



Prijava tražbine stranog vjerovnika u predstečajnom postupku St-96/2025 **FINANCIJSKA AGENCIJA**

RC SPLIT

1

Šalje Renato Sabljic <renato.sabljić@gmail.com>

Datum pet, 12.12.2025. 13:19

Prima PRIJAVA-TRAZBINE <prijavatrazbine@fina.hr>

12-12-2025

PREDSTEČAJNE NAGODBE
PRIMANJE I OTPREMA POŠTE
KLASA 034-011/25-101/18
UR. BROJ 118-08-5012-25-25

📎 Broj privitaka: 6 (veličina: 6 MB)

Provisional Claim_BUGENVILA INVESTICIJE DOO.pdf; Court Register - Business Entity Information - Printable Version (1).pdf;
GA Declaration - GAP-101060712 - 891199529.pdf; Grant Agreement-101060712-FishEUTrust.pdf;
P19_Bugenvila_FishEUTrust_2nd_payment_certificate.pdf; GMAIL--1.PDF;

Poštovani,

Rješenjem Trgovačkog suda u Dubrovniku, posl. broj. St-96/2025 od 25. 10.2025. imenovan sam povjerenikom u predstečajnom postupku za dužnika BUGENVILA INVESTICIJE d.o.o. za ugostiteljstvo i usluge, OIB 71770266192, Obala dr. Ante Starčevića 9, 20210 Cavtat.

Na moju e-mail adresu je dana 9. prosinca 2025. pristigla prijava tražbine stranog vjerovnika u navedenom predstečajnom postupku, pa Vam prosljeđujem prijavu tražbine kao i e-mail poruku stranog vjerovnika koju sam zaprimio.

S poštovanjem

dipl.ing. Renato Sabljic, univ. spec. oec.

Mob: +385 98 274 257

e-mail: renato.sabljić@gmail.com



Renato Sabljic <renato.sabljic@gmail.com>

HORIZON-CL6-2021-FARM2FORK-01_101060712_FishEUTrust; Legal entity: BUGENVILA INVESTICIJE DOO (PIC 891199529); Registration of Provisional Claim in the list of creditors - Ares(2025)10873596

KOUTROLIKOU Maria (REA) <maria.koutrolikou@ec.europa.eu>
To: SABLJIĆ Renato <renato.sabljic@gmail.com>

9 December 2025 at 11:09

Dear Mr,

I am writing to you in your capacity as administrator of BUGENVILA INVESTICIJE DOO (PIC 891199529), in the framework of its participation in the project HORIZON-CL6-2021-FARM2FORK-01_101060712_FishEUTrust.






Please find attached an e-signed letter, whereby the European Research Executive Agency (REA) of the European Commission requests for the registration of a provisional claim in the list of creditors.

I would be grateful if you could acknowledge receipt of the present email by replying within 10 working days to this email address: Maria.KOUTROLIKOU@ec.europa.eu.

Kind regards,

Maria KOUTROLIKOU
Legal Adviser
Farm to fork, Communities Development and Climate Action (REA.B.2)

5 attachments

-  **Provisional Claim_BUGENVILA INVESTICIJE DOO.pdf**
389K
-  **Grant Agreement-101060712-FishEUTrust.pdf**
4716K
-  **GA Declaration - GAP-101060712 - 891199529.pdf**
371K
-  **Court Register - Business Entity Information - Printable Version (1).pdf**
237K
-  **P19_Bugenvila_FishEUTrust_2nd_payment_certificate.pdf**
584K



EUROPEAN RESEARCH EXECUTIVE AGENCY (REA)

REA.B - Green Europe

B.2 - Farm to fork, Communities Development and Climate Action

Bruxelles
REA.B.2.003/MK

Renato Sabljic,
Zdenački zavoj 14
10000 Zagreb
CROATIA
renato.sabljić@gmail.com
Phone: +385 (0) 98 274 257

Registered mail with acknowledgment of receipt

Subject: HORIZON-CL6-2021-FARM2FORK-01_101060712_FishEUTrust
Legal entity: BUGENVILA INVESTICIJE DOO (PIC 891199529)
Registration of Provisional Claim in the list of creditors

Dear Renato Sabljic,

I wish to register with you, in your capacity as liquidator of BUGENVILA INVESTICIJE DOO (PIC 891199529), whose registered office is located at OBALA DR ANTE STARCEVIC 9, 20210, CAVTAT, CROATIA, the below claim held by the European Research Executive Agency (hereinafter the "REA"), on behalf of the European Union.

BUGENVILA INVESTICIJE DOO received from the project Coordinator a total amount of EUR 68 998.36 in two instalments, a first pre-financing payment of EUR 38 863.36 dated 21 June 2022, and an interim payment of EUR 30 135.00 dated 15 May 2024, in the framework of its participation in the project HORIZON-CL6-2021-FARM2FORK-01_101060712_FishEUTrust.

Please consider the amount of the claim to be registered on the list of creditors for a provisional maximum amount of **EUR 7 197.11**, equivalent to the full amount of pre-financings payment received minus the accepted EU contribution.

Estimated EU contribution	EUR 80 412.50 (as per Annex 2-Budget of the action)
Pre-financing 1	EUR 38 863.36 (bank transfer dated 21/06/2022)
Interim payment	EUR 30 135.00 (bank transfer dated 15/05/2024)
Total paid	EUR 68 998.36

Accepted EU contribution

EUR **61 801.25** (RP1+RP2)

Outstanding provisional debt EUR 7 197.11

(calculated as the total amount of pre-financing and interim payments received, minus the accepted EU contribution)

This is the maximum amount owed to the REA, from which is to be deducted any eligible costs for the work carried out by BUGENVILA INVESTICIJE DOO on the basis of the reports.

To that end, we will contact you when we establish the final amount that the beneficiary shall reimburse to the REA.

If there are additional formalities requested to validate the present registration of the claim of the REA, please let us know by return post.

I would draw your attention on Article 106 of Regulation (EU, Euratom) No 2024/2509 of the European Parliament and of the Council of 23 September 2024 on the financial rules applicable to the general budget of the Union published in the OJEU L 2024/2509 on 26 September 2024 which stipulates that: *“In the event of insolvency proceedings, entitlements of the Union shall be given the same preferential treatment as entitlements of the same nature due to public bodies in Member States where the recovery proceedings are being conducted”*.

Please acknowledge receipt of this letter.

Yours sincerely,

- e-signed -
Gianmaria Maule
Head of Sector

c.c.: P. ICARDI (DG BUDG), L. BYRNE, I. NOVIKOVIENE (REA/D.3), N. NAYDENOVA, O. PASTRE, D. TRZASKA, L. PACILLO, M. ROGIVAL, M. KOUTROLIKOU, VE_REA.B2_LEGAL OFFICERS (REA/B.2), VE_REA.REA BANKRUPTCY CASES, VE_REA.D3_FVA (REA/D.3)

Annexes:

1. Grant Agreement HORIZON-CL6-2021-FARM2FORK-01_101060712_FishEUTrust and related annexes
2. Signed DoH – GA Declaration – 101060712– PIC 891199529
3. Proofs of bankruptcy of BUGENVILA INVESTICIJE DOO
4. Proofs of transfer pre-financing payments to BUGENVILA INVESTICIJE DOO



Competent court

Commercial Court in Dubrovnik

MBS

060367339

OIB

71770266192

EUID

HRSR.060367339

Status

Pre-bankruptcy opened

Company

BUGENVILA INVESTICIJE d.o.o. for catering and services

BUGENVILA INVESTICIJE d.o.o.

Headquarters/Address

Cavtat (Municipality of Konavle)

Obala dr. Ante Starčevića 9

E-mail address

igor.korusic@gmail.com

Capital

HRK 3,350,700.00 / EUR 444,714.31 (fixed conversion rate 7.53450)

Note:

The amount of share capital is presented in euro for information purposes and does not affect the rights and obligations of the company or the members of the company.

Companies are obliged to adjust the share capital in accordance with the Act on Amendments to the Companies Act (Official Gazette No. 114/22).

Legal form

Limited Liability Company

Subject of business

- * Preparation and service of meals, drinks and beverages and provision of accommodation services
- * Preparation of meals, beverages and beverages for consumption elsewhere with or without service (in means of transport, at events, etc.) and supply of these meals, beverages and beverages (catering)
- * Food & Beverage Manufacturing
 - Tourist services in other forms of tourist offer: rural, health, cultural, wellness, congress, for youth, adventure, hunting, sports, golf
- * tourism, sport or recreational fishing at sea, diving tourism, freshwater sport fishing as an additional activity in the breeding of marine and freshwater fish, crustaceans and shellfish, etc.
- * Other tourist services - rental of accessories and equipment for sports and recreation, such as canoes, sailing boards, water bikes, umbrellas, deck chairs, etc.
- * Tourist services that include sports, recreational or adventure activities
- * Real estate brokerage
- * Real Estate Business
- * Buying and selling goods
- * Providing services in the store
- * Performing commercial intermediation on the domestic and foreign markets
- * Representation of foreign companies
- * Activities of public transport of passengers and freight in domestic and international road transport
- * Transport for own needs
- * Tourist services in nautical tourism
- * Occasional transport of passengers in coastal maritime transport
- * Business and management consulting
- * WEB design
- * Provision of information society services
- * Promotion and advertising

- * Processing and preservation of fish and fish products
- * Packaging of fish and fish products

Founders/Members of the Society

Monika Agnieszka Dziwik-Korousic, OIB: 02876189856 [\(Show related entities\)](#)

Zorina 2

- the only member of the d.o.o.

Persons authorized to represent

IGOR KOROUŠIČ, OIB: 22693331337 [\(Show related entities\)](#)

Cavtat, Prijeko 68

-curator

- zastupa samostalno i pojedinačno, imenovan dana 29. travnja 2020.g.

Pravni odnosi

Osnivački akt:

Izjava o osnivanju od 22. svibnja 2017.g.

Izjava o osnivanju BUGENVILA U CAVTATU d.o.o. od 22.05.2017. godine izmjenjena je odlukom članova dana 28.06.2017. godine u cijelosti Društvenim ugovorom.

Potpuni tekst Društvenog ugovora od 28.06.2017. godine.

The Memorandum of Association of BUGENVILA U CAVTAT d.o.o. dated 28.06.2017 was amended on 03.11.2017 in Articles 5 (amount of share capital), 6 (payment of shares) and 10 (business shares).

Full text of the Memorandum of Association dated 03.11.2017.

The Memorandum of Association of the Company was completely amended by the decision of the Member on March 26, 2018.

Full text of the Memorandum of Association of 26 March 2018

The Memorandum of Association was completely amended by the decision of the member on October 27, 2020 (data on the company's activities).

Full text of the Memorandum of Association of 27 October 2020.

Changes in share capital:

The share capital of the Company in the amount of HRK 20,000.00 increased by the Decision of the member of the company in the process of merging the company GEMINI NJAM d.o.o. for catering, tourism and trade, maritime agency, Cavtat, Obala Ante Starčevića 9, MBS: 090014365, OIB: 96126469547 by HRK 3,330,700.00 to HRK 3,350,700.00.

Status changes: the subject of registration has been attached to another

Pursuant to the Merger Agreement dated 03.11.2017 concluded between the management boards of the companies BUGENVILA U CAVTATU d.o.o. for catering and services, Cavtat, Obala Ante Starčevića 9, MBS: 060367339, OIB: 71770266192 and GEMINI NJAM d.o.o. for catering, tourism and trade, maritime agency, Cavtat, Obala Ante Starčevića 9, MBS: 090014365, OIB: 96126469547, and the Decision of the Assembly of the companies BUGENVILA U CAVTATU d.o.o. for catering and services, Cavtat, Obala Ante Starčevića 9, MBS: 060367339, OIB: 71770266192 and GEMINI NJAM d.o.o. for catering, tourism and trade, maritime agency, Cavtat, Obala Ante Starčevića 9, MBS: 090014365, OIB: 96126469547 from 03.11.2017 company GEMINI NJAM d.o.o. for catering, tourism and trade, maritime agency, Cavtat, Obala Ante Starčevića 9, MBS: 090014365, OIB: 96126469547 is merged with all assets and all rights and obligations relating to it to the company BUGENVILA U CAVTATU d.o.o. for catering and services, Cavtat, Obala Ante Starčevića 9, MBS: 060367339, OIB: 71770266192.

The decision on the merger was not challenged within the prescribed time limit.

Court decisions: opening of pre-bankruptcy proceedings

The Commercial Court in Dubrovnik, by its decision No. St-96/2025 of 24.10.2025, opened pre-bankruptcy proceedings against the entity BUGENVILA INVESTICIJE d.o.o. for catering and services, Cavtat, Obala dr. Ante Starčevića 9, MBS: 060367339, OIB: 71770266192 and appointed Renato Sablijić, Croatia, Zagreb, Zdenački zavoj 14, OIB: 74644810692 as trustee.

Notes

Ordinal number of notation: 1

- The company GEMINI NJAM d.o.o. for catering, tourism and trade, maritime agency, Cavtat, Obala Ante Starčevića 9, MBS: 090014365, OIB: 96126469547, registered in the register of the Commercial Court in Split, Permanent Service in Dubrovnik has been merged with this company.

Financial Statements

Date of submission	Year	Billing period	Type of report
07.05.2024	2023	01.01.2023 - 31.12.2023	GFI-POD Report

DECLARATION OF HONOUR FOR BENEFICIARIES (DoH)

I, the undersigned:

☐ for natural persons: in my own name

or

☒ for legal persons¹: representing the following entity:

BUGENVILA INVESTICIJE D.O.O.

Put Dr. Ante Starcevic 9

Cavtat 20210

Croatia

VAT number HR71770266192

hereby certify

that (subject to the additional declarations below):

- 1 — The **information** provided for action **101060712 — FishEUTrust** is **correct** and **complete**.
- 2 — The information concerning the legal status in the [Participant Register](#) for me/my organisation is correct and complete.
- 3 — I/my organisation commit to comply² with the **eligibility** criteria and all other conditions set out in the call for proposals — for the entire duration of the action.
- 4 — I/my organisation:
 - are committed to participate in the action
 - have stable and sufficient sources of funding to maintain the activity throughout the checking action and to provide any counterpart funding necessary
 - have or will have the necessary resources needed to implement the action
 - acknowledge to be fully responsible for my affiliated entities which participate in the action
 - for research actions: are committed to comply with the highest standards of ethical principles and research integrity and confirm that the work is free of plagiarism
 - for actions involving EU-classified information: acknowledge that any sensitive

¹ This includes ‘entities without legal personality’ under Article 197(2) of 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).

² ‘Commit to comply’ means complying now and for the duration of the grant.

information or material that qualifies as EU-classified information under Commission Decision [2015/444](#)³ must be handled in accordance with specific rules and follow the instructions given by the EU

- for coordinators of multi-beneficiary actions: are committed to act as the coordinator for this action.

5 — For applicants from non-EU countries: I/my organisation

- undertake to comply with the 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 financial certificates under the agreement: use qualified external auditors which are independent and comply with comparable standards as those set out in EU Directive 2006/43/EC
 - for controls under the agreement: allow for checks, reviews, audits and investigations (including on-the-spot checks, visits and inspections) by the granting authority, the European Anti-Fraud Office (OLAF), the European Prosecutor's Office (EPPO) and the European Court of Auditors (ECA) (and any persons mandated by them)
- and confirm that:
 - we can be subject to the jurisdiction of the Belgian courts.

6 — I/my organisation:

- are NOT subject to an **administrative sanction** (i.e. exclusion or financial penalty decision)⁴

I/my organisation (or persons with unlimited liability for debts):

- are NOT in one of the following **exclusion situations**⁵:
 - **bankrupt**, being wound up, having the affairs administered by the courts, entered into an arrangement with creditors, suspended business activities or subject to any other similar proceedings or procedures
 - in breach of **social security** or **tax** obligations

I/my organisation (or persons having powers of representation, decision-making or control, beneficial owners or persons who are essential for the award/implementation of the action):

³ See Commission Decision 2015/544/EU, Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

⁴ See Article 136 [EU Financial Regulation](#).

⁵ See Articles 136 and 141 [EU Financial Regulation](#).

- are NOT in one of the following **exclusion situations**⁶:
 - guilty of grave professional **misconduct**⁷
 - committed fraud, corruption, links to a **criminal** organisation, money laundering, terrorism-related crimes (including terrorism financing), child labour or human trafficking
 - shown significant deficiencies in complying with main obligations under an **EU** procurement **contract**, grant agreement, prize, expert contract, or similar
 - guilty of **irregularities** within the meaning of Article 1(2) of Regulation No 2988/95
 - created under a different jurisdiction with the intent to circumvent fiscal, social or other legal obligations in the country of origin (including creation of another entity with this purpose).

7 — I/my organisation are NOT subject to a **conflict of interest** in connection with this grant and will notify — without delay — any situation which could give rise to a conflict of interests.

8 — I/my organisation have NOT and will NOT, neither directly nor indirectly, grant, seek, obtain or accept any advantage in connection with this grant that would constitute an illegal practice or involve **corruption**.

9 — I/my organisation have **not received** any **other EU grant** for this action and will give notice of any future EU grants related to this action AND of any EU operating grant(s)⁸ given to my organisation.

10 — I/my organisation are aware that **false declarations** may lead to rejection, suspension, termination or reduction of the grant and to administrative sanctions (i.e. financial penalties and/or exclusion from all future EU procurement contracts, grants, prizes and expert contracts).

and acknowledge

that:

1 — The grant will be signed and managed electronically, through the Funding & Tenders Portal Electronic Exchange System (accessible via your [Funding & Tenders Portal account](#)⁹).

⁶ See Articles 136 and 141 [EU Financial Regulation](#).

⁷ Professional misconduct includes: violation of ethical standards of the profession, wrongful conduct with impact on professional credibility, false declarations/misrepresentation of information, participation in a cartel or other agreement distorting competition, violation of IPR, attempting to influence decision-making processes or obtain confidential information from public authorities to gain an advantage.

⁸ See Article 180 [EU Financial Regulation](#).

⁹ Available at <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/myarea/projects>.

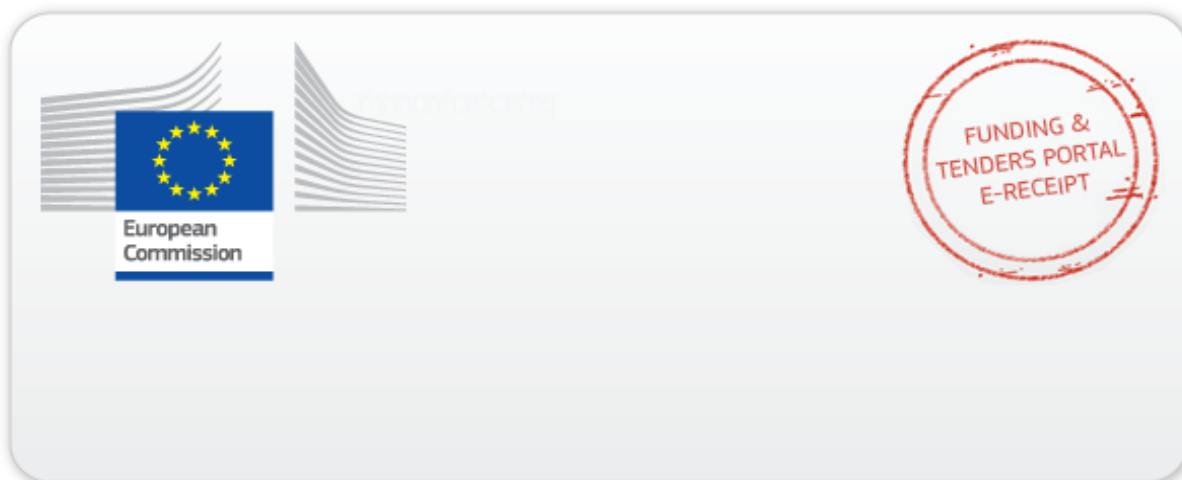
- 2 — Access and use of the electronic exchange system is subject to the [Funding & Tenders Portal Terms & Conditions](#)¹⁰.
- 3 — Personal data submitted or otherwise collected by the EU will be subject to the [Funding & Tenders Portal privacy statements](#)¹¹.

SIGNATURE

For the applicant:

¹⁰ Available at https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/ftp/tc_en.pdf.

¹¹ Available at <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/legalnotice>.



This electronic receipt is a digitally signed version of the document submitted by your organisation. Both the content of the document and a set of metadata have been digitally sealed.

This digital signature mechanism, using a public-private key pair mechanism, uniquely binds this eReceipt to the modules of the Funding & Tenders Portal of the European Commission, to the transaction for which it was generated and ensures its full integrity. Therefore a complete digitally signed trail of the transaction is available both for your organisation and for the issuer of the eReceipt.

Any attempt to modify the content will lead to a break of the integrity of the electronic signature, which can be verified at any time by clicking on the eReceipt validation symbol.

More info about eReceipts can be found in the FAQ page of the Funding & Tenders Portal.

(<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/faq>)

**EUROPEAN RESEARCH EXECUTIVE AGENCY (REA)**

REA.B – Green Europe

B.2 – Farm to fork, Communities Development and Climate Action**GRANT AGREEMENT****Project 101060712 — FishEUTrust****PREAMBLE**

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

on the one part,

the **European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'),
under the powers delegated by the European Commission ('European Commission'),

and

on the other part,

1. 'the coordinator':

INSTITUT JOZEF STEFAN (JSI), PIC 999971837, established in Jamova 39, LJUBLJANA 1000, Slovenia,

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

2. **INSTITUTO PORTUGUES DO MAR E DA ATMOSFERA IP (IPMA)**, PIC 953379924, established in RUA C AO AEROPORTO, LISBOA 1749 077, Portugal,

3. **ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA (UNIBO)**, PIC 999993953, established in VIA ZAMBONI 33, BOLOGNA 40126, Italy,

4. **INTERNATIONAL ORGANISATION FOR THE DEVELOPMENT OF FISHERIES AND AQUACULTURE IN EUROPE (EUROFISH)**, PIC 986599902, established in HC ANDERSENS BOULEVARD 44-46, COPENHAGEN 1553, Denmark,

5. **UNIVERSITA DEGLI STUDI DI FIRENZE (UNIFI)**, PIC 999895789, established in Piazza San Marco 4, Florence 50121, Italy,

6. **UNIVERSITATEA DE MEDICINA SI FARMACIE IULIU HATIEGANU CLUJ-NAPOCA (UMF Cluj)**, PIC 999842439, established in VICTOR BABES STREET 8, Cluj-Napoca 400012, Romania,

7. **DANMARKS TEKNISKE UNIVERSITET (DTU)**, PIC 999990655, established in ANKER ENGELUNDSVEJ 1 BYGNING 101 A, KGS LYNGBY 2800, Denmark,

8. **BRANDENBURGISCHE TECHNISCHE UNIVERSITÄT COTTBUS-SENFTENBERG (BTU CS)**, PIC 937759529, established in PLATZ DER DEUTSCHEN EINHEIT 1, COTTBUS 03046, Germany,
9. **NORCE NORWEGIAN RESEARCH CENTRE AS (NORCE)**, PIC 905860788, established in NYGARDSGATEN 112, BERGEN 5838, Norway,
10. **EUROPEAN FOOD INFORMATION RESSOURCE AISBL (EUROFIR AISBL)**, PIC 994382018, established in RUE WASHINGTON 40, BRUXELLES 1050, Belgium,
11. **UNIVERSITA DEGLI STUDI DI PADOVA (UNIPD)**, PIC 999995602, established in VIA 8 FEBBRAIO 2, PADOVA 35122, Italy,
12. **AQUABIOTECH LIMITED (ABT)**, PIC 996843393, established in NAGGAR STREET CENTRAL COMPLEX TARGA GAP, MOSTA MST 1761, Malta,
13. **REDINN - SRL (REDINN)**, PIC 968427922, established in VIA MAR DI BERING 39B, POMEZIA 00040, Italy,
14. **PREDUZECE ZA INFORMACIONE TEHNOLOGIJE I ELEKTRONSKO TRGOVANJE BELIT DOO (BELIT)**, PIC 975084450, established in TRG NIKOLE PASICA 9, BEOGRAD 11000, Serbia,
15. **MICRUX FLUIDIC SL (MICRUX)**, PIC 956824491, established in C/ JUAN DE LA CIERVA 2C NAVE 6 POLIGONO MORA G, GIJON 33211, Spain,
16. **DE LA CUEVA GONZALEZ COTERA JAVIER (JdIC)**, PIC 937532161, established in CALLE RODRIGUEZ MARIN 90 PO4 D, MADRID 28016, Spain,
17. **CLUSTER DE LA ACUICULTURA DE GALICIA ASOCIACION (CETGA)**, PIC 957778486, established in PUNTA DE COUSO AGUINO, A CORUNA 15960, Spain,
18. **DRUSTVO SA OGRANICENOM ODGOVORNOSCU DIGITALSMART DOO PODGORICA (DIGITALSMART)**, PIC 891952346, established in BULEVAR DZORDZA VASINGTONA 3/21, PODGORICA 81000, Montenegro,
19. **BUGENVILA INVESTICIJE DOO (BUGENVILA)**, PIC 891199529, established in OBALA DR ANTE STARCEVIC 9, CAVTAT 20210, Croatia,
20. **OXYGUARD INTERNATIONAL AS (OXY)**, PIC 965476212, established in FARUM GYDEVEJ 64, FARUM 3520, Denmark,

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 action¹

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](#).

