate interests.

A beneficiary that intends to disseminate its results must give at least 15 days advance notice to the other beneficiaries (unless agreed otherwise), together with sufficient information on the results it will disseminate.

Any other beneficiary may object within (unless agreed otherwise) 15 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the results may not be disseminated unless appropriate steps are taken to safeguard those interests.

Additional dissemination obligations

Where the call conditions impose additional dissemination obligations, the beneficiaries must also comply with those.

Open Science

Open science: open access to scientific publications

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications

- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and

- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.

Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement.

Open science: research data management

The beneficiaries must manage the digital research data generated in the action ('data') responsibly, in line with the FAIR principles and by taking all of the following actions:

- establish a data management plan ('DMP') (and regularly update it)

- as soon as possible and within the deadlines set out in the DMP, deposit the data in a trusted repository; if required in the call conditions, this repository must be federated in the EOSC in compliance with EOSC requirements

- as soon as possible and within the deadlines set out in the DMP, ensure open access — via the repository — to the deposited data, under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC 0) or a licence with equivalent rights, following the principle 'as open as possible as closed as necessary', unless providing open access would in particular:

    - be against the beneficiary's legitimate interests, including regarding commercial exploitation, or

    - be contrary to any other constraints, in particular the EU competitive interests or the beneficiary's obligations under this Agreement; if open access is not provided (to some or all data), this must be justified in the DMP

- provide information via the repository about any research output or any other tools and instruments needed to re-use or validate the data.

Metadata of deposited data must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: datasets (description, date of deposit, author(s), venue and embargo); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the dataset, the authors involved in the action, and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for related publications and other research outputs.

Open science: additional practices

Where the call conditions impose additional obligations regarding open science practices, the beneficiaries must also comply with those.

Where the call conditions impose additional obligations regarding the validation of scientific publications, the beneficiaries must provide (digital or physical) access to data or other results needed for validation of the conclusions of scientific publications, to the extent that their legitimate interests or constraints are safeguarded (and unless they already provided the (open) access at publication).

Where the call conditions impose additional open science obligations in case of a public emergency, the beneficiaries must (if requested by the granting authority) immediately deposit any research output in a repository and provide open access to it under a CC BY licence, a Public Domain Dedication (CC 0) or equivalent. As an exception, if the access would be against the beneficiaries' legitimate interests, the beneficiaries must grant non-exclusive licenses — under fair and reasonable conditions — to legal entities that need the research output to address the public emergency and commit to rapidly and broadly exploit the resulting products and services at fair and reasonable conditions. This provision applies up to four years after the end of the action (see Data Sheet, Point 1).

Plan for the exploitation and dissemination of results including communication activities

Unless excluded by the call conditions, the beneficiaries must provide and regularly update a plan for the exploitation and dissemination of results including communication activities.

SPECIFIC RULES FOR CARRYING OUT THE ACTION (— ARTICLE 18)

Implementation in case of restrictions due to strategic assets, interests, autonomy or security of the EU and its Member States

Where the call conditions restrict participation or control due to strategic assets, interests, autonomy or security, the beneficiaries must ensure that none of the entities that participate as affiliated entities, associated partners, subcontractors or recipients of financial support to third parties are established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) — unless otherwise agreed with the granting authority.

The beneficiaries must moreover ensure that any cooperation with entities established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) does not affect the strategic assets, interests, autonomy or security of the EU and its Member States.

Recruitment and working conditions for researchers

The beneficiaries must take all measures to implement the principles set out in the Commission Recommendation on the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers[3], in particular regarding:

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

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

[3] 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).

European Commission

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