TERMS AND CONDITIONS

TABLE OF CONTENTS

GRANT AGREEMENT.....	1
PREAMBLE.....	1
TERMS AND CONDITIONS.....	4
DATASHEET.....	9
CHAPTER 1 GENERAL.....	15
ARTICLE 1 — SUBJECT OF THE AGREEMENT	15
ARTICLE 2 — DEFINITIONS.....	15
CHAPTER 2 ACTION.....	16
ARTICLE 3 — ACTION.....	16
ARTICLE 4 — DURATION AND STARTING DATE.....	16
CHAPTER 3 GRANT.....	16
ARTICLE 5 — GRANT.....	16
5.1 Form of grant.....	16
5.2 Maximum grant amount.....	17
5.3 Funding rate.....	17
5.4 Estimated budget, budget categories and forms of funding.....	17
5.5 Budget flexibility.....	17
ARTICLE 6 — ELIGIBLE AND INELIGIBLE COSTS AND CONTRIBUTIONS.....	18
6.1 General eligibility conditions.....	18
6.2 Specific eligibility conditions for each budget category.....	19
6.3 Ineligible costs and contributions.....	23
6.4 Consequences of non-compliance.....	24
CHAPTER 4 GRANT IMPLEMENTATION.....	25
SECTION 1 CONSORTIUM: BENEFICIARIES, AFFILIATED ENTITIES AND OTHER PARTICIPANTS.....	25
ARTICLE 7 — BENEFICIARIES.....	25
ARTICLE 8 — AFFILIATED ENTITIES.....	27
ARTICLE 9 — OTHER PARTICIPANTS INVOLVED IN THE ACTION.....	27
9.1 Associated partners.....	27
9.2 Third parties giving in-kind contributions to the action.....	27
9.3 Subcontractors.....	27

9.4 Recipients of financial support to third parties.....	28
ARTICLE 10 — PARTICIPANTS WITH SPECIAL STATUS.....	28
10.1 Non-EU participants.....	28
10.2 Participants which are international organisations.....	28
10.3 Pillar-assessed participants.....	29
SECTION 2 RULES FOR CARRYING OUT THE ACTION.....	31
ARTICLE 11 — PROPER IMPLEMENTATION OF THE ACTION.....	31
11.1 Obligation to properly implement the action.....	31
11.2 Consequences of non-compliance.....	31
ARTICLE 12 — CONFLICT OF INTERESTS.....	31
12.1 Conflict of interests.....	32
12.2 Consequences of non-compliance.....	32
ARTICLE 13 — CONFIDENTIALITY AND SECURITY.....	32
13.1 Sensitive information.....	32
13.2 Classified information.....	33
13.3 Consequences of non-compliance.....	33
ARTICLE 14 — ETHICS AND VALUES.....	33
14.1 Ethics.....	33
14.2 Values.....	33
14.3 Consequences of non-compliance.....	33
ARTICLE 15 — DATA PROTECTION.....	34
15.1 Data processing by the granting authority.....	34
15.2 Data processing by the beneficiaries.....	34
15.3 Consequences of non-compliance.....	35
ARTICLE 16 — INTELLECTUAL PROPERTY RIGHTS (IPR) — BACKGROUND AND RESULTS — ACCESS RIGHTS AND RIGHTS OF USE.....	35
16.1 Background and access rights to background.....	35
16.2 Ownership of results.....	35
16.3 Rights of use of the granting authority on materials, documents and information received for policy, information, communication, dissemination and publicity purposes.....	35
16.4 Specific rules on IPR, results and background.....	36
16.5 Consequences of non-compliance.....	36
ARTICLE 17 — COMMUNICATION, DISSEMINATION AND VISIBILITY.....	36
17.1 Communication — Dissemination — Promoting the action.....	36
17.2 Visibility — European flag and funding statement.....	37
17.3 Quality of information — Disclaimer.....	37

17.4	Specific communication, dissemination and visibility rules.....	38
17.5	Consequences of non-compliance.....	38
ARTICLE 18 — SPECIFIC RULES FOR CARRYING OUT THE ACTION.....		38
18.1	Specific rules for carrying out the action.....	38
18.2	Consequences of non-compliance.....	38
SECTION 3 GRANT ADMINISTRATION.....		38
ARTICLE 19 — GENERAL INFORMATION OBLIGATIONS.....		38
19.1	Information requests.....	38
19.2	Participant Register data updates.....	38
19.3	Information about events and circumstances which impact the action.....	38
19.4	Consequences of non-compliance.....	39
ARTICLE 20 — RECORD-KEEPING.....		39
20.1	Keeping records and supporting documents.....	39
20.2	Consequences of non-compliance.....	40
ARTICLE 21 — REPORTING.....		40
21.1	Continuous reporting.....	40
21.2	Periodic reporting: Technical reports and financial statements.....	41
21.3	Currency for financial statements and conversion into euros.....	42
21.4	Reporting language.....	42
21.5	Consequences of non-compliance.....	42
ARTICLE 22 — PAYMENTS AND RECOVERIES — CALCULATION OF AMOUNTS DUE.....		42
22.1	Payments and payment arrangements.....	42
22.2	Recoveries.....	43
22.3	Amounts due.....	43
22.4	Enforced recovery.....	49
22.5	Consequences of non-compliance.....	49
ARTICLE 23 — GUARANTEES.....		50
ARTICLE 24 — CERTIFICATES.....		50
24.1	Operational verification report (OVR).....	50
24.2	Certificate on the financial statements (CFS).....	50
24.3	Certificate on the compliance of usual cost accounting practices (CoMUC).....	51
24.4	Systems and process audit (SPA).....	51
24.5	Consequences of non-compliance.....	52
ARTICLE 25 — CHECKS, REVIEWS, AUDITS AND INVESTIGATIONS — EXTENSION OF FINDINGS.....		52

25.1	Granting authority checks, reviews and audits.....	52
25.2	European Commission checks, reviews and audits in grants of other granting authorities.....	53
25.3	Access to records for assessing simplified forms of funding.....	53
25.4	OLAF, EPPO and ECA audits and investigations.....	53
25.5	Consequences of checks, reviews, audits and investigations — Extension of results of reviews, audits or investigations.....	54
25.6	Consequences of non-compliance.....	55
ARTICLE 26 — IMPACT EVALUATIONS.....		55
26.1	Impact evaluation.....	55
26.2	Consequences of non-compliance.....	56
CHAPTER 5 CONSEQUENCES OF NON-COMPLIANCE.....		56
SECTION 1 REJECTIONS AND GRANT REDUCTION.....		56
ARTICLE 27 — REJECTION OF COSTS AND CONTRIBUTIONS.....		56
27.1	Conditions.....	56
27.2	Procedure.....	56
27.3	Effects.....	56
ARTICLE 28 — GRANT REDUCTION.....		56
28.1	Conditions.....	56
28.2	Procedure.....	57
28.3	Effects.....	57
SECTION 2 SUSPENSION AND TERMINATION.....		57
ARTICLE 29 — PAYMENT DEADLINE SUSPENSION.....		57
29.1	Conditions.....	57
29.2	Procedure.....	58
ARTICLE 30 — PAYMENT SUSPENSION.....		58
30.1	Conditions.....	58
30.2	Procedure.....	58
ARTICLE 31 — GRANT AGREEMENT SUSPENSION.....		59
31.1	Consortium-requested GA suspension.....	59
31.2	EU-initiated GA suspension.....	60
ARTICLE 32 — GRANT AGREEMENT OR BENEFICIARY TERMINATION.....		61
32.1	Consortium-requested GA termination.....	61
32.2	Consortium-requested beneficiary termination.....	62
32.3	EU-initiated GA or beneficiary termination.....	63
SECTION 3 OTHER CONSEQUENCES: DAMAGES AND ADMINISTRATIVE SANCTIONS.....		66

ARTICLE 33 — DAMAGES.....	66
33.1 Liability of the granting authority.....	66
33.2 Liability of the beneficiaries.....	67
ARTICLE 34 — ADMINISTRATIVE SANCTIONS AND OTHER MEASURES.....	67
SECTION 4 FORCE MAJEURE.....	67
ARTICLE 35 — FORCE MAJEURE.....	67
CHAPTER 6 FINAL PROVISIONS.....	67
ARTICLE 36 — COMMUNICATION BETWEEN THE PARTIES.....	67
36.1 Forms and means of communication — Electronic management.....	67
36.2 Date of communication.....	68
36.3 Addresses for communication.....	68
ARTICLE 37 — INTERPRETATION OF THE AGREEMENT.....	68
ARTICLE 38 — CALCULATION OF PERIODS AND DEADLINES.....	69
ARTICLE 39 — AMENDMENTS.....	69
39.1 Conditions.....	69
39.2 Procedure.....	69
ARTICLE 40 — ACCESSION AND ADDITION OF NEW BENEFICIARIES.....	70
40.1 Accession of the beneficiaries mentioned in the Preamble.....	70
40.2 Addition of new beneficiaries.....	70
ARTICLE 41 — TRANSFER OF THE AGREEMENT.....	70
ARTICLE 42 — ASSIGNMENTS OF CLAIMS FOR PAYMENT AGAINST THE GRANTING AUTHORITY.....	70
ARTICLE 43 — APPLICABLE LAW AND SETTLEMENT OF DISPUTES.....	71
43.1 Applicable law.....	71
43.2 Dispute settlement.....	71
ARTICLE 44 — ENTRY INTO FORCE.....	71

DATA SHEET

1. General data

Project summary:

Project summary
<p>FishEUTrust represents a consortium of twenty-two organizations from fourteen countries, pooling their expertise to defragment the current food system to ensure sustainability and deliver solutions for a transparent and traceable seafood supply chain necessary to promote high-end, pan-European farmed seafood. The innovation at the heart of FishEUTrust is integrating different actors into a digital platform that links technology providers, supply chain stakeholders, regulatory/policymakers and consumers. FishEUTrust will establish five Co-creation Living Labs (CLLs) in diverse environments: the Mediterranean Basin, the North Sea and the Atlantic Sea. These CLLs will enable user involvement in innovation and development processes and act as demonstrators for the consortium to test and validate digital and non-digital supply chain solutions. Examples include creating sustainable business models, exploiting IPR strategies for aquaculture, e.g., protecting cultural and culinary heritage, short food supply chains, exploiting underused fish species, and innovative engaging activities to stimulate/nudge behavioural change. It will also develop tools for maximizing trust by guaranteeing the quality, safety, and traceability of seafood products based on smart control systems (sensors), a suite of tools integrating metagenomics, genetic biomarkers, isotopic techniques, and digital technologies (labelling, Product Passport/Blockchain). These tools will be integrated into a single cutting-edge digital FishEUTrust platform that will apply the latest in artificial intelligence, data science and human-computer interactions. Finally, an integrated impact assessment and life cycle analysis will be performed to quantify the environmental footprint, health sustainability, and socio-economic benefits of FishEUTrust solutions. FishEUTrust will be supported by a comprehensive scientific, public, policymaker and industrial dissemination plan to communicate results to a broad audience.</p>

Keywords:

- Blue Economy
- Fisheries and aquaculture
- Seafood quality and safety
- Food traceability

Project number: 101060712

Project name: European integration of new technologies and social-economic solutions for increasing consumer trust and engagement in seafood products

Project acronym: FishEUTrust

Call: HORIZON-CL6-2021-FARM2FORK-01

Topic: HORIZON-CL6-2021-FARM2FORK-01-10

Type of action: HORIZON Innovation Actions

Granting authority: European Research Executive Agency

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

Project starting date: first day of the month following the entry into force date

Project end date: starting date + months of duration

Project duration: 48 months

Consortium agreement: Yes

2. Participants

List of participants:

Nº	Role	Short name	Legal name	Ctry	PIC	Total eligible costs (BEN and AE)	Max grant amount
1	COO	JSI	INSTITUT JOZEF STEFAN	SI	999971837	520 000.00	520 000.00
2	BEN	IPMA	INSTITUTO PORTUGUES DO MAR E DA ATMOSFERA IP	PT	953379924	287 000.00	287 000.00
3	BEN	UNIBO	ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA	IT	999993953	300 687.50	300 687.50
4	BEN (IO)	EUROFISH	INTERNATIONAL ORGANISATION FOR THE DEVELOPMENT OF FISHERIES AND AQUACULTURE IN EUROPE	DK	986599902	300 000.00	300 000.00
5	BEN	UNIFI	UNIVERSITA DEGLI STUDI DI FIRENZE	IT	999895789	450 000.00	450 000.00
6	BEN	UMF Cluj	UNIVERSITATEA DE MEDICINA SI FARMACIE IULIU HATIEGANU CLUJ-NAPOCA	RO	999842439	251 326.25	251 326.00
7	BEN	DTU	DANMARKS TEKNISKE UNIVERSITET	DK	999990655	354 401.25	354 401.00
8	BEN	BTU CS	BRANDENBURGISCHE TECHNISCHE UNIVERSITAT COTTBUS-SENFTENBERG	DE	937759529	167 375.00	167 375.00
9	BEN	NORCE	NORCE NORWEGIAN RESEARCH CENTRE AS	NO	905860788	216 625.00	216 625.00
10	BEN	EUROFIR AISBL	EUROPEAN FOOD INFORMATION RESSOURCE AISBL	BE	994382018	247 125.00	247 125.00
11	BEN	UNIPD	UNIVERSITA DEGLI STUDI DI PADOVA	IT	999995602	123 750.00	123 750.00
12	BEN	ABT	AQUABIOTECH LIMITED	MT	996843393	214 285.00	149 999.50
13	BEN	REDINN	REDINN - SRL	IT	968427922	231 250.00	161 875.00
14	BEN	BELIT	PREDUZECE ZA INFORMACIONE TEHNOLOGIJE I ELEKTRONSKO TRGOVANJE BELIT DOO	RS	975084450	335 000.00	234 500.00
15	BEN	MICRUX	MICRUX FLUIDIC SL	ES	956824491	290 812.50	203 568.75
16	BEN	JdIC	DE LA CUEVA GONZALEZ COTERA JAVIER	ES	937532161	171 577.21	120 102.50
17	BEN	CETGA	CLUSTER DE LA ACUICULTURA DE GALICIA ASOCIACION	ES	957778486	215 293.75	150 706.00
18	BEN	DIGITALSMART	DRUSTVO SA OGRANICENOM ODGOVORNOSCU DIGITALSMART DOO PODGORICA	ME	891952346	228 000.00	159 600.00
19	BEN	BUGENVILA	BUGENVILA INVESTICIJE DOO	HR	891199529	114 875.00	80 412.50
20	BEN	OXY	OXYGUARD INTERNATIONAL AS	DK	965476212	215 375.00	150 762.50
21	AP	EAS	EUROPEAN AQUACULTURE SOCIETY	BE	997384750	0.00	0.00
22	AP	WRG	WRG EUROPE LTD	UK	972954233	0.00	0.00
Total						5 234 758.46	4 629 816.25

Coordinator:

- INSTITUT JOZEF STEFAN (JSI)

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)
5 234 758.46	100, 70	4 629 816.25	4 629 816.25

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)
- 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
					Interim payment	90 days from receiving periodic report
					Interim payment	90 days from receiving periodic report
					Final payment	90 days from receiving periodic report

Prefinancing payments and guarantees:

Prefinancing payment	
Type	Amount
Prefinancing 1 (initial)	2 469 081.01

Reporting and payment modalities (art 21, 22):

Mutual Insurance Mechanism (MIM): Yes

MIM contribution: 5% of the maximum grant amount (231 490.81), retained from the initial prefinancing

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

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

Exception for revenues: Yes

No-profit rule: Yes

Late payment interest: ECB + 3.5%

Bank account for payments:

SI56011006030344242

Conversion into euros: Double conversion

Reporting language: Language of the Agreement

4.3 Certificates (art 24):

Certificates on the financial statements (CFS):

Conditions:

Schedule: only at final payment, if threshold is reached

Standard threshold (beneficiary-level):

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

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

4.4 Recoveries (art 22)

First-line liability for recoveries:

Beneficiary termination: Beneficiary concerned

Final payment: Each beneficiary for their own debt

After final payment: Beneficiary concerned

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

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

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

Suspension and termination:

Additional suspension grounds (art 31)

Additional termination grounds (art 32)

Applicable law (art 43):

Standard applicable law regime: EU law + law of Belgium

Dispute settlement forum (art 43):

Standard dispute settlement forum:

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

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

Special dispute settlement forum:

- INTERNATIONAL ORGANISATION FOR THE DEVELOPMENT OF FISHERIES AND AQUACULTURE IN EUROPE (EUROFISH): 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)

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 2018/1046⁴ 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 2017/1371⁵ and Article 1 of the Convention on the protection of the European Communities' financial interests, drawn up by the Council Act of 26 July 1995⁶, 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 2988/95⁷.

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 **101060712 — FishEUTrust** ('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 grant⁸ 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".

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 entities⁹ 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.

- 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)

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

- (i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2
- (ii) the costs or contributions to which the flat-rate is applied must:
 - be eligible
 - relate to the period set out in Article 4 (with the exception of costs or contributions relating to the submission of the final periodic report, which may be incurred afterwards; see Article 21)

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

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

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

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

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

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

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

6.2 Specific eligibility conditions for each budget category

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

Direct costs

A. Personnel costs

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

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

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

The daily rate must be calculated as:

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

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

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

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

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

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

and

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

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

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

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

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

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

and

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

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

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

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

A.4 The work of **SME owners** for the action (i.e. owners of beneficiaries that are small and medium-sized enterprises¹¹ 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.

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.

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.

Indirect costs

E. Indirect costs

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

Contributions

Not applicable

6.3 Ineligible costs and contributions

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

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

- (i) costs related to return on capital and dividends paid by a beneficiary
 - (ii) debt and debt service charges
 - (iii) provisions for future losses or debts
 - (iv) interest owed
 - (v) currency exchange losses
 - (vi) bank costs charged by the beneficiary's bank for transfers from the granting authority
 - (vii) excessive or reckless expenditure
 - (viii) deductible or refundable VAT (including VAT paid by public bodies acting as public authority)
 - (ix) costs incurred or contributions for activities implemented during grant agreement suspension (see Article 31)
 - (x) in-kind contributions by third parties: not applicable
- (b) costs or contributions declared under other EU grants (or grants awarded by an EU Member State, non-EU country or other body implementing the EU budget), except for the following cases:
- (i) Synergy actions: not applicable
 - (ii) if the action grant is combined with an operating grant¹² 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".

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.”

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

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

ARTICLE 8 — AFFILIATED ENTITIES

Not applicable

ARTICLE 9 — OTHER PARTICIPANTS INVOLVED IN THE ACTION

9.1 Associated partners

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

- **EUROPEAN AQUACULTURE SOCIETY (EAS)**, PIC 997384750
- **WRG EUROPE LTD (WRG)**, PIC 972954233

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 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/EC¹⁴
- 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

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).

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.

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

10.3 Pillar-assessed participants

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

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

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

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

and use the following specific rules, for:

- recoveries (Article 22): in case of financial support to third parties, there will be no recovery if the participant has done everything possible to retrieve the undue amounts from the third party receiving the support (including legal proceedings) and non-recovery is not due to an error or negligence on its part
- checks, reviews, audits and investigations by the EU (Article 25): will be conducted taking into account the rules and procedures specifically agreed between them and the framework agreement (if any)
- impact evaluation (Article 26): will be conducted in accordance with the participant's internal rules and procedures and the framework agreement (if any)
- grant agreement suspension (Article 31): certain costs incurred during grant suspension are eligible (notably, minimum costs necessary for a possible resumption of the action and costs relating to contracts which were entered into before the pre-information letter was received and which could not reasonably be suspended, reallocated or terminated on legal grounds)
- grant agreement termination (Article 32): the final grant amount and final payment will be calculated taking into account also costs relating to contracts due for execution only after termination takes effect, if the contract was entered into before the pre-information letter was received and could not reasonably be terminated on legal grounds
- liability for damages (Article 33.2): the granting authority must be compensated for damage it sustains as a result of the implementation of the action or because the action was not implemented in full compliance with the Agreement only if the damage is due to an infringement of the participant's internal rules and procedures or due to a violation of third parties' rights by the participant or one of its employees or individual for whom the employees are responsible.

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

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

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

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

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

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

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

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

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

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

SECTION 2 RULES FOR CARRYING OUT THE ACTION

ARTICLE 11 — PROPER IMPLEMENTATION OF THE ACTION

11.1 Obligation to properly implement the action

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

11.2 Consequences of non-compliance

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

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

ARTICLE 12 — CONFLICT OF INTERESTS

12.1 Conflict of interests

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

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

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

12.2 Consequences of non-compliance

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

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

ARTICLE 13 — CONFIDENTIALITY AND SECURITY

13.1 Sensitive information

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

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

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

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

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

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

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

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

The confidentiality obligations no longer apply if:

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

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

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

13.2 Classified information

The parties must handle classified information in accordance with the applicable EU, international or national law on classified information (in particular, Decision 2015/444¹⁵ and its implementing rules).

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

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

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

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

13.3 Consequences of non-compliance

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

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

ARTICLE 14 — ETHICS AND VALUES

14.1 Ethics

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

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

14.2 Values

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

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

14.3 Consequences of non-compliance

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).

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 2018/1725¹⁶.

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 2016/679¹⁷).

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.

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 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).

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:

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

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

16.2 Ownership of results

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

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

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

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

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

- (a) **use for its own purposes** (in particular, making them available to persons working for the granting authority or any other EU service (including institutions, bodies, offices, agencies, etc.) or EU Member State institution or body; copying or reproducing them in whole or in part, in unlimited numbers; and communication through press information services)
- (b) **distribution to the public** (in particular, publication as hard copies and in electronic or digital format, publication on the internet, as a downloadable or non-downloadable file, broadcasting

by any channel, public display or presentation, communicating through press information services, or inclusion in widely accessible databases or indexes)

- (c) **editing or redrafting** (including shortening, summarising, inserting other elements (e.g. meta-data, legends, other graphic, visual, audio or text elements), extracting parts (e.g. audio or video files), dividing into parts, use in a compilation)
- (d) **translation**
- (e) **storage** in paper, electronic or other form
- (f) **archiving**, in line with applicable document-management rules
- (g) the right to authorise **third parties** to act on its behalf or sub-license to third parties the modes of use set out in Points (b), (c), (d) and (f), if needed for the information, communication and publicity activity of the granting authority
- (h) **processing**, analysing, aggregating the materials, documents and information received and **producing derivative works**.

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

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

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

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

16.4 Specific rules on IPR, results and background

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

16.5 Consequences of non-compliance

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

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

ARTICLE 17 — COMMUNICATION, DISSEMINATION AND VISIBILITY

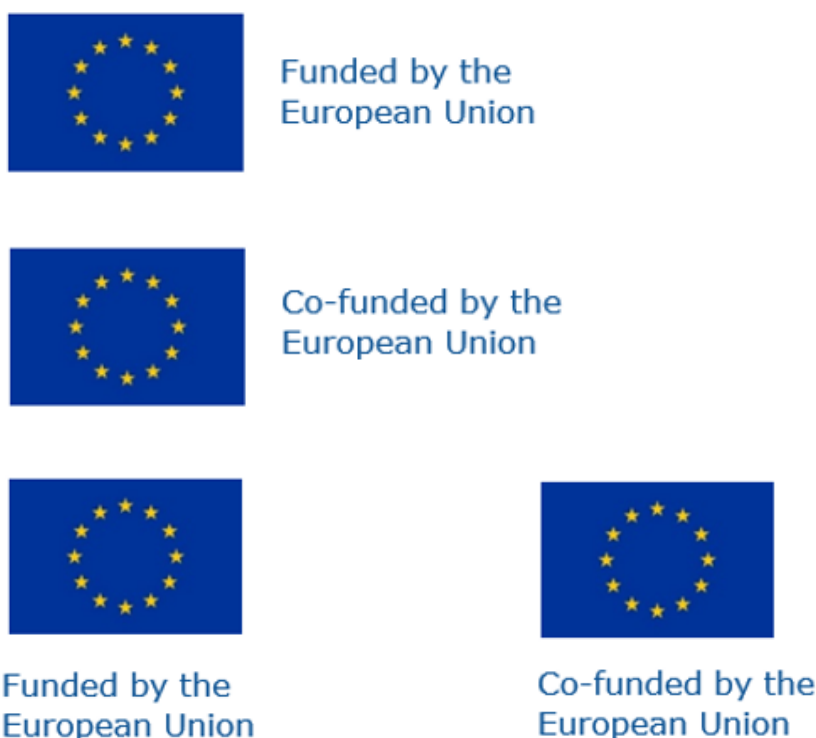
17.1 Communication — Dissemination — Promoting the action

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

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

17.2 Visibility — European flag and funding statement

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



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

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

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

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

17.3 Quality of information — Disclaimer

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

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

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

17.4 Specific communication, dissemination and visibility rules

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

17.5 Consequences of non-compliance

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

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

ARTICLE 18 — SPECIFIC RULES FOR CARRYING OUT THE ACTION

18.1 Specific rules for carrying out the action

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

18.2 Consequences of non-compliance

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

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

SECTION 3 GRANT ADMINISTRATION

ARTICLE 19 — GENERAL INFORMATION OBLIGATIONS

19.1 Information requests

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

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

19.2 Participant Register data updates

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

19.3 Information about events and circumstances which impact the action

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

- (a) **events** which are likely to affect or delay the implementation of the action or affect the EU's financial interests, in particular:
 - (i) changes in their legal, financial, technical, organisational or ownership situation (including changes linked to one of the exclusion grounds listed in the declaration of honour signed before grant signature)
 - (ii) linked action information: not applicable
- (b) **circumstances** affecting:
 - (i) the decision to award the grant or
 - (ii) compliance with requirements under the Agreement.

19.4 Consequences of non-compliance

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

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

ARTICLE 20 — RECORD-KEEPING

20.1 Keeping records and supporting documents

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

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

- (a) for actual costs: adequate records and supporting documents to prove the costs declared (such as contracts, subcontracts, invoices and accounting records); in addition, the beneficiaries' usual accounting and internal control procedures must enable direct reconciliation between the amounts declared, the amounts recorded in their accounts and the amounts stated in the supporting documents
- (b) for flat-rate costs and contributions (if any): adequate records and supporting documents to prove the eligibility of the costs or contributions to which the flat-rate is applied
- (c) for the following simplified costs and contributions: the beneficiaries do not need to keep specific records on the actual costs incurred, but must keep:
 - (i) for unit costs and contributions (if any): adequate records and supporting documents to prove the number of units declared

- (ii) for lump sum costs and contributions (if any): adequate records and supporting documents to prove proper implementation of the work as described in Annex 1
- (iii) for financing not linked to costs (if any): adequate records and supporting documents to prove the achievement of the results or the fulfilment of the conditions as described in Annex 1
- (d) for unit, flat-rate and lump sum costs and contributions according to usual cost accounting practices (if any): the beneficiaries must keep any adequate records and supporting documents to prove that their cost accounting practices have been applied in a consistent manner, based on objective criteria, regardless of the source of funding, and that they comply with the eligibility conditions set out in Articles 6.1 and 6.2.

Moreover, the following is needed for specific budget categories:

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

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

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

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

20.2 Consequences of non-compliance

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

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

ARTICLE 21 — REPORTING

21.1 Continuous reporting

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

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

21.2 Periodic reporting: Technical reports and financial statements

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

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

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

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

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

The financial part of the periodic report includes:

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

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

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

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

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

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

21.3 Currency for financial statements and conversion into euros

The financial statements must be drafted in euro.

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

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

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

21.4 Reporting language

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

21.5 Consequences of non-compliance

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

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

ARTICLE 22 — PAYMENTS AND RECOVERIES — CALCULATION OF AMOUNTS DUE

22.1 Payments and payment arrangements

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

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

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

The cost of payment transfers will be borne as follows:

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

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

22.2 Recoveries

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

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

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

22.3 Amounts due

22.3.1 Prefinancing payments

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

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

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

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

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

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

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

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

22.3.2 Amount due at beneficiary termination — Recovery

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

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

Step 1 — Calculation of the total accepted EU contribution

Step 1 — Calculation of the total accepted EU contribution

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

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

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

$$\begin{aligned} & \{\text{total accepted EU contribution for the beneficiary} \\ & \text{minus} \\ & \{\text{prefinancing and interim payments received (if any)}\} \}. \end{aligned}$$

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

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

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

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

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

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

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

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

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

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

22.3.3 Interim payments

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

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

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

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

Step 1 — Calculation of the total accepted EU contribution

Step 2 — Limit to the interim payment ceiling

Step 1 — Calculation of the total accepted EU contribution

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

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

Step 2 — Limit to the interim payment ceiling

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

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

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

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

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

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

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

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

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

Step 1 — Calculation of the total accepted EU contribution

Step 2 — Limit to the maximum grant amount

Step 3 — Reduction due to the no-profit rule

Step 1 — Calculation of the total accepted EU contribution

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

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

Step 2 — Limit to the maximum grant amount

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

Step 3 — Reduction due to the no-profit rule

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

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

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

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

$$\begin{aligned} &\{\text{final grant amount} \\ &\text{minus} \\ &\{\text{prefinancing and interim payments made (if any)}\} \}. \end{aligned}$$

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

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

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

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

offsetting may also be done against amounts owed to other Commission services or executive agencies.

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

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

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

- formally notifying the intention to recover, the final grant amount, the amount to be recovered and the reasons why
- requesting a report on the distribution of payments to the beneficiaries within 30 days of receiving notification and
- requesting observations within 30 days of receiving notification.

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

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

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

and

(b) dividing the debt:

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

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

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

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

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

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

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

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

Step 1 — Calculation of the revised total accepted EU contribution

Step 1 — Calculation of the revised total accepted EU contribution

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

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

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

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

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

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

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

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

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

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

22.4 Enforced recovery

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

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

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

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

- (b) financial guarantee(s): not applicable

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

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

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

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

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

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

Bank charges incurred in the recovery process will be borne by the beneficiary, unless Directive 2015/2366¹⁸ 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

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).

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).

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/EC¹⁹ (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).

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).

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).

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 883/2013²⁰ and No 2185/96²¹
- 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 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

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).

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

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

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

- (a) an invitation to submit observations on the list of grants affected by the findings
- (b) the request to submit revised financial statements for all grants affected
- (c) the correction rate for extrapolation, established on the basis of the systemic or recurrent errors, to calculate the amounts to be rejected, if the beneficiary concerned:
 - (i) considers that the submission of revised financial statements is not possible or practicable or
 - (ii) does not submit revised financial statements.

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

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

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

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

25.6 Consequences of non-compliance

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

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

ARTICLE 26 — IMPACT EVALUATIONS

26.1 Impact evaluation

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

Such evaluations may be started during implementation of the action and until the time-limit set out

in the Data Sheet (see Point 6). They will be formally notified to the coordinator or beneficiaries and will be considered to start on the date of the notification.

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

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

26.2 Consequences of non-compliance

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

CHAPTER 5 CONSEQUENCES OF NON-COMPLIANCE

SECTION 1 REJECTIONS AND GRANT REDUCTION

ARTICLE 27 — REJECTION OF COSTS AND CONTRIBUTIONS

27.1 Conditions

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

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

Ineligible costs or contributions will be rejected.

27.2 Procedure

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

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

27.3 Effects

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

ARTICLE 28 — GRANT REDUCTION

28.1 Conditions

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

- (a) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:
 - (i) substantial errors, irregularities or fraud or
 - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or
- (b) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (see Article 25).

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

28.2 Procedure

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

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

28.3 Effects

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

SECTION 2 SUSPENSION AND TERMINATION

ARTICLE 29 — PAYMENT DEADLINE SUSPENSION

29.1 Conditions

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

- (a) the required report (see Article 21) has not been submitted or is not complete or additional information is needed
- (b) there are doubts about the amount to be paid (e.g. ongoing audit extension procedure, queries

about eligibility, need for a grant reduction, etc.) and additional checks, reviews, audits or investigations are necessary, or

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

29.2 Procedure

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

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

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

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

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

ARTICLE 30 — PAYMENT SUSPENSION

30.1 Conditions

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

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

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

30.2 Procedure

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

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

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

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

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

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

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

ARTICLE 31 — GRANT AGREEMENT SUSPENSION

31.1 Consortium-requested GA suspension

31.1.1 Conditions and procedure

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

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

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

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

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

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

31.2 EU-initiated GA suspension

31.2.1 Conditions

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

- (a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:
 - (i) substantial errors, irregularities or fraud or
 - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or
- (b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant
- (c) other:
 - (i) linked action issues: not applicable
 - (ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

31.2.2 Procedure

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

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

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

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

Once the conditions for resuming implementation of the action are met, the granting authority will formally notify the coordinator a **lifting of suspension letter**, in which it will set the suspension end date and invite the coordinator to request an amendment of the Agreement to set the resumption

date (one day after suspension end date), extend the duration and make other changes necessary to adapt the action to the new situation (see Article 39) — unless the grant has been terminated (see Article 32). The suspension will be **lifted** with effect from the suspension end date set out in the lifting of suspension letter. This date may be before the date on which the letter is sent.

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

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

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

ARTICLE 32 — GRANT AGREEMENT OR BENEFICIARY TERMINATION

32.1 Consortium-requested GA termination

32.1.1 Conditions and procedure

The beneficiaries may request the termination of the grant.

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

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

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

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

32.1.2 Effects

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

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

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

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

After termination, the beneficiaries' obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks,

reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

32.2 Consortium-requested beneficiary termination

32.2.1 Conditions and procedure

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

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

- the reasons why
- the opinion of the beneficiary concerned (or proof that this opinion has been requested in writing)
- the date the beneficiary ends work on the action ('end of work date')
- the date the termination takes effect ('termination date'); this date must be after the date of the submission of the amendment request.

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

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

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

32.2.2 Effects

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

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

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

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

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

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

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

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

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

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

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

32.3 EU-initiated GA or beneficiary termination

32.3.1 Conditions

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

- (a) one or more beneficiaries do not accede to the Agreement (see Article 40)
- (b) a change to the action or the legal, financial, technical, organisational or ownership situation of a beneficiary is likely to substantially affect the implementation of the action or calls into question the decision to award the grant (including changes linked to one of the exclusion grounds listed in the declaration of honour)
- (c) following termination of one or more beneficiaries, the necessary changes to the Agreement (and their impact on the action) would call into question the decision awarding the grant or breach the principle of equal treatment of applicants
- (d) implementation of the action has become impossible or the changes necessary for its continuation would call into question the decision awarding the grant or breach the principle of equal treatment of applicants
- (e) a beneficiary (or person with unlimited liability for its debts) is subject to bankruptcy proceedings or similar (including insolvency, winding-up, administration by a liquidator or court, arrangement with creditors, suspension of business activities, etc.)

- (f) a beneficiary (or person with unlimited liability for its debts) is in breach of social security or tax obligations
- (g) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has been found guilty of grave professional misconduct
- (h) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed fraud, corruption, or is involved in a criminal organisation, money laundering, terrorism-related crimes (including terrorism financing), child labour or human trafficking
- (i) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) was created under a different jurisdiction with the intent to circumvent fiscal, social or other legal obligations in the country of origin (or created another entity with this purpose)
- (j) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:
 - (i) substantial errors, irregularities or fraud or
 - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.)
- (k) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (extension of findings from other grants to this grant; see Article 25)
- (l) despite a specific request by the granting authority, a beneficiary does not request — through the coordinator — an amendment to the Agreement to end the participation of one of its affiliated entities or associated partners that is in one of the situations under points (d), (f), (e), (g), (h), (i) or (j) and to reallocate its tasks, or
- (m) other:
 - (i) linked action issues: not applicable
 - (ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

32.3.2 Procedure

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

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

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

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

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

32.3.3 Effects

(a) for **GA termination**:

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

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

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

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

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

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

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

(b) for **beneficiary termination**:

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

- (i) a **report on the distribution of payments** to the beneficiary concerned
- (ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial

statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)

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

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

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

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

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

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

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

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

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

SECTION 3 OTHER CONSEQUENCES: DAMAGES AND ADMINISTRATIVE SANCTIONS

ARTICLE 33 — DAMAGES

33.1 Liability of the granting authority

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

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

33.2 Liability of the beneficiaries

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

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

ARTICLE 34 — ADMINISTRATIVE SANCTIONS AND OTHER MEASURES

Nothing in this Agreement may be construed as preventing the adoption of administrative sanctions (i.e. exclusion from EU award procedures and/or financial penalties) or other public law measures, in addition or as an alternative to the contractual measures provided under this Agreement (see, for instance, Articles 135 to 145 EU Financial Regulation 2018/1046 and Articles 4 and 7 of Regulation 2988/95²²).

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

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).

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).

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 1182/71²³, 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

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.

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).

ARTICLE 40 — ACCESSION AND ADDITION OF NEW BENEFICIARIES

40.1 Accession of the beneficiaries mentioned in the Preamble

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

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

If a beneficiary does not accede to the grant within the above deadline, the coordinator must — within 30 days — request an amendment (see Article 39) to terminate the beneficiary and make any changes necessary to ensure proper implementation of the action. This does not affect the granting authority's right to terminate the grant (see Article 32).

40.2 Addition of new beneficiaries

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

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

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

Additions are also possible in mono-beneficiary grants.

ARTICLE 41 — TRANSFER OF THE AGREEMENT

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

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

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

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

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

The beneficiaries may not assign any of their claims for payment against the granting authority to

any third party, except if expressly approved in writing by the granting authority on the basis of a reasoned, written request by the coordinator (on behalf of the beneficiary concerned).

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

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

ARTICLE 43 — APPLICABLE LAW AND SETTLEMENT OF DISPUTES

43.1 Applicable law

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

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

43.2 Dispute settlement

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

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

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

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

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

ARTICLE 44 — ENTRY INTO FORCE

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

SIGNATURES

For the coordinator

For the granting authority



ANNEX 1



Horizon Europe (HORIZON)

Description of the action (DoA)

Part A

Part B

DESCRIPTION OF THE ACTION (PART A)

COVER PAGE

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

PROJECT	
<i>Grant Preparation (General Information screen) — Enter the info.</i>	
Project number:	101060712
Project name:	European integration of new technologies and social-economic solutions for increasing consumer trust and engagement in seafood products
Project acronym:	FishEUTrust
Call:	HORIZON-CL6-2021-FARM2FORK-01
Topic:	HORIZON-CL6-2021-FARM2FORK-01-10
Type of action:	HORIZON-IA
Service:	REA/B/02
Project starting date:	first day of the month following the entry into force date
Project duration:	48 months

TABLE OF CONTENTS

Project summary	3
List of participants	3
List of work packages	5
Staff effort	19
List of deliverables	21
List of milestones (outputs/outcomes)	39
List of critical risks	41
Project reviews	43

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.

FishEUTrust represents a consortium of twenty-two organizations from fourteen countries, pooling their expertise to defragment the current food system to ensure sustainability and deliver solutions for a transparent and traceable seafood supply chain necessary to promote high-end, pan-European farmed seafood. The innovation at the heart of FishEUTrust is integrating different actors into a digital platform that links technology providers, supply chain stakeholders, regulatory/policymakers and consumers. FishEUTrust will establish five Co-creation Living Labs (CLLs) in diverse environments: the Mediterranean Basin, the North Sea and the Atlantic Sea. These CLLs will enable user involvement in innovation and development processes and act as demonstrators for the consortium to test and validate digital and non-digital supply chain solutions. Examples include creating sustainable business models, exploiting IPR strategies for aquaculture, e.g., protecting cultural and culinary heritage, short food supply chains, exploiting underused fish species, and innovative engaging activities to stimulate/nudge behavioural change. It will also develop tools for maximizing trust by guaranteeing the quality, safety, and traceability of seafood products based on smart control systems (sensors), a suite of tools integrating metagenomics, genetic biomarkers, isotopic techniques, and digital technologies (labelling, Product Passport/Blockchain). These tools will be integrated into a single cutting-edge digital FishEUTrust platform that will apply the latest in artificial intelligence, data science and human-computer interactions. Finally, an integrated impact assessment and life cycle analysis will be performed to quantify the environmental footprint, health sustainability, and socio-economic benefits of FishEUTrust solutions. FishEUTrust will be supported by a comprehensive scientific, public, policymaker and industrial dissemination plan to communicate results to a broad audience.

LIST OF PARTICIPANTS

PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
1	COO	JSI	INSTITUT JOZEF STEFAN	SI	999971837
2	BEN	IPMA	INSTITUTO PORTUGUES DO MAR E DA ATMOSFERA IP	PT	953379924
3	BEN	UNIBO	ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA	IT	999993953
4	BEN	EUROFISH	INTERNATIONAL ORGANISATION FOR THE DEVELOPMENT OF FISHERIES AND AQUACULTURE IN EUROPE	DK	986599902
5	BEN	UNIFI	UNIVERSITA DEGLI STUDI DI FIRENZE	IT	999895789
6	BEN	UMF Cluj	UNIVERSITATEA DE MEDICINA SI FARMACIE IULIU HATIEGANU CLUJ-NAPOCA	RO	999842439
7	BEN	DTU	DANMARKS TEKNISKE UNIVERSITET	DK	999990655
8	BEN	BTU CS	BRANDENBURGISCHE TECHNISCHE UNIVERSITAT COTTBUS-SENFTENBERG	DE	937759529
9	BEN	NORCE	NORCE NORWEGIAN RESEARCH CENTRE AS	NO	905860788

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

Number	Role	Short name	Legal name	Country	PIC
10	BEN	EUROFIR AISBL	EUROPEAN FOOD INFORMATION RESSOURCE AISBL	BE	994382018
11	BEN	UNIPD	UNIVERSITA DEGLI STUDI DI PADOVA	IT	999995602
12	BEN	ABT	AQUABIOTECH LIMITED	MT	996843393
13	BEN	REDINN	REDINN - SRL	IT	968427922
14	BEN	BELIT	PREDUZECE ZA INFORMACIONE TEHNOLOGIJE I ELEKTRONSKO TRGOVANJE BELIT DOO	RS	975084450
15	BEN	MICRUX	MICRUX FLUIDIC SL	ES	956824491
16	BEN	JdlC	DE LA CUEVA GONZALEZ COTERA JAVIER	ES	937532161
17	BEN	CETGA	CLUSTER DE LA ACUICULTURA DE GALICIA ASOCIACION	ES	957778486
18	BEN	DIGITALSMART	DRUSTVO SA OGRANICENOM ODGOVORNOSCU DIGITALSMART DOO PODGORICA	ME	891952346
19	BEN	BUGENVILA	BUGENVILA INVESTICIJE DOO	HR	891199529
20	BEN	OXY	OXYGUARD INTERNATIONAL AS	DK	965476212
21	AP	EAS	EUROPEAN AQUACULTURE SOCIETY	BE	997384750
22	AP	WRG	WRG EUROPE LTD	UK	972954233

LIST OF WORK PACKAGES

Work packages <i>Grant Preparation (Work Packages screen) — Enter the info.</i>						
Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverable No(s)
WP1	Establish Co-Creation Living Labs (CLLs)	2 - IPMA	97.00	1	45	D1.1, D1.2, D1.3
WP2	Design and validate a tailored set of intervention strategies to stimulate behavioural change, increase consumer trust and uptake, and promote FishEUTrust products and solutions	3 - UNIBO	86.50	1	42	D2.2, D2.1, D2.3
WP3	Develop and exploit efficient and sustainable digital supply chain and business models	4 - EUROFISH	107.50	1	45	D3.1, D3.2, D3.3, D3.5, D3.6, D3.4
WP4	Advanced suite of tools for seafood quality, safety and traceability within the supply chain	5 - UNIFI	65.00	1	36	D4.2, D4.1, D4.4, D4.3
WP5	Smart control systems for monitoring the quality and safety across supply chain	6 - UMF Cluj	96.00	1	36	D5.1, D5.5, D5.2, D5.3, D5.4
WP6	Integrated impact assessment to quantify environmental footprint, sustainability, and socio-economic benefits of FishEUTrust approaches, support for regulation and policy framework	7 - DTU	78.50	9	42	D6.1, D6.2, D6.3
WP7	Integration of technologies for transparent seafood supply chain and digital solutions for increasing consumer awareness, trust and empowerment	1 - JSI	121.50	1	46	D7.2, D7.1, D7.4, D7.3
WP8	Communication, dissemination and clustering	22 - WRG	92.70	1	48	D8.2, D8.3, D8.4, D8.1, D8.5, D8.6
WP9	Management and coordination	1 - JSI	63.00	1	48	D9.2, D9.4, D9.1, D9.3, D9.5
WP10	Ethics requirements	1 - JSI	0.00	1	48	D10.1, D10.2, D10.4, D10.3

Work package WP1 – Establish Co-Creation Living Labs (CLLs)

Work Package Number	WP1	Lead Beneficiary	2. IPMA
Work Package Name	Establish Co-Creation Living Labs (CLLs)		
Start Month	1	End Month	45

Objectives

Set up and operationalise a Co-creation Living Labs (CLLs) to link, coordinate and engage key stakeholders according to local specificities and validate CLLs business approach in conjunction with other WPs.

WP1 specific objectives:

O1.1 Integrated map of stakeholders, targets groups and sectors

O1.2 Establish the CLLs and provide contextual analysis for Best Practice and Operational Protocols

O1.3 Consolidate the synergies with an existing network of LLs to implement an inclusive EU-level Web of LLs

O1.4 Establish CLLs demonstrator sites of fish/shellfish production in Mediterranean, North Sea, and Atlantic regions

O1.5 Develop an open platform for cross-pollination, engagement, & exchange of FishEUTrust knowledge base with other seafood sectors

Description

Task 1.1: Integrated map of stakeholders, target groups and sectors (M1-M6)

Leader: ABT; Participants and roles: IPMA, CETGA, Bugenvila, Eurofish, EAS (data providers)

Co-construct a stakeholder map with pilot teams. Stakeholders will be identified according to the Quintuple Helix model (university-industry-government-public-environment), including public and private sectors (schools, municipalities, youth associations, NGOs, and related businesses), and at different territorial scales. This analysis will highlight the diversity of targets, generations (young, older) and focus groups. It will compare and contrast stakeholder systems in each pilot to prepare digital solutions for promotion and consumer empowerment strategies with WP2, WP7, exploitation with WP3, and a dissemination strategy with WP8. The pilot leaders are responsible for the implementation of T1.1 in their pilot environment.

Task 1.2: Establish the LLs and provide contextual analysis for Best Practice and Operational Protocols (M1-M12)

Leader: CETGA; Participants and roles: IPMA, ABT, Bugenvila, NORCE, OXY (evaluation of CLLs)

Analyze, understand, and mobilize the operating conditions (i.e. location, logistics, equipment, human and financial services) necessary to set up the CLLs. Using T1.1 data, T1.2 will conduct a SWOT and PESTEL analysis for each LL. A participatory Pilot Contextual Analysis workshop will be held to engage selected stakeholders from T1.1, identify existing

best practices to set up and manage the MCLLs and validate SWOT and PESTEL analyses. The output will be a protocol of initial best practices to establish the MCLLs and identify infrastructures and resources to implement the LLs.

Task 1.3: Consolidation of the synergies with the existing network of LLs to implement an inclusive EU-level Web of LLs (M4-M18)

Leader: REDINN; Participants and roles: IPMA, ABT, Bugenvila, CETGA, NORCE, OXY (data providers)

Create local CLLs and the international web of LLs such as FARE Lab. LL coordinators will implement best practices and protocols from T1.2 to improve existing LLs or set-up a LL according to the standard LL framework. The standard LL framework will be tailored to each educational, thematic, and local context. LLs will be designed and set-up or strengthened based on the local specificities and the related pilot theme in each of the five countries. LL coordinators will identify and engage relevant target groups-users and operationalisation stakeholders as input to WP7 for the FishEUTrust Hub. T1.3 will build on the stakeholder mapping from T1.1 and will develop the international web of LLs and identify cross-pollination potential to inform T1.5.

Task 1.4: Establish Living Lab (LLs) demonstrator sites of fish/shellfish production in Mediterranean, N Sea, and Atlantic regions (M24-M40)

Leader: CETGA; Participants and roles: IPMA, ABT, Bugenvila, NORCE, OXY (pilot sites for testing, validation and demonstration), UMF, UNIFI, BTU, JSI, UNIPD (testing developed technologies, smart platforms), BELIT, DigitalSmart (digital traceability), UNIBO (consumer engagement)

LLs will provide support in co-creation as a validation and demonstration sites of social-economic principles and innovative technology including: (i) consumer engagement (WP2); (ii) tools to trace quality and origin of fish based on innovative solutions including fish microbiome and stable isotope approaches (WP4); (iii) new smart platforms for freshness and to detect antibiotics, pathogens and toxins (WP5); (iv) digital traceability systems (blockchains, SmartTags, labelling) (WP7). For sustainability of the LLs beyond the project, LL leaders will get social/business learning (through

WP3). Possibilities for financial investment in additional educational, social, and environmental innovations will be explored (WP3, WP7). Young leaders and influencers will be offered key responsibilities in the communication and dissemination strategy and implementation (with WP8).

Task 1.5: Create an open platform for cross-pollination, engagement with other fish production sectors (M24-M45)

Leader: IPMA; Participants and roles: CETGA, ABT, Bugenvila, NORCE, OXY, REDINN, UNIBO, JSI (organization and participation at events)

Allied to T1.4, T1.5 ensures cross-pollination and knowledge exchange between the LLs based on four sub-tasks:

T1.5.1: Preparation of cross-pollination steps based on the set of best practices and operational protocols for setting up the LLs (building on T1.2 and T1.3)

T1.5.2: Workshops on cross-pollination within each LL to share best practice for operationalisation and local adaptation

T1.5.3: Preparation of guidelines for the set-up, operationalisation and cross-pollination of the LLs to engage consumers and other seafood producers in EU

T1.5.4: Exchange of project knowledge base with other seafood sectors.

Work package WP2 – Design and validate a tailored set of intervention strategies to stimulate behavioural change, increase consumer trust and uptake, and promote FishEUTrust products and solutions

Work Package Number	WP2	Lead Beneficiary	3. UNIBO
Work Package Name	Design and validate a tailored set of intervention strategies to stimulate behavioural change, increase consumer trust and uptake, and promote FishEUTrust products and solutions		
Start Month	1	End Month	42

Objectives

Design and validate an initial tailored set of intervention strategies to stimulate behavioural change in consumers and suppliers, increase consumer trust and uptake (thereby improving carbon footprint), and promote seafood products and solutions: identify socio-economic and cultural barriers and identify local determinants of food choices.

WP2 specific objectives:

O2.1 Mapping consumer expectations, and identify key characteristics and behavioural drivers of consumers of fish-based products across Atlantic, Central & Northern, and Mediterranean EU countries.

O2.2 Identify homogeneous consumer's clusters to identify target groups, with a strong focus on younger generations.

O2.3 Identify consumer's preferences and perception as the foundation to creating intervention strategies.

O2.4 Designing, testing, and validating monetary and non-monetary tailored interventions strategies for both consumers and suppliers.

Description

Task 2.1: Mapping consumer expectations to identify key characteristics and behavioural drivers across EU countries (M1-M6)

Leader: REDINN; Participants and roles: UNIBO, IPMA, Bugenvila, CETGA, NORCE, WRG, BELIT, DigitalSmart (data providers)

Building on the results of previous projects and research (i.e. H2020 REFRESH, H2020 COMFOCUS etc) and taking advantage of the work with the stakeholders engaged in WP1, Task 2.1 will assess consumers expectations toward sustainable food products in the target EU Countries (1 Atlantic, 1 Central and North, and 1 Mediterranean). Consumer's key characteristics and behavioural drivers will be framed taking advantage of the Motivation-Opportunity-Ability approach to investigate the motivations underlying food purchasing, the opportunity of consumers to have easy and affordable access to sustainable food products and the capabilities of consumers related to food products (e.g. understanding of food labels, cooking and storage skills). Results will also be compared with the characteristics of FishEUTrust technologies to identify the elements that can be exploited for their diffusions and represent the baseline for the activities conducted in T2.2 and in T2.3.

Task 2.2: Identification of consumers' behavioral clusters to identify target groups (M6-M18) Leader: WRG;

Participants and roles: UNIBO, IPMA, Bugenvila, CETGA, BELIT, REDINN, DigitalSmart (data providers)

Homogenous clusters (groups) of consumers from 3 EU countries (1 Atlantic, 1 Central & North, and 1 Mediterranean) will be identified through a survey investigating the drivers of food choices of samples statistically representative of the

socioeconomic characteristics of the consumers of the three countries, with a strong focus on younger generations. The survey will be structured taking advantage of the Motivation-Opportunity-Ability approach build in T2.1. The identified clusters of consumers will be homogeneous in terms of common declared food choice patterns. Identifying shared behavioral patterns will help design tailored interventions to nudge consumption of seafood products, technologies, and digital traceability.

Task 2.3: Creating real and virtual consumer experiences to identify assessing consumer's preferences and perception as the foundation to creating intervention strategies (M18-M36) Leader: UNIBO; Participants and roles: WRG, JSI, IPMA, REDINN, NORCE, BELIT, DigitalSmart (connection points with consumers); Bugenvila (retailor, gastronomy)

Taking advantage of the results of T2.1 and T2.2 this task will analyse consumer behaviour in different settings. Methodologically the work will be adopting a behavioral economics approach determining whether consumers could be helped to make better choices. Task 2.3.1 Mapping of the determinants of the consumer decision-making processes to inform intervention strategy development. Virtual supermarket settings in two (or more) different local units will be configured to engage 150 consumers from the three selected EU Countries (50 per country) with different habits and preferences. The setting of a virtual supermarket would require software creating Virtual Reality Systems (VRS) emulating different store settings. VRS will operate via virtual reality visors and joysticks and through laptops or tablets to steer the consumer within the virtual supermarket. Using the VRS, consumers will be able to perform a simulated shopping experience, in which a variety of parameters/constraints could be applied, such as time and money limitations, labelling, and the possibility to use a shopping list. After each emulation, data on consumer choices, such as typologies and quantity of products purchased, willingness to pay, and the role of product positioning, will be collected.

Task 2.3.2 Mapping of the hedonistic preferences of consumers in respect of food tastes, textures, etc. to inform intervention strategy development. The seafood products (fish, shellfish) will be sensory evaluated by a group of 10 highly trained panellists who can perceive small differences between products and create through Quantitative Descriptive Analysis (QDA) a sensory profile for each of these products. Subsequently, a selected group of at least 100 consumers will be involved in culinary and tasting events to test their preferences and perceptions about the seafood products in relation to sensory and hedonistic properties. Results from T2.3.2. activities will support the definition of the characteristics of the seafood products that are more appealing for the different groups of consumers (identified in T2.1), with the aim of elaborate effective nudging strategies.

Task 2.4: Designing, testing, and validating monetary and non-monetary tailored interventions strategies for both consumers and the supply chain (M24-M42) Leader: UNIBO; Participants and roles: WRG, JSI, IPMA, REDINN (connection points with consumers); Bugenvila (retailor, gastronomy)

In T2.4, 150 consumers from three EU countries will be involved in virtual choice experiments to test the impact of selected monetary and non-monetary interventions. These interventions will promote the consumer demand for seafood and increase consumer trust using new FishEUTrust technologies and solutions such as smart platforms for freshness and detection of biotoxins and digital traceability systems: blockchain, SmartTags, labelling. Interventions will be designed following a multi-stakeholder approach and using methods in ethnography, focus-group discussions (via online-customer communities and bulletin boards) and in-depth interviews. Examples of Interventions include monetary incentives, motivational interventions, and information and awareness campaigns in Virtual Supermarkets. Virtual choice experiments will be conducted taking advantage of the VRS developed in T2.3.1, integrated with the simulations of selected interventions. Results from T2.4 activities will support the definition of the most effective monetary and non-monetary interventions to increase the consumers' demand for seafood products and their trust by acceptance of the innovative FishEUTrust technologies. Results from T2.4 will serve as a data-driven support for the definition of effective nudging strategies and policies in WP3 and WP7.

Work package WP3 – Develop and exploit efficient and sustainable digital supply chain and business models

Work Package Number	WP3	Lead Beneficiary	4. EUROFISH
Work Package Name	Develop and exploit efficient and sustainable digital supply chain and business models		
Start Month	1	End Month	45

Objectives

Develop and exploit efficient and sustainable digital supply chain and business models, including the identification of (and mitigating business strategies for) critical bottlenecks, barriers, and challenges within the supply chain.
WP3 specific objectives:

- O3.1 Define digital methods and business models to improve supply-chain efficiency including shorter supply chains
 O3.2 Define and validate more efficient supply protocols in respect of policy and legislative barriers
 O3.3 Assess and develop exploitation potential (including IPR) to implement and refine business models
 O3.4 Demonstrate FishEUTrust specific business models as exemplars (through WP1 LLs)

Description

Tasks 3.1: Definition and elaboration of digital methods and business models to improve trust and efficiency in seafood supply chains (M1-M24)

Leader: BELIT; Participants and roles: NORCE, OXY, Eurofish, REDINN, DigitalSmart, WRG, Bugenvila, EuroFIR (data provider)

Innovative digital service user cases (current and 1-2 years into the future) will be identified, evaluated, adapted and incorporated into a model of the whole supply chain, with emphasis on manufacturing and supply sectors. The focus will be on data provenance solutions incorporating candidate technologies, e.g., product passports, blockchain, and smart sensing tags, to provide traceability, transparency, and unique product authentication. -Moreover, critical bottlenecks and implementation challenges and barriers within the supply chain will be identified through comprehensive engagement with key industrial stakeholders. The result will be business plans outlining their future roles and protocols (i.e., a standard model notation like BPMN and executable wherever feasible, for modularity, scalability, and fastest deployment to demonstrator advancing to a digital platform and tools development in WP7), with demonstrator sites acting as proof-of-concept exemplars. Industrial and technology partners, applied research institutes, innovation management consultancies, and international aquaculture organizations have the necessary multidisciplinary expertise to perform supply chain business development, economic, and market analysis in a multi-actor approach.

Task 3.2: Defining and validating supply protocols regarding policy and legislative barriers (M4-M45)

Leader: JdlC; Participants and roles: NORCE, OXY, EUROFISH, REDINN, DigitalSmart, WRG, ABT (data provider)

In addition to the supply chain barriers and bottlenecks identified in Task 3.1 this task will focus specifically on the applicable legal requirements to the project in the context of the environmental sustainability. The ‘do no significant harm’ principle, and the environmental objectives of Regulation (EU) 2020/852 and the current relevant legal EU framework for food sustainability labelling, which must be based on parameters that allow ranking and monitoring of the food chain and that must be respectful of ethical values. The task will also investigate and introduce to-be proposed policies and possible legislative barriers that will decrease efficient and sustainable digital supply chain(s), including identifying the key hindrances to achieving transparency in consumer information. In direct connection with T3.4, it will also assess the necessity to follow IPR rules that will foster the rule of ‘as open as possible, as closed as necessary’ to avoid barriers created by restrictive IPR rules not adapted to Open Science. Further, results obtained from WP4 and WP5 will evaluate different aquaculture practices (organic, RAS).

Task 3.3: Exploitation strategy development (M3-M45)

Leader: REDINN; Participants and roles: All (all partners will provide their individual exploitation plans)

Task 3.3 will develop a strategy to implement the activities relating to WP3. Interviews will be conducted with relevant stakeholders to identify their needs. Policy makers, practitioner networks, pedagogical universities, special interest groups and active networks are among the identified stakeholder audiences. Exploitable outcomes will be defined, end-users and stakeholders at European and national levels mapped, their needs and interests identified, and from these activities that facilitate the uptake of outcomes by each type of end-user and stakeholder designed. The strategy will include a time-plan of activities and the partners’ exploitation plans, including a reporting methodology (draft plan 2.2.2). Success will be measured using targeted KPIs, e.g., numbers of publications, patents, and policy briefings; distribution and uptake of educational packages and toolkits - and similar metrics for stakeholder uptake of as yet unidentified exploitable outcomes.

Task 3.4: Cross-sector Intellectual Property Rights (IPRs) management strategy (M3-M45)

Leader: REDINN; Participants and roles: All (contribution to the IPR strategy and providing relevant data)

An IPR strategy will be elaborated, taking into account partners needs and interests regarding commercial exploitation of project outcomes. The task will involve continuous monitoring of project results by the Exploitation Officer and task leaders to identify opportunities for commercial exploitation. The Exploitation Officer will advise partners on IPR protection strategies and the use of the most appropriate IPR management tool(s). REDINN will prepare a knowledge management strategy to address background knowledge (background IPR screening), foreground knowledge (foreground IPR, new results), including measures to capture, manage, assess, and protect the knowledge assets. The IEB will prepare general guidelines for project partners as part of the Plan for Exploitation and Dissemination of the Results (WP8, D8a). The interplay between dissemination and exploitation is very closely linked; therefore, WP3 (Eurofish) and WP8 (WRG) leaders will work closely together and help steer each other’s complementary remits.

Task 3.5: Demonstrating the FishEUTrust specific business models as exemplars (M36 – M45)

Leader: Eurofish; Participants and roles: NORCE, OXY, BELIT, REDINN, DigitalSmart, WRG (Report support and market assessment data)

FishEUTrust business models (developed in T3.1) will be assessed according to market position, income, sustainability, robustness, inimitability, and scalability. To perform the assessment, methods and techniques/tools for measuring the effectiveness of the building blocks of each business model will be selected, along with steps to ensure their continuous improvement. An actual assessment will be performed within the CLLs (WP1). The evaluation results will be compared with the initial market analysis (T3.1).

Work package WP4 – Advanced suite of tools for seafood quality, safety and traceability within the supply chain

Work Package Number	WP4	Lead Beneficiary	5. UNIFI
Work Package Name	Advanced suite of tools for seafood quality, safety and traceability within the supply chain		
Start Month	1	End Month	36

Objectives

Development of a suite of tools integrating metagenomic, genetic and stable isotope approaches to determine quality, safety and traceability of FishEUTrust seafood products within the supply chain.

WP4 specific objectives:

O4.1 Develop a Metagenomics Sequencing Toolbox for determination the origin, of seafood products, and test protocols to determine freshness, pathogens, and antibiotic resistance

O4.2 Combine genomics tools (metagenomics and population genomics) to trace fish and shellfish origin

O4.3 Develop an alternative methodology to certify fish authenticity and origin based on stable isotope approach

O4.4 Develop instructions, Standard Operating procedures and protocols for use in the supply chain and Validate protocols in identified use-cases (LLs from WP1)

O4.5 Boost consumer uptake and trust by creating tools and a data platform to establish the origin, safety, quality, and sustainability of seafood

Description

Task 4.1: Developing a Metagenomics Sequencing Toolbox for determining the origin, of seafood products, and test protocols for determining freshness, pathogens, and antibiotic resistance (M1-M24)

Leader: UNIFI; Participants and roles: UNIPD (metagenomic and genetic analyses), Bugenvilla, ABT, IPMA, CETGA (will be responsible for sampling the fishes and preparing the DNA)

Using the first set of aquaculture samples, a comparative analysis of the results from the microbiome with culture methods, targeted-PCR based methods will be performed. Subtasks include:

Task 4.1.1 Preparation of DNA SOPS for sample preparation. Two-3 wild fish samples (5-10 individual fish each sample) from the different CLLs, 2-3 samples from extensive fish farming, 2-3 samples of organic fish farming, 5-10 samples (see above) from different sites farming fish using conventional, intensive aquaculture procedures, RAS, possibly with different systems/diets will be collected. For shellfish, 10-15 mussel samples (5-10 mussels per sample) from different geographic areas (at higher-lower microbiological risk, variable presence of biotoxins), including if possible 1-2 sites using integrated-multi-trophic aquaculture IMTA (mussels ropes/lines close to fish in sea cages) sample will be collected. The latter will show if IMTA poses a microbiological risk for IMTA-produced mussels (a concern of mussels (bivalve) producers).

Task 4.1.2 Microbiological traceability tools will be achieved through targeted and untargeted metagenomics. In the targeted approach, 16S 1-4 (Bacteria) and ITS 1 intergenic regions (fungi) will be used to produce taxonomical profiles. Shotgun metagenomics will be used to identify associated with detoxification pathways, biological functions, and pathways related to fish diet and fish origin.

Task 4.1.3: Genetic analysis of the fish. Genetic markers are already available for the genetic analysis of sea bream and will be used to confirm the origin of the seafood using DNA from the fish shipped from the CLLs to UNIPD.

Task 4.2: Develop an alternative methodology to certify fish authenticity and origin based on stable isotope approach (M6-M24)

Leader: JSI; Participants and roles: IPMA, ABT, CETGA (provide the fish)

JSI will perform analysis. This task involves developing a fish traceability system based on isotope analysis of light elements (H, C, N O and S), elemental composition, and statistical evaluation of results. IPMA, ABT, CETGA (farmed fish, wild fish; Sea Bream) will provide seasonal fish and mussels samples. One hundred and sixty samples (2 seasons,

10 fishes, 2 years project, 2 locations (Atlantic, Mediterranean) and 2 farming types) will be analysed. The validation of the method will be validated using the samples from non-EU countries (member states of Eurofish) available on the market. The analysis will be performed using IRMS and Inductively Coupled Plasma Mass Spectrometry for elemental analysis. The data will be included in the FoodTrack database established at JSI and evaluated together with the fish microbiome as a part of Task 4.4.

Task 4.3 Standard Operating procedures and protocols for use in the supply chain and validate protocols in identified use-cases (LLs from WP1) (M18-M30)

Leader: UNIFI; Participants and roles: UNIPD, UMF, IPMA (data comparison and evaluation)

The comparison of different technologies will allow the cost-benefits of these platforms at different levels of decision making in the fish industry to be assessed. Metagenomic methods will be benchmarked against standard methods performed in laboratory conditions (IPMA) and developed sensors technologies for the determination of pathogens (E.coli, Salmonella) and biotoxins (DSP, PSP) in WP5. To minimize costs, we will select the “minimum” number of diagnostic “markers” (bacterial or genetic). Machine learning algorithms applied to neural networks (WP7) will limit the number of diagnostic bacteria for Real Time PCR or specifically tailored biosensors. This applies to genetic markers, where the minimum number of SNPs that can discriminate wild vs aquaculture and, for wild pops, and their geographic origin will be identified-novel bacterial species and genes biomarkers will be a bonus (WP5).

Task 4.4: Creating a data platform to establish seafood origin, safety, quality, and sustainability to boost consumer uptake and trust (M24-M36)

Leader: JSI; Participants and roles: UNIFI, IPMA, ATB, UNIPD, CETGA (all data provision)

Data from T4.1-T4.3 will be collected in a data platform as part of the FishEUTrust Hub (WP7). Specific genetic markers will relate fish quality to environmental quality that can be implemented in aquaculture. The analyses will also investigate microbiomes related to the freshness of the seafood products by creating a database to correlate metadata with the data and sensors technologies developed in T5.4. The database will allow the correlation of different measurements of fish origin and quality, creating a reference set for assessing the CLLs (WP6). The association of microbial or origin data with consumer preferences (WP2) will help develop novel indicators important in the food market and support innovation potential and business models (WP3). The database will be made public and used to develop a sustainability strategy to support decision making.

Work package WP5 – Smart control systems for monitoring the quality and safety across supply chain

Work Package Number	WP5	Lead Beneficiary	6. UMF Cluj
Work Package Name	Smart control systems for monitoring the quality and safety across supply chain		
Start Month	1	End Month	36

Objectives

The WP will produce a smart control system and unique solutions for monitoring the presence of pathogens, antibiotics and biotoxins across the seafood supply chain and freshness addressed for the consumers and retailers.

WP5 specific objectives:

- O5.1 Development and validation of nanostructured platforms for sensors
- O5.2 Development of integrative test tools and sensors for pathogen bacteria
- O5.3 Development of sensors for the detection of antibiotics
- O5.4 Development of sensor for freshness
- O5.5 Detection of biotoxins

D5.6 Integration of sensors on the smart platforms for consumers, retailers and aquaculture farms

Description

T5.1: Development and validation of nanostructured platforms for sensors (M1-M12)

Leader: UNIFI; Participants and roles: BTU, UMF (development of sensors), MICRUX (provide necessary tools for sensors)

Sensors based on nanostructured materials will mainly consist of metal and metal oxide nanoparticles. The coatings will be based on a single material or on relevant composites, in order to take advantage of the possible synergic action between the different components. Three steps are foreseen: (i) the electrochemical platform will be modified by deposition of nano-objects on electrochemical platforms for the activation of electrocatalytic processes useful for the determination

of redox active organic species; (ii) the electrochemical platforms will be functionalized introducing various functional groups for the stable and controlled anchoring of biomimetic receptors on the sensor surface; (iii) characterization of nanostructured platforms: by microscopic, spectroscopic and electrochemical techniques. These sensors will be used in T5.2 and T5.5.

Task 5.2: Development of integrative test tools and sensors for pathogen bacteria (M4-18)

Leader: UMF; Participants and roles: MICRUX (provide technologies, design and integration of the sensors), ABT, Bugenvila, IPMA (provider of samples)

The bacteria *Salmonella* and *E. coli*, electrochemical response and redox fingerprint in fish products will be studied, and the design of sensing arrays for their simultaneous detection. Three steps are foreseen: (i) detection of bacteria through its virulence factors. The electrodes modified via different strategies will be attached to a sensor device for on-site monitoring of bacteria (*E. coli*, *Salmonella* spp.); (ii) validation of the sensors in real sample setups (from TRL4 to TRL6): multiple targets will be detected using sensor arrays to achieve accurate, sensitive and specific detection in real samples using electrochemical strategies to ensure the rapid detection of the targets; (iii) validation of sensor performance. Voltammetric measurement of simulated and real samples will be performed, the results will be compared, and the analytical performances assessed. ABT will provide fresh fish to validate the sensors. Bugenvila will provide fish samples for sensor validation.

Task 5.3: Development of sensors for the detection of antibiotics (M12-M26)

Leader: UMF; Participants and roles: MICRUX, UNIFI (information about the types of antibiotics), ABT (fish producers)

Biomimetic sensors, adaptable to a variety of target molecules, using MIPs or aptamers, will initially focus on tetracyclines and cephalosporins as they are intensively used in aquaculture but will be adapted according to the metagenomic results (T4.3, WP4). (i) UMF will develop novel MIPs and use highly specific aptamers to detect target antibiotics at low concentrations; (ii) selection of aptamers for the antibiotics of interest identified in WP4 by genomics approaches; design and validation of aptasensors; (iii) validation of sensor performance. Voltammetric measurement of simulated and real samples will be performed, and the analytical performances will be assessed. MICRUX will fabricate the electrodes and inform design to obtain good analytical performance.

Task 5.4: Development of sensor for freshness (M1-M24)

Leader: BTU; Participants and role: MICRUX, ABT, Bugenvila (end-users for fish)

Three generations of the device will be developed: (i) Laboratory measurement system for 8-channel measurements (details in T5.6); (ii) Prototype of a commercial device; (iii) Commercial device for serial production fabricated and tested under operational conditions (TRL7). The work includes the following steps: (i) Electronics and software for multichannel measurement system include for data acquisition, data analysis and decision making; (ii) experimental analysis of fish samples and optimization of electrochemical chemotransistors; (iii) fabrication of the prototype of a simplified sensor for fish freshness, based on the same structure but without control of the redox state of the chemosensitive layer and without using the concept of a virtual sensor array; (iv) acquisition of experimental data on sensor response to the headspace of fish with storage time. Different types of fish will be studied. (v) validation of sensor performance. Analytical performance and exploitation characteristics of the sensor based on electrochemical chemotransistor and the simplified sensor (T5.4.3) will be compared. Final sensor validation by end-users (ABT, Bugenvila) will be performed.

T5.5: Detection of biotoxins (M12-M32)

Leader UNIFI; Participants and role: MICRUX (provide technologies the design and integration of the sensors parts), CETGA, IPMA (shellfish sample providers)

The innovative electrochemical portable analytical devices, such as aptamer-based sensors will be developed for DSP and PSP detection. Three steps are envisaged: (i) selection of aptamers for biotoxins; design of aptasensors: DNA aptamers for biotoxins will be selected by evaluation of the affinity reaction using Surface Plasmon Resonance using different immobilization technologies; (ii) validation of aptasensor performance: voltammetric measurement of simulated and real samples will be performed, and assessed. After the optimization of bioreceptor immobilization steps, label-free or labeled bioassay formats will be carried; (iii) validation of sensor performance. Voltammetric measurement of simulated and real samples will be performed, and the analytical performances will be assessed. MICRUX will be involved in the manufacturing the Thin-film and Thick-film electrodes. MICRUX will together with UNIFI design and optimize electrodes to develop the biosensors. ABT will provide the real samples.

Task 5.6: Integration of sensing with FishEUTrust platform and CLLs environments in the seafood supply chain (24-36)

Leader: BELIT; Participants and role: MICRUX, UNIFI, UMF, BTU, OXY

The main challenges will be raised by the sampling procedures and the sample pre-treatment. Three steps will be performed: (i) Optimal protocols for extraction of the analyte molecules from the real samples and for their analysis with the sensors (T5.2, T5.3, T5.5) will be developed, by testing different digestion protocols and "QuEChERS" method (Quick, Easy, Cheap, Effective, Rugged, and Safe); (ii) integration of voltammetric sensors of the same platform of detection: due to the fact that there are some targets, which could be identified after their oxidation/reduction potential (pathogens, biotoxins, antibiotics), voltammetric sensors will be developed. For the detection of biotoxins, pathogens and

antibiotics the sample should suffer a digestion process, while the detection of the targets will be facilitated by the use of disposable sensors ready to be used in LLs; (iii) integration sensor for fish freshness.

Work package WP6 – Integrated impact assessment to quantify environmental footprint, sustainability, and socio-economic benefits of FishEUTrust approaches, support for regulation and policy framework

Work Package Number	WP6	Lead Beneficiary	7. DTU
Work Package Name	Integrated impact assessment to quantify environmental footprint, sustainability, and socio-economic benefits of FishEUTrust approaches, support for regulation and policy framework		
Start Month	9	End Month	42

Objectives

WP6 will quantify the health, environmental, economic and social impacts of FishEUTrust systems and will provide support for regulation and policy framework

WP6 Specific objectives:

O6.1 Inventory data collection protocol and data gathering to support the integrated sustainability assessment

O6.2 Assessment of food safety and risk (contaminants, microbial), origin, nutrition value, human health and environmental impacts and socio-economic performances

O6.3 Integrated sustainability assessment tool as a roadmap for improvements and sustainable growth of aquaculture supply chain including standardization and policy

Description

Task 6.1: Inventory data collection protocol and data gathering to support the integrated sustainability assessment (M9-M24)

Leader: JSI; Participants and roles: DTU, UNIBO, UNIFI, IPMA, BTU, UMF, CETGA, UNIPD, EuroFIR (data providers)

The framework will define the methods to be applied (LCA, LCC, S-LCA), the goal and scope aligned with the overall project objective, system boundaries, functional unit, and impact categories of relevance for this context involved stakeholders. Environmental indicators and methodological settings will be chosen following the recommendations of the ENVIFOOD protocol and the product environmental footprint (PEF) initiative. Data will be gathered for all relevant inputs and outputs for all life cycle stages, activity types, processes and elementary flows, including production data on inputs and all resources used focusing on sea bream and mussels as case studies. Effects of enhanced consumer uptake on environmental footprint will also be considered in terms of (e.g.) reduced food miles and energy usage. Full input-output and economic balances of current and future processes focusing on energy, feed and water will be prepared. The balance also covers the incoming and outgoing food products and their economic value and nutritional properties such as fat and energy content. Data collection (provided by CLLs – WP1) characterizing each of these systems will be automatized using the FishEUTrust platform to feed each assessment tool (T6.2).

Task 6.2: Assessment of food safety and risk (contaminants, microbial), origin, nutrition value, human health and environmental impacts and socio-economic performances (M12-36) Leader: DTU; Participants and roles: JSI, UNIBO, IPMA, REDINN, WRG, EuroFIR (perform assessment in relation to environment, social-economic and health)

Task 6.2.1: This task will first perform an environmental LCA of the FishEUTrust approaches and aquaculture systems to define their environmental footprint, customizing DTU data, model and expertise in aquaculture LCA to the FishEUTrust technologies. We will compare open versus closed environments, organic aquaculture automatizing the link between aquaculture techniques and feed regime and related impact and new RAS technology (WP1). The focus will be set on carbon footprint, marine eutrophication associated with feed and feces dispersion, and antibiotic resistance build up in the environment, using the latest impact assessment methods developed in the UN Life Cycle Initiative.

Task 6.2.2: Nutrition quality, we will relate microbiome, quality of the feed with changes in omega 3 and other fatty acid contents, systematically comparing the different modes of aquaculture production with wild fish. Human health impacts will be estimated based on data availability, together with 15 dietary risk factors contributing to 50 diseases from the global burden of disease to assess the benefit associated with the consumption of these fish and the way they are affected by the considered technologies. The probability of exceeding specific thresholds (maximal limits in the case of

contaminants and minimal recommendations in the case of nutrients) will be calculated. Close collaboration with WP4 and WP5 to obtain necessary data on quality and safety.

Task 6.2.3: FishEUTrust will provide a comprehensive social and economic assessment. The framework will be based on a LCT approach, composed of E-LCC and S-LCA. As inputs, it will use the preliminary information collected through WP1 (T.1.1) and integrate it with secondary information from literature and selected databases. Economic impacts in terms of value chain costs and value-added distribution will be considered. Primary cost data will be collected when related to specific innovation parameters, while secondary data from databases will be used for other generic cost items. Social impacts will be assessed for relevant stakeholder groups and indicators related to national, regional, and participant data and existing databases.

Task 6.3: Integrated sustainability assessment tool as a roadmap for improvements and sustainable growth of aquaculture supply chain including standardization and policy (M36-M42) Leader: DTU; Participants and roles: UNIBO, IPMA, JSI, JdIC (perform assessment)

The FishEUTrust sustainability assessment framework from T6.2 will be implemented to build comprehensive sustainability models of the pilots and comparative analysis, if applicable within systems, or current vs. proposed innovations. Using inputs from T6.1 and the identification of KPIs, a preliminary integrated sustainability assessment for all demos will be developed to detect systems hot spots. An integrated sustainability assessment of FishEUTrust technologies will be performed, including hotspots and sensitivity analysis, as well as potential scenario comparisons to harmonize future decision-making processes for production practices in the food system demos, policies, marketing of the innovations, among others as an input to WP3. A participatory approach will be co-identified, co-developed and analysed through stakeholder engagement (WP1, WP7, WP8).

Work package WP7 – Integration of technologies for transparent seafood supply chain and digital solutions for increasing consumer awareness, trust and empowerment

Work Package Number	WP7	Lead Beneficiary	1. JSI
Work Package Name	Integration of technologies for transparent seafood supply chain and digital solutions for increasing consumer awareness, trust and empowerment		
Start Month	1	End Month	46

Objectives

Integrate relevant technologies for transparent seafood supply chain and digital solutions for increasing consumer awareness, trust and empowerment for EU seafood consumption

WP7 Specific objectives:

O7.1 Design a platform to support integration of technologies, digital solutions for supporting consumer empowerment (via product passports, engagement and knowledge sharing) and data and information sharing

O7.2 Select and enhance methodology for integrating technologies as well as for integrating the FishEUTrust platform with other relevant e-infrastructures

O7.3 Develop the FishEUTrust platform by integrating interoperable data technologies to support data and information sharing among the FishEUTrust stakeholders as well as with other relevant infrastructures

O7.4 Develop and validate nudging/ gamification approaches for shifting consumer behaviours and decisions, to be integrated within the FishEUTrust platform to serve any seafood sector

O7.5 Test and validate the final version of the FishEUTrust platform in the CLLs use cases

Description

Task 7.1: Design the FishEUTrust platform to support integration of relevant technologies, digital solutions for supporting consumer empowerment and data and information sharing (M1-M24)

Leader: DigitalSmart; Participants and roles: All WP7 partners

With stakeholders and WP1-6, user requirements for the FishEUTrust platform will be specified as user stories. Services and tools required by SMEs and LEs for transparent and traceable seafood production, processing and green marketing (including the toolboxes/ databases from WP1,2,4,5) will be identified and formalized as technical stories. An overall system architecture will be defined with a logical structure of the platform, focusing on communication among system components to guarantee scalability and extensibility and support continuous integration to maintain its functionality. UX/ UI approaches applying technologies for HCI will be applied. In order to provide data provenance and traceability needed for unique seafood product authentication and reliable and secure management of information collected about the

product across the supply chain, different technologies will be prepared to be integrated with the platform. These include but are not limited to: i) the product passport and blockchain technology; ii) the SEAFOODTOMORROW benchmark tool for seafood traceability; and iii) the Cobália 'Industry 4.0 navigation' for aquaculture traceability. Existing relevant solutions will be assessed to be included in the searchable catalogue (to be implemented in T7.3/5) and integrated with other solutions (via APIs through the FishEUTrust).

Task 7.2: Select and enhance methodology and semantic resources to semantically integrate the FishEUTrust platform with other relevant e-infrastructures (M1-M24)

Leader: JSI; Participants and roles: All (to provide metadata for describing the semantics of the toolboxes/ databases from WP1,2,5)

In order to semantically integrate the platform internally (across the technologies) and with the ecosystem of relevant European infrastructures, methodology for data interoperability will be selected and adapted for the needs of FishEUTrust. This includes the creation of a data model (relevant for the product passport) and the enhancement of resources for semantic integration, such as ontologies and knowledge graphs, already developed in recent projects, such as FNS-Cloud (Metrofood, BlueCloud), CAFETERIA, COMFOCUS and the ELIXIR Use Case on Food and Nutrition, where JSI is strongly involved (either as a coordinator or a WP leader). Further the integration of Cobália; a multi-user online 'Industry 4.0 navigation' system for aquaculture, through a cloud database will be performed. Each provider of toolboxes/ databases to be integrated with the FishEUTrust platform will be requested to provide metadata describing their toolboxes/ databases.

Task 7.3: Develop and integrate beta version of the FishEUTrust platform with the ecosystem of relevant European e-infrastructures (M24-M36)

Leader: BELIT; Participants and roles: All WP7 partners

The platform will be implemented as a virtual system, providing easy access to FishEUTrust toolboxes/ databases (developed in WP1,2,4,5) specified in a searchable catalogue (T7.1) and enabling the creation of custom Farm-to-Fork solutions tailored to the needs of different stakeholders in the seafood value chain based on the data collected by different technologies (either through APIs or user interfaces). Through portals, access will also be provided to the content relevant for the FishEUTrust stakeholders (e.g., about the technology piloted in FishEUTrust, seafood consumption culture, tradition and heritage by geographical regions, novel food products, recipes, and food composition values). In order to implement digital consumer engagement strategies (CES) (defined in WP2 by an action plan and metrics to track and measure each action), optimal customer engagement software (e.g., for live chatting, connecting consumers, webinars, social media marketing, and capturing user feedback) will be selected and integrated into the platform. The platform will be integrated with other e-infrastructures, such as FNS-Cloud (EuroFIR, METROFOOD) and COMFOCUS via APIs and considering the semantic integration methodology prepared in T7.2. To enable the sustainability of the FishEUTrust results.

Task 7.4: Develop, integrate and validate FishEUTrust gamification solutions (M9-M36)

Leader: REDINN; Participants and roles: All WP7 partners (BELIT helps to design relevant games)

FishEUTrust nudging/ gamification strategies for empowering users to adopt healthy dietary habits will be specified in collaboration with WP1,2. The following tools will be used: (i) Kahoot: dynamics to assess knowledge; (ii) virtual games: proposals to record information of interest with virtual medals to the classes or schools that generate the least amount of food consumption through a virtual scale; and (iii) gamification to work on eco-design for a circular economy. The nudging/ gamification strategies will be accessed through a mobile app during CLLs activities (WP1), providing two interactive user interfaces designed for non-technical users (e.g., the public) and professionals. Its UX will integrate game-like attributes, e.g., creative sounds, dynamic visual elements, scoring and leader-boards, competition and other attributes like rewards, which boost user engagement. This task will liaise with WP6 on FishEUTrust social media accounts integration, and WP8.

Task 7.5: Test and validate the FishEUTrust platform in the living labs' use cases (M36-M46)

Leader: JSI; Participants and roles: All (test the FishEUTrust platform)

In this task, testing, including usability testing, of the FishEUTrust platform will be performed. In order to select an optimal user research method, first, decisions will be made regarding resources, target audience, and research objectives (in collaboration with W1,2). Then, selected users (consumers) will interact with the platform, while being observed for behaviour and reactions. The results of the usability testing will be used to improve the platform's UX. Finally, the FishEUTrust platform will be documented and promoted via the project's website as well as through other dissemination channels (with WP8).

Work package WP8 – Communication, dissemination and clustering

Work Package Number	WP8	Lead Beneficiary	22. WRG
Work Package Name	Communication, dissemination and clustering		

Start Month	1	End Month	48
--------------------	----------	------------------	-----------

Objectives

To implement a comprehensive scientific, public, policymaker and industrial dissemination policy and outreach programme to communicate project results to a broad audience.

WP8 specific objectives:

O8.1 To manage and integrate all related WP activities relating to engagement and outreach in order to create and maintain a comprehensive dissemination and communication plan.

O8.2 To develop a project brand identity and to create and maintain a dedicated and integrated website/portal to highlight results and provide general informational material and data.

O8.3 To produce and facilitate high quality general communication materials, scientific/trade publications, and events to disseminate the results of the project to target audiences.

O8.4 To implement a supply-chain engagement campaign (from farm-to-fork) to maximise awareness and exploitation of the project technologies and approaches by key stakeholders, including support from policymakers.

O8.5 Develop clustering and synergies with existing dissemination channels and networks to raise awareness about the project's results and foster collaboration and exploitation through other EU initiatives.

Description

Task 8.1 Project consumer engagement activity management and creation of a comprehensive dissemination and communication plan (M1-M48)

Leader: WRG; Participants and role: All (planning co-ordination support)

Subtask 8.1.1 Project consumer engagement activity management to support D&C planning (M1-M48): Consumer perception and engagement are fundamental tenets of the project with critical activities spanning several Work Packages. Specifically, activities in WP2 (consumer perception and tools), WP3 (business exploitation and policy), and WP7 (digital platforms), are all critical to the success of the project. WP8 will directly link these WP's to identify target audiences and broader demographics in order to achieve responsive feedback and ensure the primary messages are delivered to all relevant stakeholders. This also supports the project's longer-term goals of increasing consumer uptake of EU fish and the associated health and environmental benefits.

Subtask 8.1.2 Creation of a comprehensive dissemination and communication plan (M1-M42): Subtask 8.1.1 is essential in supporting the creation of a comprehensive dissemination and communication of project results and activities. The plan will include i) the list of target audiences; ii) main messages per relevant target groups; iii) measures and activities to reach target audiences. The D&C plan is a live document that will be updated at 6 monthly intervals as new information emerges from the respective WP's and in particularly WP7 gamification and nudge strategies.

Task 8.2 Project identity, website creation and platform integration (M1-M36)

Leader: WRG; Participants and role: JSI, BELIT, DigitalSmart (preparing the website)

Subtask 8.2.1 Project identity and website creation (M1-M3): Basic project visual identity will include a project logo, an introductory slideshow presentation, an introductory poster and roll-up. Templates of slides and posters will be prepared for use by the partners in all communication activities. All partners will be provided with these materials for distribution at events, workshops and all other opportunities to raise awareness on the project. A project website will be created and published by M3 in conjunction with social media (LinkedIn and Twitter) accounts.

Subtask 8.2.2 Integrate data platforms with website portal on (M4-M36): In addition to a general information and feedback gateway the website will act as the primary portal to the FishEUTrust digital platforms that are being created within WP7. In the most simple form this will be URLs to data repositories, but where required the website will act as conduit for information through search engine integration and hosted platform logins.

Task 8.3 Creation and facilitation of general communication materials, publications, and engagement activities (M6-48)

Leader: WRG; Participants and role: All (Data and material provision)

This task is dedicated to the creation and facilitation of the following general D&C activities. These are:

General communication materials: At least 8 press releases and newsletters will be published (i.e. bi-annually as a minimum) to the general press and specialized media (food magazines, industry magazines, etc.). Furthermore, videos including animated slideshows and interviews to partners and experts will be published on the website (at least 4 project videos and 4 animated slideshow) and circulated as widely as possible through relevant social and e-media channels.

Scientific and trade publications: Open access scientific publications (> 10 publications) will be produced for relevant scientific peer-reviewed journals. One final publication will be edited by JSI with the contribution of all partners. This will summarize the results of the project in a fact based public oriented document. In addition, popular articles will also be published (> 6) for trade magazines in order to reach a wider audience of end users and beneficiaries.

Public open days, trade and scientific events and conferences: A range of general events and conferences will be organised/attended in order to raise awareness of the project across a range of stakeholders and demographics. This

includes at least one public open day at the FishEUTrust CLLs and up to 25 presentations at related trade and scientific events such as open days. This task will also provide educational material for each new food product, school activities/exhibition and fairs.

Task 8.4: Creating synergies with existing initiatives and practices “clustering” (M1-M48)

Leader: Eurofish; Participants and role: WRG, NORCE, JSI, REDINN (providing the data)

A clustering plan will be developed at the beginning of the FishEUTrust (M3) and then updated periodically throughout the project. The plan will define; (i) a list of related projects (extended from table 1.3a page 10), and activities including points of contact, for which clustering is envisaged; (ii) a framework for a coordinator network and its administrative setup to prepare a roadmap for developing a coordinated strategy; (iii) an agreed execution plan for specific clustering activities within the coordinator network (teleconferences, conferences, joint communication activities, project working groups, participation in GA meetings); (iv) a plan for specific clustering activities with other projects and institutions (e.g. project-exchange days, cooperation with AB member projects, cooperation with national and international clusters, cooperation with EU initiatives); (v) identification of the “network of networks” - the most successful and well developed institutions that could connect FishEUTrust.

Considering the similarity in part of the activities and expected outcomes, the consortia of the projects selected for funding under the HORIZON-CL6-2021-FARM2FORK-01-10 “Sea to fork transparency and consumer engagement” are expected to undertake the best collaborative efforts with a view to maximise efficiency and impact, by favouring synergies and avoiding overlapping or duplication of activities. The collaboration will in particular ensure the efficient coordination of activities through, e.g. regular contacts and exchanges, sharing of information (where appropriate) and communication and dissemination of results.

T8.5 Stakeholder and supply-chain, including policymaker, engagement from farm-to-fork (M6-M48)

Leader: NORCE; Participants and role: All beneficiaries (planning co-ordination)

This task is dedicated to specific engagement of stakeholders in the supply chain (farmers, producers, vendors, etc.) as well as those in policymaking in order to generate engagement and uptake in the project technologies, platforms, and approaches with a view to exploitation and potential adoption, whilst ensuring input from policymakers to address potential legislative barriers (including labelling, import/export). At least two trade open days will be organised at the CLLs with invited guests derived from existing networks and through WP3. WRG prepare necessary holding material like an FAQ. Engagement with national associations of SMEs and industries will be promoted via dedicated communication, interviews, meetings, and cross-promotion activities, in order to reach the associated members with the project’s communication campaigns and to attract potential investors. In addition, there will be at least twelve awareness campaigns in every participating country (SI, PT, IT, RO, DK, NO, DE, ES, MT, SR, ME, HR) with 100+ attendees.

Work package WP9 – Management and coordination

Work Package Number	WP9	Lead Beneficiary	1. JSI
Work Package Name	Management and coordination		
Start Month	1	End Month	48

Objectives

To ensure efficient management of the EUFish project by establishing and operating an effective consortium management structure. Quality of Deliverables and other outputs will be ensured through peer-review by the Executive Board (EB) members. Stakeholders' interests are incorporated via the External Experts Advisory Board (EEAB) and targeted activities in some WPs.

WP9 specific objectives:

O9.1 Implement critical project and quality management tools, legal documents, and communication planning to ensure effective management and exploitation of the project

O9.2 Ensure the quality and timeliness of deliverables and reports to the EC and to manage and mitigate risks through regular and effective Executive Board meetings

O9.3 Maintain effective management of and communications between partners to ensure adherence to GA obligations, including delivery of reports, distribution of finances, and other legal obligations

O9.4 Management of innovation, through understanding of both technical and stakeholder-imposed challenges to facilitate response to internal or external opportunities

O9.5 Open Research Data Management

O9.6 Monitor issues related to gender inequality and implement corrective actions

Description
<p>Task 9.1: Project coordination and internal communication (M1-M48) Leader: JSI; Participants and role: All (active participation in project general assembly) JSI will coordinate the overall project. JSI will prepare Management Guidelines (TO9.1) outlining the project management and quality control procedures. The management structure will be as described in the methodology section and physical Meetings will be annual and internal WP meetings will be held at the same time. EB and all other meetings will be teleconferences at 6 monthly intervals or as necessary. This activity will produce and, if necessary, update a Risk Management Plan (TO9.2, M3), which will outline the process for identifying and mitigating risks in the project and include a risk register to be reviewed at every EB meeting.</p> <p>Task 9.2: Administrative and financial management (M1-M48) Leader: JSI, Role of Participants and role: All (active participation in GA) JSI will ensure that all partners fulfil Grant and Consortium Agreements obligations. A dedicated JSI administrative office will appoint an administration project manager to monitor the day-to-day running of the project activities, organising meetings, and workshops and general communications. Financial management of the project will coordinate the financial and administrative aspects concerning the financial reporting towards the EC. including setting up templates, tools, guidelines, and training for the Beneficiaries on reporting and administrative issues.</p> <p>Task 9.3: Innovation management (M1-M48) Leader: JdIC; Participants and role: All (active participation GA) Active management of innovation is central to the project lifecycle to maximise (post-project) exploitation. Innovation Management will be a fixed agenda item for the EB and GA meetings, and Beneficiaries will review annually to compare planned and emerging results against evolving needs, both market (emerging technologies, competitors, and prices) and regulatory using data from WP3 and WP8. The task is led by the JdIC (Javier de la Cueva) that has no direct ownership claim on core research results. The EEAB is also a contributor to this task, as Members will share market and regulatory insights to help define product positioning.</p> <p>Task 9.4: Open Research Data management (M1-M48) Leader: JSI; Participants and role: All (active participation in GA) The core document of all open internal research data management activities is the DMP. The DMP strategies outlined in the proposal will be elaborated further in the early months of the project, and all Beneficiaries will be asked to contribute to D9a (M6), which will be reviewed and updated at least once (mid-period, M24). The DMP identifies open data in the project, how and where these are stored, and which standards are applied. The data manager will be Barbara Koroušić-Seljak.</p> <p>Task 9.5: Gender Action Plan and monitoring (M1-M48) Leader: EuroFIR; Participants and role: All (active participants in GA) A female member of the research team Siân Astley (EuroFIR), will be the Gender Officer and will sit on the GA to facilitate the identification of good practices, guidelines and codes at National and European levels; and ensure the adoption of such practices where appropriate. Draft plan facilitating the inclusion of sex and gender as analytical and explanatory variables, promoting understanding and engagement of female staff, especially in implementation, will be prepared by M6 (D9b). The final report (M48) will include a comparison with a baseline on participation and datasets and recommendations for policy and FishEUTrust in the future.</p>

Work package WP10 – Ethics requirements

Work Package Number	WP10	Lead Beneficiary	1. JSI
Work Package Name	Ethics requirements		
Start Month	1	End Month	48

Objectives
The objective is to ensure compliance with the 'ethics requirements' set out in this work package.
Description
This work package sets out the 'ethics requirements' that the project must comply with.

STAFF EFFORT

Staff effort per participant <i>Grant Preparation (Work packages - Effort screen) — Enter the info.</i>											
Participant	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	WP10	Total Person-Months
1 - JSI	2.00	1.50	0.50	12.00		5.00	33.00	3.00	37.00		94.00
2 - IPMA	9.00		0.50	2.00	4.00	5.00	0.50	2.00	1.00		24.00
3 - UNIBO	4.00	50.00	4.00			8.00	1.00	4.00	2.00		73.00
4 - EUROFISH	1.00	1.00	20.50			2.00	0.50	5.00	1.00		31.00
5 - UNIFI	2.00		0.50	30.00	11.00	2.00	2.00	2.50	2.00		52.00
6 - UMF Cluj	1.00		1.00		26.00		1.00	2.00	1.00		32.00
7 - DTU			1.00			36.50	1.00	1.00	1.00		40.50
8 - BTU CS			0.50		13.00		0.50	1.00	1.00		16.00
9 - NORCE	4.00	2.00	3.00			1.00		4.00	1.00		15.00
10 - EUROFIR AISBL	1.00		4.00			6.00	6.00	6.00	2.00		25.00
11 - UNIPD				15.00	2.00	2.00		2.00	1.00		22.00
12 - ABT	19.00		2.00	2.00	2.00		1.00	1.00	2.00		29.00
13 - REDINN	5.00	4.00	13.00			4.00	15.00	2.00	1.00		44.00
14 - BELIT	3.00	10.00	12.00		9.00		35.00	2.00	1.00		72.00
15 - MICRUX			1.00		27.00			2.00	1.00		31.00
16 - JdIC			23.00			4.00		2.00	1.00		30.00
17 - CETGA	19.00		2.00	3.00	2.00	1.00		3.00	1.00		31.00
18 - DIGITALSMART	4.00	2.00	8.00				22.00	2.00	1.00		39.00
19 - BUGENVILA	13.00	2.00	1.00	1.00				2.00	1.00		20.00

Staff effort per participant*Grant Preparation (Work packages - Effort screen) — Enter the info.*

Participant	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	WP10	Total Person-Months
20 - OXY	9.00	1.00	4.00			2.00	2.00	1.00	1.00		20.00
21 - EAS	1.00							3.20			4.20
22 - WRG		13.00	6.00				1.00	40.00	3.00		63.00
Total Person-Months	97.00	86.50	107.50	65.00	96.00	78.50	121.50	92.70	63.00	0.00	807.70

LIST OF DELIVERABLES

Deliverables <i>Grant Preparation (Deliverables screen) — Enter the info.</i> <i>The labels used mean:</i> <i>Public — fully open (🚩 automatically posted online)</i> <i>Sensitive — limited under the conditions of the Grant Agreement</i> <i>EU classified —RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision 2015/444</i>						
Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D1.1	An open platform for cross-pollination, engagement & exchange of project knowledge base with other fish production sectors	WP1	2 - IPMA	R — Document, report	PU - Public	45
D1.2	An inclusive EU-level LL	WP1	13 - REDINN	R — Document, report	PU - Public	18
D1.3	Sustainability roadmap	WP1	17 - CETGA	R — Document, report	PU - Public	40
D2.1	Tailored intervention strategies for both consumers and the supply chain	WP2	3 - UNIBO	R — Document, report	PU - Public	42
D2.2	Homogenous clusters (groups) of consumers from the target countries	WP2	22 - WRG	R — Document, report	PU - Public	18
D2.3	Creating virtual and real consumer experiences to identify assessing consumer's preferences and perception as the foundation to creating intervention strategies	WP2	3 - UNIBO	R — Document, report	PU - Public	36
D3.1	Demonstrators of the FishEUTrust specific business models as exemplars	WP3	4 - EUROFISH	R — Document, report	SEN - Sensitive	45
D3.2	Policy brief	WP3	4 - EUROFISH	R — Document, report	PU - Public	45
D3.3	Digital methods and business models to	WP3	14 - BELIT	R — Document, report	SEN - Sensitive	24

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)
	improve trust and efficiency in seafood supply chains					
D3.4	Validated more efficient supply protocols in respect of policy and legislative barriers	WP3	16 - JdIC	R — Document, report	SEN - Sensitive	45
D3.5	Exploitation strategy plan	WP3	13 - REDINN	R — Document, report	SEN - Sensitive	45
D3.6	IPR management strategy	WP3	13 - REDINN	R — Document, report	SEN - Sensitive	45
D4.1	A validated suite of tools for assessing fish origin, quality (freshness) and safety, including detection of antibiotics, toxins and pathogens	WP4	5 - UNIFI	R — Document, report	PU - Public	36
D4.2	Microbiological traceability tools using target and non-target metagenomics and initial map of origin defining genetic markers	WP4	5 - UNIFI	R — Document, report	PU - Public	24
D4.3	Validated instructions, Standard Operating procedures and protocols for use in the supply chain	WP4	5 - UNIFI	R — Document, report	PU - Public	30
D4.4	Protocol for fish authenticity and origin based on stable isotope approach	WP4	1 - JSI	R — Document, report	PU - Public	24
D5.1	Proof of concept integration of sensors for	WP5	8 - BTU CS	R — Document, report	SEN - Sensitive	30

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)
	fish freshness on the smart platforms for consumers, retailers and aquaculture farms					
D5.2	Proof of concept integration of sensors for the detection of biotoxins, antibiotics and pathogens on the smart platforms for end-users	WP5	6 - UMF Cluj	R — Document, report	SEN - Sensitive	36
D5.3	Validation of nanostructured platforms for sensors	WP5	5 - UNIFI	R — Document, report	SEN - Sensitive	12
D5.4	Demonstrated integrative test tools and sensors for pathogenic bacteria	WP5	6 - UMF Cluj	R — Document, report	SEN - Sensitive	18
D5.5	Demonstrated sensors for the detection of antibiotics, freshness and toxins	WP5	5 - UNIFI	R — Document, report	SEN - Sensitive	30
D6.1	Roadmap for improvements and sustainable growth of aquaculture supply chain including standardization and policy	WP6	7 - DTU	R — Document, report	PU - Public	42
D6.2	Data inventory to support the overall sustainability and impact assessment	WP6	1 - JSI	R — Document, report	PU - Public	24
D6.3	Assessment of food safety and risk (contaminants, microbial), origin, nutrition value, human health and environmental impacts and socio-economic performances	WP6	7 - DTU	R — Document, report	SEN - Sensitive	36

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)
D7.1	Digital support for consumer engagement (gamification, QR codes, mobile app)	WP7	1 - JSI	DEM — Demonstrator, pilot, prototype	PU - Public	45
D7.2	Upgraded existing solutions, including but not limited to the SEAFOODTOMORROW benchmark tool for seafood traceability, the Cobália 'Industry 4.0 navigation' upgraded, and the passport/blockchain solutions	WP7	18 - DIGITALSMART	DEM — Demonstrator, pilot, prototype	SEN - Sensitive	24
D7.3	The first (beta) version of the FishEUTrust platform	WP7	14 - BELIT	DEM — Demonstrator, pilot, prototype	SEN - Sensitive	36
D7.4	The FishEUTrust gamification solutions integrated with the FishEUTrust platform	WP7	13 - REDINN	DEM — Demonstrator, pilot, prototype	PU - Public	46
D8.1	Communication, dissemination and exploitation plan - PART 1	WP8	22 - WRG	R — Document, report	PU - Public	6
D8.2	Communication, dissemination and exploitation plan - PART 2	WP8	22 - WRG	R — Document, report	PU - Public	48
D8.3	Established sustainable comprehensive communication, dissemination and exploitation framework across all stakeholders and actors	WP8	22 - WRG	R — Document, report	PU - Public	48
D8.4	Project website	WP8	22 - WRG	DEC — Websites, patent filings, videos, etc	PU - Public	3

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)
D8.5	Draft clustering plan	WP8	4 - EUROFISH	R — Document, report	SEN - Sensitive	3
D8.6	Comprehensive supply-chain and stakeholder engagement framework	WP8	9 - NORCE	R — Document, report	PU - Public	48
D9.1	Open Data Management Plan - PART 1	WP9	1 - JSI	DMP — Data Management Plan	PU - Public	6
D9.2	Open Data Management Plan - PART 2	WP9	1 - JSI	DMP — Data Management Plan	PU - Public	24
D9.3	Gender Action Plan - PART 1	WP9	10 - EUROFIR AISBL	R — Document, report	PU - Public	6
D9.4	Gender Action Plan - PART 2	WP9	10 - EUROFIR AISBL	R — Document, report	PU - Public	48
D9.5	Preparation of Management Guidelines	WP9	1 - JSI	R — Document, report	SEN - Sensitive	3
D10.1	OEI - Requirement No. 1	WP10	1 - JSI	ETHICS	SEN - Sensitive	1
D10.2	OEI - Requirement No. 2	WP10	1 - JSI	ETHICS	SEN - Sensitive	18
D10.3	OEI - Requirement No. 3	WP10	1 - JSI	ETHICS	SEN - Sensitive	36
D10.4	OEI - Requirement No. 4	WP10	1 - JSI	ETHICS	SEN - Sensitive	48

Deliverable – An open platform for cross-pollination, engagement & exchange of project knowledge base with other fish production sectors

Deliverable Number	D1.1	Lead Beneficiary	2. IPMA
Deliverable Name	An open platform for cross-pollination, engagement & exchange of project knowledge base with other fish production sectors		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	45	Work Package No	WP1

Description			
The developed open platform for cross-pollination will entail adapting existing pilots to other target groups, the EU food sector or different cultural environments. The CLLs and the pilots will bring together several actors (schools, training institutions, and universities) and empower people and communities towards change at the collective level through participatory processes and cross-cutting actions including the ToC approach.			

Deliverable – An inclusive EU-level LL

Deliverable Number	D1.2	Lead Beneficiary	13. REDINN
Deliverable Name	An inclusive EU-level LL		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	18	Work Package No	WP1

Description			
<p>This deliverable includes reports on:</p> <p>TO1.1: Integrated LLs stakeholder map and analysis (responsible: ABT)</p> <p>TO1.2: Establishment of CLLs best practices and operational protocols (responsible: CETGA)</p> <p>TO1.3: Consolidation of the synergies with the existing network of LLs to implement an inclusive EU-level Web of LLs (responsible: REDINN)</p> <p>The deliverable is related to MS1.</p>			

Deliverable – Sustainability roadmap

Deliverable Number	D1.3	Lead Beneficiary	17. CETGA
Deliverable Name	Sustainability roadmap		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	40	Work Package No	WP1

Description			
Living Lab (LLs) demonstrator sites of fish/shellfish production in Mediterranean, N Sea, and Atlantic regions will serve as an exemplar to develop sustainability roadmap for aquaculture production. The deliverable is related to MS2.			

Deliverable – Tailored intervention strategies for both consumers and the supply chain

Deliverable Number	D2.1	Lead Beneficiary	3. UNIBO
Deliverable Name	Tailored intervention strategies for both consumers and the supply chain		

Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	42	Work Package No	WP2

Description			
It focuses on identifying socio-economic and cultural barriers, assessing consumer awareness, and accepting innovations that will define the characteristics of more appealing innovations for different groups of consumers as the platform for the promotion and consumer empowerment strategies.			

Deliverable – Homogenous clusters (groups) of consumers from the target countries

Deliverable Number	D2.2	Lead Beneficiary	22. WRG
Deliverable Name	Homogenous clusters (groups) of consumers from the target countries		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	18	Work Package No	WP2

Description			
<p>The deliverable covers the reports on:</p> <p>TO2.1: Map of consumer expectations and key characteristics of consumer groups (responsible: REDINN)</p> <p>TO2.2: Mapping consumer expectations to identify key characteristics and behavioural drivers across EU countries and Identification of consumers' behavioral clusters to identify target groups (responsible: WRG)</p> <p>The deliverable is also related to MS3.</p>			

Deliverable – Creating virtual and real consumer experiences to identify assessing consumer's preferences and perception as the foundation to creating intervention strategies

Deliverable Number	D2.3	Lead Beneficiary	3. UNIBO
Deliverable Name	Creating virtual and real consumer experiences to identify assessing consumer's preferences and perception as the foundation to creating intervention strategies		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	36	Work Package No	WP2

Description			
<p>This deliverable covers the reports on:</p> <p>TO2.3.1: Determinants mapping of the consumer and retailer decision-making processes to inform intervention strategy development (responsible: UNIBO)</p> <p>TO2.3.2: Mapping the hedonistic preferences of consumers, retailer and other food chain actors regarding food tastes and textures to inform intervention strategy development (responsible: UNIBO)</p> <p>The deliverable is also related to MS3.</p>			

Deliverable – Demonstrators of the FishEUTrust specific business models as exemplars

Deliverable Number	D3.1	Lead Beneficiary	4. EUROFISH
Deliverable Name	Demonstrators of the FishEUTrust specific business models as exemplars		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	45	Work Package No	WP3

Description
Business models will be developed based on the already existing and updated mapping of stakeholders - and on the identification of new opportunities based on the developed technologies and data operability.

Deliverable – Policy brief

Deliverable Number	D3.2	Lead Beneficiary	4. EUROFISH
Deliverable Name	Policy brief		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	45	Work Package No	WP3

Description
Short policy report.

Deliverable – Digital methods and business models to improve trust and efficiency in seafood supply chains

Deliverable Number	D3.3	Lead Beneficiary	14. BELIT
Deliverable Name	Digital methods and business models to improve trust and efficiency in seafood supply chains		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	24	Work Package No	WP3

Description
Definition and elaboration of digital methods and business models to improve trust and efficiency in seafood supply chains. The deliverable is related to MS4.

Deliverable – Validated more efficient supply protocols in respect of policy and legislative barriers

Deliverable Number	D3.4	Lead Beneficiary	16. JdIC
Deliverable Name	Validated more efficient supply protocols in respect of policy and legislative barriers		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	45	Work Package No	WP3

Description
Defining and validating supply protocols regarding policy and legislative barriers

Deliverable – Exploitation strategy plan

Deliverable Number	D3.5	Lead Beneficiary	13. REDINN
Deliverable Name	Exploitation strategy plan		

Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	45	Work Package No	WP3

Description
Exploitation strategy plan will be developed. The deliverable is related to MS5.

Deliverable – IPR management strategy

Deliverable Number	D3.6	Lead Beneficiary	13. REDINN
Deliverable Name	IPR management strategy		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	45	Work Package No	WP3

Description
Cross-sector Intellectual Property Rights (IPRs) management strategy will be prepared. The deliverable is related to MS5.

Deliverable – A validated suite of tools for assessing fish origin, quality (freshness) and safety, including detection of antibiotics, toxins and pathogens

Deliverable Number	D4.1	Lead Beneficiary	5. UNIFI
Deliverable Name	A validated suite of tools for assessing fish origin, quality (freshness) and safety, including detection of antibiotics, toxins and pathogens		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	36	Work Package No	WP4

Description
Advanced suite of tools for seafood quality, safety and traceability within the supply chain will integrate three different approaches: microbiome, genetic biomarkers and stable isotopes.

Deliverable – Microbiological traceability tools using target and non-target metagenomics and initial map of origin defining genetic markers

Deliverable Number	D4.2	Lead Beneficiary	5. UNIFI
Deliverable Name	Microbiological traceability tools using target and non-target metagenomics and initial map of origin defining genetic markers		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP4

Description
The traceability tools will be performed for selected species using target and non-target approaches and genetic markers. This deliverable covers the reports on: TO4.1: Definition of Standard Operating Procedures (SOPs) for sampling, DNA extraction and processing of samples for NGS based metagenomics (responsible: UNIFI) TO4.1.1: Microbiological traceability tools using target and non-target metagenomics (responsible: UNIFI)

TO4.1.2: Initial map of origin defining genetic markers (responsible: UNIPD)
It is also related to MS6, MS7 and MS8.

Deliverable – Validated instructions, Standard Operating procedures and protocols for use in the supply chain

Deliverable Number	D4.3	Lead Beneficiary	5. UNIFI
Deliverable Name	Validated instructions, Standard Operating procedures and protocols for use in the supply chain		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	30	Work Package No	WP4

Description

The comparison of different technologies that will allow the cost-benefits of these platforms at different levels of decision making in the fish industry to be assessed . It is related to MS9.

Deliverable – Protocol for fish authenticity and origin based on stable isotope approach

Deliverable Number	D4.4	Lead Beneficiary	1. JSI
Deliverable Name	Protocol for fish authenticity and origin based on stable isotope approach		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP4

Description

The protocol involves the SOP for isotope and elemental composition determination in selected fish and shellfish species, structure of database formation and statistical evaluation of results. It is related to MS8.

Deliverable – Proof of concept integration of sensors for fish freshness on the smart platforms for consumers, retailers and aquaculture farms

Deliverable Number	D5.1	Lead Beneficiary	8. BTU CS
Deliverable Name	Proof of concept integration of sensors for fish freshness on the smart platforms for consumers, retailers and aquaculture farms		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	30	Work Package No	WP5

Description

Smart control system will be developed: a platform applicable to fish farms providing information about the presence of pathogens, biotoxins and antibiotics.

Deliverable – Proof of concept integration of sensors for the detection of biotoxins, antibiotics and pathogens on the smart platforms for end-users

Deliverable Number	D5.2	Lead Beneficiary	6. UMF Cluj
---------------------------	------	-------------------------	-------------

Deliverable Name	Proof of concept integration of sensors for the detection of biotoxins, antibiotics and pathogens on the smart platforms for end-users		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	36	Work Package No	WP5

Description
Smart control system will be developed: used for freshness addressed to consumers.

Deliverable – Validation of nanostructured platforms for sensors

Deliverable Number	D5.3	Lead Beneficiary	5. UNIFI
Deliverable Name	Validation of nanostructured platforms for sensors		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	12	Work Package No	WP5

Description
Nanostructure platform for sensors will be validated. It is related to MS10.

Deliverable – Demonstrated integrative test tools and sensors for pathogenic bacteria

Deliverable Number	D5.4	Lead Beneficiary	6. UMF Cluj
Deliverable Name	Demonstrated integrative test tools and sensors for pathogenic bacteria		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	18	Work Package No	WP5

Description
Validation of sensor performance for detection of pathogens will be performed. It is related to MS10.

Deliverable – Demonstrated sensors for the detection of antibiotics, freshness and toxins

Deliverable Number	D5.5	Lead Beneficiary	5. UNIFI
Deliverable Name	Demonstrated sensors for the detection of antibiotics, freshness and toxins		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	30	Work Package No	WP5

Description
<p>This deliverable also includes the following reports:</p> <p>TO5.3: Demonstrated sensors for the detection of antibiotics (responsible: UMF)</p> <p>TO5.4: Demonstrated sensor for freshness (responsible: BTU)</p> <p>TO5.5: Demonstrated sensors for the detection of toxins (responsible: UNIFI). It is related to MS10 and MS11.</p>

Deliverable – Roadmap for improvements and sustainable growth of aquaculture supply chain including standardization and policy

Deliverable Number	D6.1	Lead Beneficiary	7. DTU
Deliverable Name	Roadmap for improvements and sustainable growth of aquaculture supply chain including standardization and policy		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	42	Work Package No	WP6

Description
Integrated suite of tools to assess the risk, origin, nutrition values, environmental and human health impacts, and socio-economic impacts of innovative sustainable aquaculture systems.

Deliverable – Data inventory to support the overall sustainability and impact assessment

Deliverable Number	D6.2	Lead Beneficiary	1. JSI
Deliverable Name	Data inventory to support the overall sustainability and impact assessment		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP6

Description
Inventory data collection protocol and data gathering to support the integrated sustainability assessment will be established. It is related to MS12.

Deliverable – Assessment of food safety and risk (contaminants, microbial), origin, nutrition value, human health and environmental impacts and socio-economic performances

Deliverable Number	D6.3	Lead Beneficiary	7. DTU
Deliverable Name	Assessment of food safety and risk (contaminants, microbial), origin, nutrition value, human health and environmental impacts and socio-economic performances		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	36	Work Package No	WP6

Description
The preliminary assessment on environment, health and social economic impact in LLs will be performed.

Deliverable – Digital support for consumer engagement (gamification, QR codes, mobile app)

Deliverable Number	D7.1	Lead Beneficiary	1. JSI
Deliverable Name	Digital support for consumer engagement (gamification, QR codes, mobile app)		
Type	DEM — Demonstrator, pilot, prototype	Dissemination Level	PU - Public
Due Date (month)	45	Work Package No	WP7

Description
FishEUTrust platform to support integration of relevant technologies, digital solutions for supporting consumer empowerment and data and information sharing.

Deliverable – Upgraded existing solutions, including but not limited to the SEAFOODTOMORROW benchmark tool for seafood traceability, the Cobália ‘Industry 4.0 navigation’ upgraded, and the passport/blockchain solutions

Deliverable Number	D7.2	Lead Beneficiary	18. DIGITALSMART
Deliverable Name	Upgraded existing solutions, including but not limited to the SEAFOODTOMORROW benchmark tool for seafood traceability, the Cobália ‘Industry 4.0 navigation’ upgraded, and the passport/blockchain solutions		
Type	DEM — Demonstrator, pilot, prototype	Dissemination Level	SEN - Sensitive
Due Date (month)	24	Work Package No	WP7

Description
The FishEUTrust design will be prepped to support integration of relevant technologies and digital solutions

Deliverable – The first (beta) version of the FishEUTrust platform

Deliverable Number	D7.3	Lead Beneficiary	14. BELIT
Deliverable Name	The first (beta) version of the FishEUTrust platform		
Type	DEM — Demonstrator, pilot, prototype	Dissemination Level	SEN - Sensitive
Due Date (month)	36	Work Package No	WP7

Description
Develop and integrate beta version of the FishEUTrust platform with the ecosystem of relevant European e-infrastructures. This deliverable includes report on: TO7.1: The FishEUTrust platform specifications (user requirements, technical specifications, UX/UI design) (responsible: DigitalSmart) TO7.3: The methodology for FishEUTrust data interoperability (semantic resources published in an open repository, such as NCBP BioPortal, Zenodo) (responsible: JSI) It is related to MS13, MS14 and MS15.

Deliverable – The FishEUTrust gamification solutions integrated with the FishEUTrust platform

Deliverable Number	D7.4	Lead Beneficiary	13. REDINN
Deliverable Name	The FishEUTrust gamification solutions integrated with the FishEUTrust platform		
Type	DEM — Demonstrator, pilot, prototype	Dissemination Level	PU - Public
Due Date (month)	46	Work Package No	WP7

Description
Develop, integrate and validate FishEUTrust gamification solutions. It is related to MS16.

Deliverable – Communication, dissemination and exploitation plan - PART 1

Deliverable Number	D8.1	Lead Beneficiary	22. WRG
Deliverable Name	Communication, dissemination and exploitation plan - PART 1		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	6	Work Package No	WP8

Description
Comprehensive scientific, public, policymaker and industrial dissemination policy and outreach programme to communicate project results to a broad audience. This deliverable also includes the report on : TO8.3 Detailed list of publications in trade magazines and journal articles, conference proceedings, and summary of events, open days and media releases (responsible: WRG) TO8.4: Draft stakeholders and public outreach programme that will be updated every year (responsible: WRG)

Deliverable – Communication, dissemination and exploitation plan - PART 2

Deliverable Number	D8.2	Lead Beneficiary	22. WRG
Deliverable Name	Communication, dissemination and exploitation plan - PART 2		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	48	Work Package No	WP8

Description
Comprehensive scientific, public, policymaker and industrial dissemination policy and outreach programme to communicate project results to a broad audience. This deliverable also includes the report on : TO8.3 Detailed list of publications in trade magazines and journal articles, conference proceedings, and summary of events, open days and media releases (responsible: WRG) TO8.4: Draft stakeholders and public outreach programme that will be updated every year (responsible: WRG)

Deliverable – Established sustainable comprehensive communication, dissemination and exploitation framework across all stakeholders and actors

Deliverable Number	D8.3	Lead Beneficiary	22. WRG
Deliverable Name	Established sustainable comprehensive communication, dissemination and exploitation framework across all stakeholders and actors		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	48	Work Package No	WP8

Description
Website with integrated data platform; detailed list of publications in trade magazines and journal articles, conference

proceedings, and summary of events, open days and media releases; stakeholders and public outreach programme; clustering plan; comprehensive supply-chain and stakeholder engagement framework.

Deliverable – Project website

Deliverable Number	D8.4	Lead Beneficiary	22. WRG
Deliverable Name	Project website		
Type	DEC — Websites, patent filings, videos, etc	Dissemination Level	PU - Public
Due Date (month)	3	Work Package No	WP8

Description

A project website will be created and published by M3 in conjunction with social media (LinkedIn and Twitter) accounts.

Deliverable – Draft clustering plan

Deliverable Number	D8.5	Lead Beneficiary	4. EUROFISH
Deliverable Name	Draft clustering plan		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	3	Work Package No	WP8

Description

The plan will create synergies with existing initiatives and practices “clustering”

Deliverable – Comprehensive supply-chain and stakeholder engagement framework

Deliverable Number	D8.6	Lead Beneficiary	9. NORCE
Deliverable Name	Comprehensive supply-chain and stakeholder engagement framework		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	48	Work Package No	WP8

Description

Specific engagement strategy of stakeholders in the supply chain (farmers, producers, vendors, etc.) as well as those in policymaking will be prepared. It is related to MS18.

Deliverable – Open Data Management Plan - PART 1

Deliverable Number	D9.1	Lead Beneficiary	1. JSI
Deliverable Name	Open Data Management Plan - PART 1		
Type	DMP — Data Management Plan	Dissemination Level	PU - Public
Due Date (month)	6	Work Package No	WP9

Description
The DMP identifies open data in the project, how and where these are stored, and which standards are applied.

Deliverable – Open Data Management Plan - PART 2

Deliverable Number	D9.2	Lead Beneficiary	1. JSI
Deliverable Name	Open Data Management Plan - PART 2		
Type	DMP — Data Management Plan	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP9

Description
The DMP identifies open data in the project, how and where these are stored, and which standards are applied.

Deliverable – Gender Action Plan - PART 1

Deliverable Number	D9.3	Lead Beneficiary	10. EUROFIR AISBL
Deliverable Name	Gender Action Plan - PART 1		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	6	Work Package No	WP9

Description
Draft plan facilitating the inclusion of sex and gender as analytical and explanatory variables, promoting understanding and engagement of female staff, especially in implementation, will be prepared by M6. The final report (M48) will include a comparison with a baseline on participation and datasets and recommendations for policy and FishEUTrust in the future.

Deliverable – Gender Action Plan - PART 2

Deliverable Number	D9.4	Lead Beneficiary	10. EUROFIR AISBL
Deliverable Name	Gender Action Plan - PART 2		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	48	Work Package No	WP9

Description
Draft plan facilitating the inclusion of sex and gender as analytical and explanatory variables, promoting understanding and engagement of female staff, especially in implementation, will be prepared by M6. The final report (M48) will include a comparison with a baseline on participation and datasets and recommendations for policy and FishEUTrust in the future.

Deliverable – Preparation of Management Guidelines

Deliverable Number	D9.5	Lead Beneficiary	1. JSI
--------------------	------	------------------	--------

Deliverable Name	Preparation of Management Guidelines		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	3	Work Package No	WP9

Description
The Management guidelines will be prepared including consortium bodies/roles; financial guidelines; reporting procedures/templates; partner contacts; templates, guidelines for deliverables, etc

Deliverable – OEI - Requirement No. 1

Deliverable Number	D10.1	Lead Beneficiary	1. JSI
Deliverable Name	OEI - Requirement No. 1		
Type	ETHICS	Dissemination Level	SEN - Sensitive
Due Date (month)	1	Work Package No	WP10

Description
The project raises multiple ethics issues, thus demanding appropriate safeguards to ensure compliance with regulations. For example, it does not address issues of Environmental protection, Health and Safety with respect to developments planned within the project. On the above grounds, operation of an External Independent Ethics Advisor ensuring appropriate supervision of the situation regarding ethics is necessary.
The external independent Ethics Advisor should be consulted at least on ethics issues concerning research involving humans, personal data, non-EU countries, artificial intelligence, and environment, health and safety.
The external independent Ethics Advisor should be appointed by month 1.

Deliverable – OEI - Requirement No. 2

Deliverable Number	D10.2	Lead Beneficiary	1. JSI
Deliverable Name	OEI - Requirement No. 2		
Type	ETHICS	Dissemination Level	SEN - Sensitive
Due Date (month)	18	Work Package No	WP10

Description
The external independent Ethics Advisor should be consulted at least on ethics issues concerning research involving humans, personal data, non-EU countries, artificial intelligence, and environment, health and safety.
A report prepared by the external independent Ethics Advisor must be submitted as a deliverable at the end of each reporting period.

Deliverable – OEI - Requirement No. 3

Deliverable Number	D10.3	Lead Beneficiary	1. JSI
Deliverable Name	OEI - Requirement No. 3		
Type	ETHICS	Dissemination Level	SEN - Sensitive

Due Date (month)	36	Work Package No	WP10
-------------------------	----	------------------------	------

Description
<p>The external independent Ethics Advisor should be consulted at least on ethics issues concerning research involving humans, personal data, non-EU countries, artificial intelligence, and environment, health and safety.</p> <p>A report prepared by the external independent Ethics Advisor must be submitted as a deliverable at the end of each reporting period.</p>

Deliverable – OEI - Requirement No. 4

Deliverable Number	D10.4	Lead Beneficiary	1. JSI
Deliverable Name	OEI - Requirement No. 4		
Type	ETHICS	Dissemination Level	SEN - Sensitive
Due Date (month)	48	Work Package No	WP10

Description
<p>The external independent Ethics Advisor should be consulted at least on ethics issues concerning research involving humans, personal data, non-EU countries, artificial intelligence, and environment, health and safety.</p> <p>A report prepared by the external independent Ethics Advisor must be submitted as a deliverable at the end of each reporting period.</p>

LIST OF MILESTONES

Milestones <i>Grant Preparation (Milestones screen) — Enter the info.</i>					
Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
1	Contextual workshop	WP1	2-IPMA	Workshop summary report	8
2	Cross-pollination Workshop	WP1	2-IPMA	Workshop summary report	30
3	Surveys/interviews with consumers completed	WP2	3-UNIBO	Documented in Deliverable 2.1	36
4	Market segmentation and development of business models	WP3	4-EUROFISH	Report of TO3.1	24
5	Elaborated exploitation and IPR management strategy	WP3	4-EUROFISH	Report of TO3.3. and TO3.4	36
6	Definition of SOPs for sampling, DNA extraction and processing of samples for NGS	WP4	5-UNIFI	Documented in the report TO4.1	12
7	Development of biomarker species for fish freshness to be delivered to WP5	WP4	5-UNIFI	Documented in the report TO4.1.1	12
8	Creation of a database of microbiome, genetic markers and stable isotope data and upload of the data in public repositories	WP4	5-UNIFI	Report on microbiological, genetic markers and stable isotope data as a part of TO4.1.1, TO4.1.2 and TO4.2	18
9	Validation of the sequencing technology based on the comparison with the sensors technologies	WP4	5-UNIFI	Report on comparison and validation between metagenomic data and smart control systems (sensors) (TO4.3)	24
10	Sensor details, performance and acquired data delivered to WP7	WP5	6-UMF Cluj	Report on the selected material for sensors, testing and validation completed	30
11	The sensor performance corresponds to the requirements of the end users	WP5	6-UMF Cluj	Report on the testing and validation as part of TO5.4	18

Milestones					
<i>Grant Preparation (Milestones screen) — Enter the info.</i>					
Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
12	Common scenarios and data collection assessment defined	WP6	7-DTU	Report on data inventory and impact assessment (TO6.1)	24
13	The FishEUTrust designed to provide data provenance and traceability and reliable and secure management of information	WP7	1-JSI	Applying SW engineering techniques	9
14	Semantic resources published in open repositories	WP7	1-JSI	Validation by the help of subject domain experts	18
15	The first (beta) version of the FishEUTrust platform released	WP7	1-JSI	Lab test	24
16	The gamification solutions prepared	WP7	1-JSI	Tested on mobile app	30
17	Project web-based platform operational	WP8	1-JSI	Web address working and linking	3
18	Organization of awareness campaigns	WP8	1-JSI	Awareness campaign completed	48
19	Formation of the Project management boards	WP9	1-JSI	Minutes of the kick-off meeting	1
20	FishEUTrust GA meetings completed	WP9	1-JSI	Minutes, list of participants, agenda, presentations, if on-line - meeting recordings	48

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	COVID-19 prevents workshop organization, travel, meetings: high	WP1, WP9	JSI will monitor the situation across partner countries. If restrictions or recommendations are prohibitive to live meetings, on-line meetings with social distancing will be planned instead
2	Challenges with too many cross-pollination activities: medium	WP1	Limit cross-pollination per CLL to 3
3	Inability to obtain the survey data: medium	WP2	The interview-based survey method will be converted to internet-based survey to a bigger number of respondents
4	Low motivation and participation in surveys: high	WP2, WP3, WP7	To identify the causes of low involvement. To make the final users understand, with the support of the national hub contact points, the importance of participation and the benefits of the project to increase transparency and traceability in seafood supply chain
5	Insufficient sensitivity for low levels of fungi or low abundance microbial species: medium	WP4	Different DNA-extraction methods for samples will be applied
6	Reduced selectivity for pathogenic species, antibiotic resistance genes or virulence factors: medium	WP4	Quantitative assessment of different species with amplification based methods and spotted controls will be performed
7	Insufficient sensitivity for low levels of antibiotics: medium	WP5	The rigorous selection of the bioelement (MIPs or aptamer) and the application of different pre-treatment methods for samples
8	Reduced selectivity for bacteria detection: low	WP5	The use of nanomaterials and bioelements will facilitate the simultaneous detection of virulence factors
9	Life time of the sensor is lower than required by end users of the device: medium	WP5	Optimization of ionic liquid or its combination with polymeric hydrogels will be perform. If this approach does not provide satisfactory results, simple sensors will be used
10	Non-acceptable environmental, social-economic and health impact: medium	WP6	Define environmental and health acceptable implications; change the regulatory status of the aquaculture system, technologies, product

Critical risks & risk management strategy <i>Grant Preparation (Critical Risks screen) — Enter the info.</i>			
Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
11	Some technologies cannot be integrated in an automated way: medium	WP7	User interfaces will be developed to support manual provision of data (required for the product passport)
12	Semantic integration of different technologies is difficult to be performed: medium	WP7	Each technology provider will prepare metadata describing its solution and data
13	Pieces of information about the product will be missing (due to problems of technologies' integration): high	WP7	Information about missing information is also valuable and will help policy makers to bring decisions on new regulations on food traceability
14	Possible lack of interest in participating in the activities by the target groups and stakeholders: medium	WP8, WP7	Strong promotion and awareness campaign
15	Dissemination of the project is not sufficient to create impact	WP8	The CMD will monitor the KPIs. As this is a 'living document,' all partners should be responsible for taking action to ensure the successful dissemination of the project
16	Insufficient project communication is failing to provide an adequate showcase/presence to selected stakeholder groups: medium	WP8	The CMD will make concerted efforts to match the analysis of T8.4 with the correct channels to reach a wide audience for the project
17	Withdrawal of consortium member, loss of a key scientist: low	WP6, WP4, WP1, WP8, WP3, WP2, WP9, WP7, WP5	This risk is limited as most Beneficiaries have a successful track record as project Beneficiaries. 1) transfer to another partner 2) find a new partner; Transfer to other organisation – RTOs have expertise in many areas. Decisions to be taken by GA
18	Resignation of General Assembly (GA) (entirely/partly): low	WP6, WP4, WP1, WP8, WP2, WP3, WP9, WP5, WP7	Exchange the representative in GA with another representative or the coordinator takes its roles
19	Resignation of WPL: low	WP6, WP4, WP1, WP8, WP2, WP3, WP9, WP5, WP7	Replace the WPL
20	Inadequate resources: medium	WP6, WP4, WP1, WP8, WP2, WP3, WP9, WP5, WP7	While efforts have been made to budget the project correctly, unexpected difficulties may arise that need to be identified as quickly as possible. If necessary, the EB will propose

Critical risks & risk management strategy			
Grant Preparation (Critical Risks screen) — Enter the info.			
Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
			solutions to emerging resource challenges (with GA decision making) in consultation with the EC. All Beneficiaries are prepared to commit more resources if needed temporarily.
21	Delay of deliverables and MS: low	WP6, WP4, WP1, WP8, WP2, WP3, WP9, WP5, WP7	Progress monitoring by task leader and reallocation of resources if needed
22	Sensors based on nanostructure does not correspond to the desire analytical performance	WP5	Many sensors based on nanomaterials are commercially available and represent alternative solution. Micrux with their expertise can assist to obtain nanostructured sensors.
23	Restrict capacity to undertake activities that dependent on face-to-face interactions	WP6, WP4, WP10, WP1, WP8, WP3, WP2, WP9, WP5, WP7	The consortium is aware about the restriction related to COVID-19 issues, therefore the project methodology was design in a way that the tasks do not exactly required face-to-face interactions between partners.

PROJECT REVIEWS

Project Reviews			
Grant Preparation (Reviews screen) — Enter the info.			
Review No	Timing (month)	Location	Comments
RV1	19	to be decided	Contact the Project Officer at least 3 months in advance
RV2	37	to be decided	Contact the Project Officer at least 3 months in advance
RV3	49	to be decided	Contact the Project Officer at least 3 months in advance

FISHEUTRUST:
EUROPEAN INTEGRATION OF NEW TECHNOLOGIES AND SOCIO-ECONOMIC
SOLUTIONS FOR INCREASING CONSUMER TRUST AND ENGAGEMENT IN SEAFOOD PRODUCTS

History of changes

Page/section	Nature of change and reason (if applicable)
	<p>The shortcomings identified by the experts in the ESR have been implemented.</p> <p>Under Criterion 2 – Impact: “However, the quantification of some targets related to EO5 are not fully substantiated. This is a minor shortcoming.”</p> <p>“The pathway to achieve EO2 is not fully credible as identification of key bottlenecks is not fully addressed. This is a minor shortcoming.”</p> <p>We have addressed EO2 primarily by updating text related to the business modelling analysis (WP3), and EO5 by updating text related to WP2, WP6, and WP8. This is in various parts of the document marked as track changes.</p> <p>Under Criterion 3 - Quality and efficiency of the implementation: “A minor shortcoming is that the information on how the infrastructure will be financed is generic, and it is not clear how - inter alia - the cost caused by the big volume of data storage required by the different systems (even if a part of it will be stored for free) will be addressed in a sustainable way (at least until the possible effective commercialisation of some of its main deliverables).”;</p> <p>The additional information has been added in the paragraph <i>Data management and management of other research outputs</i>. “The critical risks for the implementation are generally well assessed, and presented paired with their risk mitigation measures eg. Alternative analysis methods, alternative ways of carrying out surveys. However, the risk that some outputs from specific tasks may not be useable (e.g. sensors based on nanostructured materials), is not well addressed, and alternative solutions are insufficiently presented. This is a minor shortcoming. In addition, the proposal does not take fully into account risks associated with issues that may restrict capacity to undertake activities dependent on face-to-face interactions. This is a shortcoming.”</p> <p>Two additional risks have been added to the PartA.</p>
	Part 3, Quality and efficiency of the implementation
	<p>Tables 3.1a (list of work packages), 3.1b (work packages descriptions), 3.1c (list of deliverables), 3.1d (list of milestones), 3.1e (critical risks for implementation) and 3.1f (summary of staff effort) have been removed. Table 3.1h has been renumbered to 3.1a.</p> <p>The sentence related to the legal link between the persons assigned to the project and their legal entities has been added in section 3.2 Capacity of participants.</p>
	<p>Figures 5 (WP scheme with shorten WP titles), 7 (Work Package flow scheme together with relevant task and flow information) and 8 (Gantt Chart) were updated with the new WP10 Ethics and new deliverable numbering.</p>
	<p>Table 3.1a: ‘Other direct cost’ items (travel, equipment, other goods and services, large research infrastructure) has been provided with additional information, cost explanation.</p> <p>Explanation and required information have been provided.</p>
	<p>Beneficiary WRG Europe Ltd. will join the project as associated partner, therefore a paragraph “Other sources of financing” has been added.</p>
	Part 4. Ethics and Security
	<p>Section 4 ‘ethics self-assessment’ has been created.</p>

List of abbreviations used in the proposal

AI: Artificial Intelligence; **API:** Application Programming Interfaces; **Assoc:** Association; **CLL:** Co-creation Living Lab; **DALY:** Disability-Adjusted Life Years; **DHA:** Docosahexaenoic acid; **DMB:** Data Management Board; **DMP:** Data Management Plan; **DSP:** Diarrhetic shellfish poisoning; **GDPR:** E-LCC: Environmental Life Cycle Costing; **EoN:** Excellence of Networks; **EPA:** Eicosapentaenoic acid; **ESR:** Early Stage Researchers; **HCI:** Human Computer Interaction; **ICT:** Information and communication technology; **IEB:** Innovation and exploitation Board; **IPR:** Intellectual Property Rights; **IRMS:** Isotope Ratio Mass Spectrometer; **KoM:** Kick-off meeting; **KPI:** Key Performance Indicators; **LCA:** Life Cycle Assessment; **LCT:** Life Cycle Thinking; **MIP:** molecularly imprinted polymers; **NGO:** Non-Governmental Organisation; **NGS:** Next-Generation Sequencing; **PSP:** Paralytic shellfish poisoning; **RAS:** Recirculating Aquaculture Systems; **RTD:** Research and Technology Development; **SDG:** Sustainable Development Goal; **S-LCA:** Social Life Cycle Assessment; **SME:** Small and Medium Enterprise; **SRIP:** Strategic Research and Innovation Partnership; **USG:** User Stakeholder Group; **PUFA:** Polyunsaturated fatty acids; **QH:** Quintuple Helix; **ToC:** Theory of Change; **TRL:** Technological Readiness Level; **WP:** Work package

Contents

1. EXCELLENCE.....	3
1.1. OBJECTIVES AND AMBITION	3
1.1.2 Ambition	6
1.2. METHODOLOGY	9
2.1.1 Pathway to achieving the expected outcomes and impacts in the work programme (scale & significance)	19
2.1.2: Major economic/technological impact – enhancing innovation, strengthening competitiveness and growth, creating new market opportunities and delivering innovation to the market	20
2.1.3 Sustainability and future deployment of the project (including ‘do no harm principle’)	21
2.1.4 Other important environmental and societal impacts.....	21
2.1.5. Barriers/Obstacles and framework conditions	22
2.2 MEASURES TO MAXIMISE IMPACT -DISSEMINATION, EXPLOITATION AND COMMUNICATION	23
2.2.1 Dissemination and Exploitation of results.....	23
2.2.2 Business plan and Exploitation programme	23
2.2.3 Intellectual Property (IP)	25
2.2.4 Communication activities	25
2.3 SUMMARY	27
3. QUALITY AND EFFICIENCY OF THE IMPLEMENTATION	29
3.1 WORK PLAN AND RESOURCES	29
3.2 CAPACITY OF PARTICIPANTS AND CONSORTIUM AS A WHOLE.....	33
4. ETHICS SELF-ASSESSMENT	35
4.1 ETHICAL DIMENSION OF THE OBJECTIVES, METHODOLOGY AND LIKELY IMPACT	35
4.2 COMPLIANCE WITH ETHICAL PRINCIPLES AND RELEVANT LEGISLATIONS	36

<i>Figure 1 Overview of FishEUTrust concept.....</i>	<i>3</i>
<i>Figure 2. The integration of smart control systems (WP5)</i>	<i>8</i>
<i>Figure 3. ToC development.....</i>	<i>9</i>
<i>Figure 4. Co-creation Living Labs (CLLs) functioning.....</i>	<i>9</i>
<i>Figure 5. WP scheme with shorten WP titles</i>	<i>12</i>
<i>Figure 6. Schematic diagram of the management structure.....</i>	<i>15</i>
<i>Figure 7. Work Package flow scheme together with relevant task and flow information</i>	<i>29</i>
<i>Figure 8. Gantt Chart.....</i>	<i>30</i>
<i>Figure 9. Multi-actor approach of FishEUTrust partners</i>	<i>34</i>

<i>Table 1.1a: FishEUTrust activities addressing specific challenges and scope of the call</i>	<i>4</i>
<i>Table 1.3a: Relevant projects linked to FishEUTrust.....</i>	<i>11</i>
<i>Table 2.1a: Expected wider impacts with overarching KPIs</i>	<i>19</i>
<i>Table 2.1b: Project Specific Outcome KPI's (Pathway to Overarching KPIs).....</i>	<i>19</i>
<i>Table 2.1c: Major innovation and impacts</i>	<i>20</i>
<i>Table 2.1d: FishEUTrust SWOT Analysis.....</i>	<i>22</i>
<i>Table 2.2a FishEUTrust Communication activities</i>	<i>25</i>
<i>Table 3.1a: ‘Other direct cost’ items (travel, equipment, other goods and services, large research infrastructure)</i>	<i>31</i>
<i>Table 3.2a. Innovation potential of SMEs in relation to their task</i>	<i>34</i>

1. Excellence

Rationale: Increased urbanisation and retail development have significantly modified dietary behaviours and disrupted long-established ecological, agricultural, cultural, and economic norms. Interestingly, despite causing significant distress, the recent COVID-19 pandemic lockdowns have improved many Europeans' dietary habits. Studies show that nutritional intake is close to an optimum in some European countries (e.g., 57.8% of participants decreased their intake of unhealthy fast food). However, consumption and seafood exports have decreased, due to increased fish prices, reduced consumer uptake, market access, and logistical problems caused by transportation and border restrictions.

Meeting the FOOD 2030 challenges in the context of global food scenarios (food demand will increase by approximately 60% by 2050 according to FAO), will require innovations/measures that will deliver sustainable, resilient, responsible, diverse, competitive, and inclusive food systems within the frame of a circular bioeconomy (blue economy) while providing a healthy diet and engaging EU communities. Seafood currently represents 17% of global animal protein production¹ (179 million tonnes, 88% for human consumption²), with aquaculture accounting for 52% of total production and the primary source of fish for human consumption. **Fish farming is widespread in Europe, but to date R&D has concentrated on technical aspects in production, and the fragmented landscape of separate disciplines and sectors lacks a more integrative perspective. Scientists and policymakers agree there should be an emphasis on the industry's environmental and social aspects, including greater transparency and traceability. Although product quality is high, product traceability and microbiological safety methods are limited and must be substantially improved to increase consumer confidence and thus uptake.** The Eurobarometer of EU consumer habits regarding fishery and aquaculture products reveals that a product's origin is the third most mentioned factor in purchasing decisions after cost.³ The EU is also the world's largest importer of fish (24% of the total value of world fish trade), and consumers are generally faced with fish and shellfish of little-known origin with little information about fishing (gear, feed, welfare issues, processing, and transport), which adds to an already existing issue of lack of trust, especially regarding farmed seafood. Further, EU consumers are keen to have additional information on the fish they buy (e.g., date of catch/harvest, condition of growing). The growing demand by consumers for environmental information, and to a slightly lesser degree

ethical and social information, confirms the need to adopt a Farm-to-Fork strategy that empowers consumers to choose sustainable products. Reversing the current trend and promoting a higher seafood content diet with associated nutritional benefits and a low ecological and carbon footprint will require original thinking.

Concept: Many of the technologies, systems, tools, and protocols necessary to resolve these issues are already in existence, and have been demonstrated in other, often unrelated, sectors. They exist in isolated silos of excellence and are disparate and fragmented with no integrated or cohesive platform. Potential solutions are thus lost due to the multidisciplinary requirements and the fact that there are a large number of stakeholders from different sectors supplying a wide range of consumer

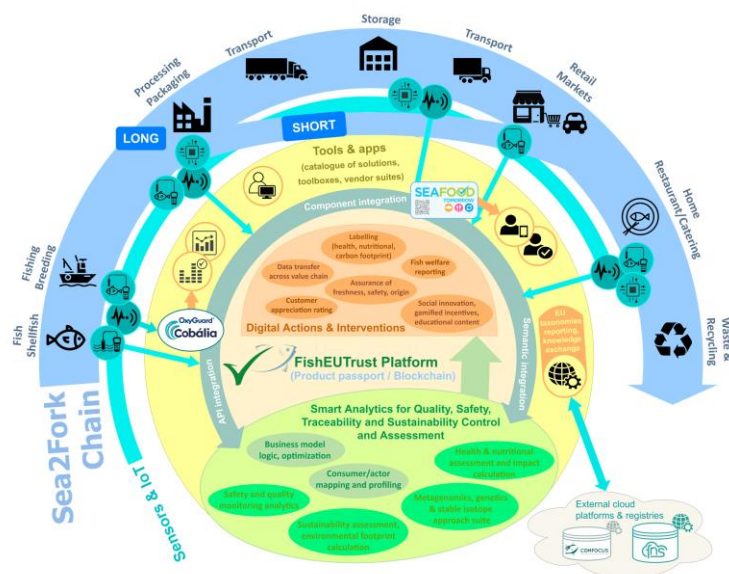


Figure 1 Overview of FishEUTrust concept

demands and requirements across the complex value chain.

The innovation at the heart of FishEUTrust is integration of different stakeholders, actors and consumer sectors in a common platform linking technology providers with supply chain stakeholders engaging directly with socioeconomic analysis informing optimised business models and regulatory/policy actors to co-develop tools, systems and protocols across the seafood value chain intended to increase consumer awareness, engagement, and confidence.

1.1. Objectives and ambition

The goal of FishEUTrust is to defragment the current food system to ensure a sustainable and efficient (e.g. through reduction of bottlenecks/barriers) seafood supply chain by developing solutions to bring about the transparency and

¹ <https://www.nature.com/articles/s41586-020-2616-y>

² <http://www.fao.org/state-of-fisheries-aquaculture>

³ <https://europa.eu/eurobarometer/surveys/detail/2271>

traceability needed to promote high-end, pan-European farmed seafood, addressing diet, health, and consumer behaviours as well as sustainable aquaculture and the blue economy.

This goal will be achieved through the following eight strategic objectives:

SO1: Set up and operationalise Co-creation Living Labs (CLLs) to link, coordinate, engage key stakeholders, and enable real-life testing, validation, and demonstration (WP1, led by IPMA).

SO2: Design and validate a tailored set of intervention strategies to stimulate behavioural change, increase consumer trust and uptake, and promote FishEUTrust products and solutions (WP2, led by UNIBO).

SO3: Develop and exploit efficient and sustainable digital supply chain and business models, including the identification of (and mitigating business strategies for) critical bottlenecks, barriers, and challenges within the supply chain (WP3, led by Eurofish).

SO4: Develop an advanced suite of tools for testing seafood quality, safety, and traceability within the supply chain, integrating different analytical approaches (microbiome, genetic biomarkers, stable isotopes) (WP4, led by UNIFI).

SO5: Deliver a smart control system for monitoring the quality (freshness) and biological (pathogens) and chemical (antibiotics, toxins) safety across the supply chain (WP5, led by UMF).

SO6: Deliver integrated impact assessments to quantify environmental footprint, sustainability, and socio-economic benefits of FishEUTrust approaches, support regulation and policy framework (WP6, led by DTU).

SO7: Deliver integrated technologies for transparent seafood supply chain and digital solutions for increasing consumer awareness, trust, and empowerment (WP7, led by JSI).

SO8: Implement a comprehensive dissemination, clustering, and outreach programme to communicate project results to a broad audience: science community, public, regulatory bodies, and industry (WP8, led by WRG).

Table 1.1a summarises how FishEUTrust addresses the Specific Challenges and Scope of the HORIZON-CL6-2021-FARM2FORK-01-10: *Sea to fork transparency and consumer engagement* call.

Table 1.1a: FishEUTrust activities addressing specific challenges and scope of the call

FishEUTrust activities	
<p><i>...knowing when and where fish are caught is challenging and requires innovative, cost-efficient approaches. Farmed fish grow in controlled conditions, but producers cannot always demonstrate the benefit of this. Much seafood is consumed processed, adding steps before fish reaches consumers. Consumers are faced with fish and shellfish of little-known origin with little information on fishing gear, feed, welfare, processing, and transport details. This adds to lack of trust in seafood, especially farmed seafood. Awareness and demand among consumers and retailers is far from sufficient for a fully sustainable seafood sector and to promote products with nutritional benefits and the lowest ecological and carbon footprint.</i></p>	<p>Five CLLs (PT, ES, MT, HR, DK) (WP1) will be established in diverse environments: the Mediterranean basin (ABT, CETGA, Bugenvila), the North Sea (OXY) and the Atlantic Sea (IPMA, CETGA), where fish and shellfish grow in the wild and under controlled conditions (including organic farming and RAS). Tools developed in WP4, including sequencing, will deliver a signature of fish origin and quality.</p> <p>Smart control systems developed in WP5 and validated and demonstrated in CLLs will make the whole seafood supply chain more transparent concerning safety (detection of pathogens, biotoxins and antibiotics) and quality (freshness of fish). Reasons for low trust in seafood will be explored and tackled using behavioural science approaches (WP2) and ICT solutions for nudging and gamification (WP7). Both digital and non-digital strategies will be developed (WP2) to engage consumers and stakeholders on health, environmental, and social-economic issues relating to the seafood supply chain (WP6).</p> <p>The business offerings combined with enhanced consumer information and uptake will provide seafood that retains its nutritional content whilst creating a quantifiable lower environmental footprint, including carbon life cycle benefits of (e.g.) reduced food miles and energy usage (WP3).</p> <p>An awareness campaign will be organised in all 14 partnership countries (WP8).</p>
<p><i>Research is expected to contribute to understanding and developing new approaches and tools (e.g. new methods to trace origin, interoperable data technologies) to provide fully traceable records on how seafood is produced, processed, and transported. The environmental performance of seafood production and consumption needs to be based on a complete set of criteria that can be ranked, monitored, and integrated in transparent labelling of seafood that complies with the current relevant legal framework and the future EU framework for food sustainability labelling. Issues of biology, feeding, disease, pathology, sustainability</i></p>	<p>Research will be focused on:</p> <p>Methods, databases, smart control systems, and services will be selected and optimised to support seafood origin tracing (WP4, 5) and data interoperability (WP7, T7.2).</p> <p>A suite of tools (microbiome, genetic, stable isotopes) will be applied in WP4 to define the origin of seafood. Microbiome sequencing will provide a better understanding of the effects of fish farming on the environment and the environment on fish farming and sustainable fish growth. This information will be combined with the developed smart control systems to detect pathogens, biotoxins and antibiotics and determine the freshness of fish (WP5).</p> <p>FishEUTrust will develop digital technologies (passport/ blockchain, labelling) to assure transparency and traceability across the seafood supply chain (WP7).</p> <p>A database of fish microbiomes will be created and contribute to developing a digital fish passport to provide fully traceable records on how seafood is produced, processed, and transported (WP4).</p> <p>Criteria will be designed for seafood to be efficiently ranked, monitored, and integrated into transparent labelling of seafood respectful of ethical values and in</p>

<i>(including issues related to organic aquaculture) should be addressed.</i>	support of and compliant with the current relevant legal framework and the future EU framework for sustainability labelling. WP3 will base these criteria on values related to environmental sustainability and the objectives of Regulation (EU) 2020/852.
<i>Innovations should lead to a change in the seafood consumption behaviour towards a preference for nutritious and sustainable seafood with a low ecological and carbon footprint.</i>	<p>Consumption behaviour will be addressed:</p> <p>Young citizens and older adults participation and their communities will be assured through five CLLs. Behavioural change and solutions for promoting seafood will be developed by mapping consumer expectations and identifying key characteristics of consumer groups across the EU: Mediterranean, Atlantic, N and central EU (WP2), while partners will identify barriers and gaps in current strategies (WP3, 6).</p> <p>The long-term impact on consumer trust and seafood uptake including both nutritional impacts and carbon footprint impacts (e.g. by reducing food miles will be assessed by adopting a ToC concept and detailed analyses supported by WP2, WP6, and WP8).</p> <p>The FishEUTrust platform will include technologies for supporting consumer engagement and empowerment, such as simplistic gamification solutions validated in FishEUTrust clusters (T7.4).</p>
<i>Proposals should significantly increase the visibility of sustainably fished or farmed seafood and the engagement of consumers with these products through improved monitoring approaches, analytical methods and communication and marketing strategies, and the development and optimization of web-based and digital tools. Traceability should be ensured. Moreover, the tool can show information on the seafood species life cycle, nutritional values and the fishing or production and processing methods.</i>	<p>The visibility of sustainably fished and farmed (including organic, RAS) seafood will be increased through:</p> <p>improved monitoring and tools for guaranteeing quality, safety and traceability (microbiome, genetic biomarkers and stable isotopes; WP4), smart control systems for safety (pathogens, biotoxins, antibiotics) and quality (freshness) (WP5), communication (WP2, 8: engagement campaigns and workshops, WP7: gamification and nudging), marketing strategies (WP3), and web-based and digital tools (WP7).</p> <p>A digital passport for seafood and their products (identifying species life cycle, nutritional values (EuroFIR and BlueCloud), production and processing methods) will allow consumers and stakeholders to make informed decisions, thereby increasing trust.</p> <p>Digital and non-digital strategies for increasing consumer engagement will be selected (WP2) and supported by technologies integrated into the platform (WP7).</p>
<i>The use of social innovations for short-chain slow food solutions to reach and engage more citizens should be considered. Underused caught or produced species with low ecological or carbon footprint can also be promoted. Traditional or indigenous knowledge and skills or cultural culinary heritage should be taken into account where relevant and appropriately assessed for environmental and food safety, and integrated in ecotourism developments. Special attention should be paid to the younger generation.</i>	<p>Innovations for a short slow-food supply chain includes:</p> <p>Fish species that hold potential for consumption and are underexploited, e.g., very nutritious sand eel and EU sprat (low intake in EU), will underpin new business models (WP3). They will be analysed to be an eye-opener for higher intake per capita in the EU. Bugenvila (gastronomy) will apply its innovative food product to present consumers with healthy Mediterranean cuisine. Bugenvila's fish and shellfish meals will adhere to traditional Mediterranean cuisine and reflect the cultural, culinary heritage of Dalmatia and the Istrian peninsula accompanied by innovative business solutions (WP3).</p> <p>The NGO Spoznaj Prehrano will communicate and transfer project knowledge to the younger generation. They are active in social media (Instagram), reaching 12,000 followers daily.</p> <p>The FishEUTrust platform will provide educational material and tools (e.g., games for children and adults) to nudge healthy food behaviour and run age-targeted awareness campaigns (WP8).</p>
<i>Cooperation activities with projects funded under other seafood-related topics are encouraged. Engaging with managing authorities of European Structural and Investment Funds during the project would help increase implementation of the project outcomes.</i>	<p>Cooperation with other seafood-related topics includes:</p> <p>PRIMA It will also provide knowledge and support for the national Smart Specialisation Strategy (S4) priority areas focusing on specific domains such as Networks for the Transition to a Circular Economy, Sustainable Food and Health-Medicine. The SRIP Food, the main Slovenian national contact point for companies and research institutions, will promote networking and cooperation in food science and has provided a letter of support. Education and innovation in fish safety and consumer behaviour are part of two ITN projects coordinated by JSI (GMOS-Train and FoodTraNet) and RISE project MERFISH. The FishEUTrust platform will be placed in the ESFRI system, e.g., METROFOOD-RI, promoting metrology in food and nutrition, ELIXIR-RI, and FNS-Cloud (https://www.fns-cloud.eu) that provides food data services, and COMFOCUS that is dedicated to consumer science.</p>
<i>Active co-creation with stakeholders and end-users, including from third countries that export seafood to the EU is also key for the achievement of</i>	<p>Active co-creation with stakeholders and end-users will be established through the CLLs. Their representatives will be involved in the design of the platform as well as in its testing:</p> <p>Bugenvila will work closely with seafood producers, including from third countries that export seafood to the EU.</p>

<i>traceability in all seafood consumed in the EU.</i>	The suite of tools integrating microbiome, genetic biomarkers, stable isotopes, and digital technologies (passport/blockchain, labelling, Cobália) will be used to assure transparency and traceability. Seafood from non-EU countries available on the market will be investigated (WP4) to validate and demonstrate the use of the developed methodology. In addition, workshops (awareness campaigns) (WP8), roadmaps for business models and policy are also planned (WP3, 6). The third countries that export seafood to the EU will be directly involved throughout Eurofish networking.
<i>International co-operation with partners from non-associated third countries is strongly encouraged as a win-win scenario, while contributing to the European competitiveness and resilience.</i>	International collaboration will be established throughout: Eurofish members from 13 CEE countries. It is also part of a global network - the FISH INFOnetwork (FIN) coordinated by FAO GLOBEFISH with the following members: INFOFISH (Asia and the Pacific), INFOPECHE (West Africa), INFOSAMAK (Arab countries), INFOPESCA (Latin America) and INFOYOU (China). EuroFIR as a food information resource NoE connects more than 50 institutions from Europe and globally and EAS has more than 1000 members over 60 countries.
<i>Where relevant, proposals may seek synergies and capitalise on the results of projects funded under Horizon 2020, Horizon Europe, European Maritime and Fisheries Fund, its continuation European Maritime, Fisheries and Aquaculture Fund, and other funding streams.</i>	Specifically, T8.3 (WP8) will develop a draft clustering plan and manage specific clustering activities with EU projects. Relevant projects linked to FishEUTrust are presented in Table 1.3a and separate section under Part A. Further the platform will integrate e-infrastructures developed in, e.g., FNS-Cloud and COMFOCUS and semantic resources developed in other projects. This integration will enable the sustainability of the project's results. The European Observatory for Fisheries and Aquaculture products (EUMOFA); study on Blue Growth, Maritime Policy and the EU Strategy for the Baltic Sea performed by Eurofish will also be included.

1.1.2 Ambition

The overarching ambition of FishEUTrust is to develop an integrated approach to increase transparency and consumer trust across seafood production chain from Farm-to-Fork.

This section highlights the innovativeness of the FishEUTrust project, i.e., how it goes beyond state-of-the-art, its ground-breaking objectives, novel concepts and approaches, new technologies, services, and decision-making models. FishEUTrust activities build on existing baseline technologies that have been already validated at the lab scale (TRLs 4-5). The FishEUTrust innovation will be a “lab to market” process (achieving TRLs 6-7) focusing on improving, adapting, and combining baseline technologies to obtain innovative solutions able to penetrate the EU market competitively in the short term and be sustainable in the long term. The evolution of TRLs will be performed as previously described and monitored under WP3 and WP9 regarding their uptake and exploitation. The innovation potential of the FishEUTrust will be realised through six concepts using a series of cross-cutting methodologies, approaches, and tools/software.

Co-creation Living Labs (CLLs)

(WP1)

State-of-the-art: As highlighted by the EU, an integrated approach to change consumer behaviour and to increase and promote adherence to seafood is still missing. In addition, the involvement of relevant stakeholders is not adequately integrated, and there is still a lack of systemic coordination.

Project ambition (TRL5→TRL7): Set up and operate a network of CLLs based on a multidisciplinary competence framework in collaboration with target groups and stakeholders to provide support competencies and innovative approaches. Building on or formalising existing networks of stakeholders, these CLLs will adopt an open innovation and co-design approach to transport, uptake, and consumer trust. CLLs will engage local communities, scientists, NGOs, and SMEs from the Atlantic, Mediterranean and N Sea regions to stimulate social innovation. Particular attention will be given to young generations and selected vulnerable groups of older adults. The cross-pollination between CLLs will ensure an international learning process based on experience and good practice. The long-term sustainability of FishEUTrust will be assured by the active involvement of CLLs leaders, in the creation of new businesses and by exploring funding opportunities. The adoption of ToC and QH will ensure behavioural change as the outcome of the engagement process.

Intervention strategies to stimulate behavioural change, increase consumer trust and promote FishEUTrust solutions (WP2)

State-of-the-art: WP2 will co-design a comprehensive set of tools to bring about behavioural change and increasing consumer uptake by building on existing data and citizen and stakeholder engagement.

Project ambition (TRL4→TRL6): Design a comprehensive set of tools to bring about behavioural change and promote FishEUTrust solutions by mapping consumer expectations and identifying key characteristics of consumer groups across the EU. The strategy will be built on existing knowledge of consumer perceptions, motivations, drivers, and practices. Information will provide the basis for WP1 to co-design innovations and activities. Robust and consistent data will also be gathered from existing databases developed within other EU projects such as FNS-Cloud (Blue Cloud) to develop a tailored framework. Additionally, consumer awareness and acceptance of innovations will be assessed using a behavioural economics approach. Results will define the characteristics of products/innovations that are more appealing for different consumers and use this knowledge to increase the effectiveness of nudging strategies. The evaluation of the social demands will help develop a support tool for the aquaculture and fish industry to increase its sustainability, increase consumer

uptake thereby reducing carbon footprint (to be quantified in WP6), and serve as a model for consumer perceptions and societal demands.

Sustainable business model, exploitation and IPR strategy

(WP3)

State-of-the-art: *There is a need to develop and implement innovative, efficient, and quality-oriented models in EU aquaculture businesses to reduce bottlenecks and create new jobs and economic growth, especially for SMEs and smallholders.*

Project ambition (TRL4→TRL6): WP3 will develop a sustainable business model for aquaculture and new FishEUTrust technologies targeted to the needs of communities. The following SMEs will be involved: BELIT, MICRUX, CETGA, ABT, DigitalSmart, OXY, and Bugenvila. Our goal is that every new user of FishEUTrust technologies will become an aquaculture and seafood ambassador.

State-of-the-art: *Successful exploitation and IPR strategy has to be coordinated among stakeholders and tailored to the needs of the stakeholders and end-users and must include a wide range of solutions.*

Project ambition TRL5→TRL7: FishEUTrust will advance the state-of-the-art by exploiting IPR strategies for aquaculture, e.g., protecting cultural and culinary heritage, short food supply chains, and exploiting underused fish species. It will also identify opportunities and synergies among partners, stakeholders, and funding opportunities. Exploitation activities will ensure the sustainability and the replicability of the FishEUTrust “model” presented at an “innovation challenge” workshop.

Technological development for quality, safety, and traceability in the seafood supply chain

(WP4, WP5, WP7)

State-of-the-art: *Aquafarms care about farmed seafood quality, safety, and traceability, but they lack easily accessible evidence-based tools and data. It is a problem also for new and small aquafarms that start new businesses.*

Project ambition (TRL4→TRL6): FishEUTrust will develop a suite of tools for fish traceability and microbiological quality, relating fish quality to environmental quality, to be implemented in EU aquaculture integrating fish microbiome, genome, and stable isotopes. The originality is the characterisation of farmed vs wild fish where strain level shotgun microbiome sequencing, combined with stable isotope analysis, will identify the geographical origin, fish nutrition, and environmental quality. Although these technologies already exist, they have yet to be applied to aquaculture. The knowledge produced will provide a reference set to further apply these methods in production practice and initiate a process to reach a consensus to establish novel standards to define EU seafood products, environmental sustainability, and traceability. The expected outcomes will place FishEUTrust at the forefront of EU fish quality and sustainability research, providing novel science-based marketing opportunities. The validated traceability systems will also be applied to imported seafood. Although the methodology will be prepared and tested on sea bream (*Sparus auratus* L.) and mussels, species of great economic importance for EU aquaculture industry it is readily adaptable for other seafood and food sectors (e.g. meat).

Digital technologies and solutions: Besides analytical methods to trace the origin of fish and seafood, FishEUTrust will develop digital technologies that includes: **Project ambition (TRL4→TRL6):** Blockchain/passport; WP7, T7.1. The development of this smart technology will start from the currently available data (e.g., fish chemical authenticity, actual fish composition) and facilitate a standardized approach based on a unique item-level identification (QR codes/Smart tags and GS1 digital link standard). A digital platform will provide framework for cataloguing, selection, and integration of relevant digital tools (i.e., IoT sensors/platforms, analytical tools, QR codes, mobile apps), novel practices, and methodologies thus allowing a creation of Farm-to-Fork solutions customized for specific use cases.

Project ambition (TRL3/4→TRL7/8): EuroFIR will advance the SEAFOOD^{TOMORROW} benchmark tool for food quality and traceability measures, addressing limitations, namely that it is (1) paper-based, (2) assesses only social, environmental, and sustainability criteria, and (3) trialled at the pilot scale in a laboratory setting criteria, and link it with FishChoice/ EU-average nutrient composition dataset to create a single online tool/app that can deliver information (score) based on sustainability/ environmental impact and nutrient information for fish and seafood species consumed in EU, which could be used by blue economy user communities including consumers, HoReCa sector and retail, or food business operators. The tool will be extended to other food chains. DigitalSmart/JSI will support the digitisation of the tool and testing.

Project ambition (TRL6→TRL7/8): OXY has developed Cobália, a multi-user online ‘Industry 4.0 navigation’ cloud-based system for aquaculture, where all measurable data are analysed, collated, recorded, distributed, and exchanged to provide transparency, best practices, and pinpoint areas of improvement for production, management, and environmental practices. All data collected during production (including feed source, water quality, fish, medications, health reports, characteristics at delivery to slaughter) will follow the fish from the farm to processing industries (for more data), finally bringing the full information to the end consumer. Cobália is designed to receive sensor and other data such as welfare and disease as they become available. In the CLL, we will identify what data, when, and how they can be used to develop standards, e.g., carbon footprints. Linking Cobália (Farm-to-Fork) to other clouds (FNS-Cloude, BlueCloud) for traceability is still a bottleneck, but in some short value chains, FishEUTrust will be able to test data from Farm-to-Fork.

Smart control systems for seafood quality and safety: The FishEUTrust project will design and produce smart control systems and unique solutions based on existing technologies for monitoring the quality (freshness) and biological (pathogens) and chemical (antibiotics, toxins) safety across the supply chain that threatens aquaculture, the fish industry, retailers, and consumers. The FishEUTrust focus will be on integrating field/pocket sensing devices made smart through

the *Internet of Things* (IoT) to provide tailored risk identifying smart technologies (WP5, T5.6). The performance of the two smart control systems will be validated in CLLs and on the market (WP1, T1.3).

State-of-the-art: *The existing technologies cannot detect changes in the structure of fish tissues during spoiling, as well as the methods based on analysis of mechanical properties of the fish body, do not provide quantitative characterisation at the early stage of fish storage and do not allow one to predict fish quality during the next stage of its shelf life.*

Project ambition (TRL4→TRL7): BTU has developed a chemotransistor to monitor fish headspace that will be used in FishEUTrust. Analysis was performed using modulation of chemosensitive properties of PANI using an external voltage. The achieved analytical performance of the formed virtual sensor array containing a single sensing element corresponds to a sensor array consisting of nine almost independent sensing elements. Development of a simplified sensor prototype for fish freshness is expected. The sensor will be based on the same structure but without control of the redox state of the chemosensitive layer and without using the concept of a virtual sensor array. It is more straightforward but less selective and will be used for fast detection with a longer duration. Within FishEUTrust, the laboratory prototype will be developed, fabricated, and tested (TRL7). After validation, the sensor will be compared with the microbiome analysis that predicts the time of fish present on the market (WP4). This sensor will be attractive to producers, retailers and even consumers.

State-of-the-art: *The conventional methods for detecting biological and chemical contaminants such as pathogens, antibiotics, and toxins are limited to laboratory conditions, needing highly trained personnel and involving high analysis costs.*

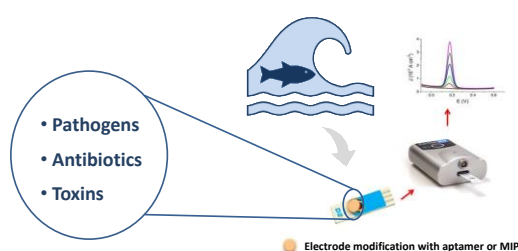


Figure 2. The integration of smart control systems (WP5)

Project ambition (TRL4→TRL6): FishEUTrust will be the first to use electrochemical sensors for bacteria detection via siderophores or virulence factors that are electrochemically active compounds commercially available at low cost. Modified electrodes will be attached to a sensor device for field monitoring of *E. coli* and *P. aeruginosa* as target microorganisms. Further, FishEUTrust partners will develop novel molecularly imprinted polymers (MIPs) and use high specificity aptamers to detect target antibiotics at low concentrations (traces). The aptamer-based sensors will also be developed to detect biotoxins: DSP, and PSP. All three sensors will be integrated into a multi-array sensor to achieve accurate, sensitive, specific, and rapid detection in real samples. The device will be easy-to-use and require minimum training in order to be suitable for field analysis.

Integrated impact assessment, regulations, and policy

(WP6)

State-of-the-art: *Assessment tools to identify best practices are essential for every successful implementation and development of new technology and a successful strategy such as consumer engagement.*

Project ambition TRL5→TRL7: Perform a sustainability assessment of aquaculture production systems, seafood products and solutions to improve their environmental, economic, and social performances, enhance their resilience, and ensure their healthiness through an integrated methodological framework based on a Life Cycle Thinking approach. The methodological framework and Social Life Cycle Assessment will be integrated with a health assessment to evaluate health and well-being from CLLs. This approach will be applied for the first time. The integration will also include health aspects, evaluate social demands and consumer perceptions, the environmental benefits of increased consumer uptake of local fish, and utilise social innovation to reduce food waste by building on JSI's participation in the REFRESH project. This impact assessment will enhance innovation capacity, create new market opportunities, strengthen companies' competitiveness and growth, and address issues related to the environment, such as carbon footprint, climate change. It will present the basis to foster new standards, regulations and aquaculture policy.

State-of-the-art: *Legislation within the EC now encompasses most of the activities and resources used by aquaculture, which is often seen as a high hurdle restricting development opportunities. Governments need to create an "enabling" environment through appropriate policies and legal frameworks.*

FishEUTrust will contribute the integrated approach, including the technologies and data that could be used in aquaculture as possible standards to obtain a robust, transparent and traceability system. Regulations related to labelling, IPR, privacy (GDPR) and other fields that may affect the project's development will be followed closely (WP3, T3.2, T3.4). Further, FishEUTrust will compare fish produced in recirculating aquaculture systems (RAS) to wild caught fish and fish produced through other aquaculture production methods (including organic) in terms of safety, quality and traceability. This data will help spearhead a discussion around regulations and certification relating to organic standards and the current non-acceptance of RAS production systems in these schemes.

Digital solutions: promotion and consumer empowerment strategies

(WP7)

State-of-the-art: *Recently, several EU platforms (e.g., FNS-Cloud, METROFOOD, ELIXIR, Blue Cloud and COMFOCUS) have been developed to support interoperability and standardisation of (open) data on food and nutrition. However, there is still missing a platform, which would enable an integration of different technologies and connect stakeholders with the aim to increase sea to fork transparency and consumer engagement from the practical point of view.*

Project ambition TRL4/5→TRL7: FishEUTrust will develop an innovation platform to enable an integration of different technologies for seafood transparency (WP4-5), applying state-of-the-art knowledge on ICT solutions (e.g., blockchain),

artificial intelligence, data science and human-computer interactions as a part of the ecosystem of European infrastructures that enable open data interoperability and standardisation to connect targeted groups and stakeholders. The FishEUTrust platform will provide easy access to harmonised and validated open data, services and tools (including educational modules, games) needed to: i) explore drivers of consumption patterns and lifestyles (WP2), and ii) shape consumer food choices towards more sustainable diet, taking into account behaviours, economics and food environment issues (WP3-6). It will respect the FAIR principles in promoting and sharing data and services with the connected infrastructures (FNS-Cloud, METROFOOD-RI, COMFOCUS); fundamental semantic resources (ontology, knowledge graph) will be tailored for the needs of FishEUTrust. The innovation of the FishEUTrust platform is thus related to the new methodology for linking newly produced data with the data from other infrastructures.

State-of-the-art: Recently, it has been proved that direct involvement of consumers positively impacts successful product development and enhances the company's financial performance.

Project ambition (TRL4/5→TRL7): FishEUTrust aims at implementing various engagement strategies to nudge consumers' behaviour towards healthy diet patterns and consumer trust. The FishEUTrust platform will enable virtual interactions between consumers and food producers. Behavioural, cognitive and emotional aspects will be addressed to achieve the best possible results. The FishEUTrust platform will be user-friendly, utilising state-of-the-art HCI principles. Empowerment strategies will be developed considering both perspectives: to create (enter new ideas for potential new products) and to select (vote between two or more different alternatives of the final product). Information required to bring well-informed decisions by consumers and other target groups will be provided at the FishEUTrust platform, such as educational material, nudging content and tools (e.g., games for children and adults), and in-person age-targeted educational campaigns at events organised by the aquaculture and food producers' partners.

1.2. Methodology

FishEUTrust knowledge and innovative solutions built on science, research and innovation, system thinking, institutional innovation, and participatory planning will consider the whole food system "Farm-to-Fork," including environmental, social and health aspects, standardisation and policy. FishEUTrust applies the following approaches:

Core Concept 1: Theory of Change (ToC) and QH of innovation to change the behaviour and increase the trust in seafood products (WP1, W2): ToC describes and illustrates how and why a desired change happens in a particular context and is used to support researchers, business, and institutions in continuously measuring and by tailoring specific actions to maximise their impact. Adopting ToC (Fig. 3), FishEUTrust actions and long-term impact will increase the consumer trust and uptake of seafood.

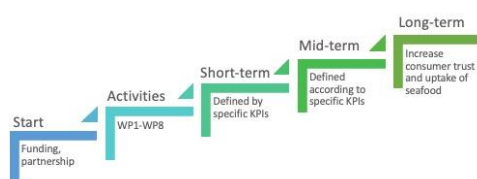


Figure 3. ToC development

addition of society's natural environment (WP1, T1.1). The model acknowledges the crucial urgency of addressing the increase in consumer trust and uptake of seafood and offers a potential win-win scenario across knowledge creation, democracy, and ecology. Adopting this model FishEUTrust aims to co-develop its actions together with target groups, local education systems, the economic system, public authorities, civil societies, and the related environment, to create those conditions that will allow long-term behavioural shifts.

A network of FishEUTrust co-creation living labs (CLL's) will be created in three diverse aquaculture regions: The Mediterranean (ATB, CETGA, Bugenvila), Atlantic (IPMA, CETGA) and N Sea (OXY). CLLs are open innovation ecosystems based on a systematic co-creation approach (Fig. 4). They support preparatory research, engaging and building an ecosystem of all stakeholders and integrating their expectations to be considered in project stages. CLLs have six main features: (i) active user involvement (target groups); (ii) real-life settings (WP1); (iii) testing, validate and demonstrate innovative technologies and solutions (WP4, 5, 7); (iv) multi-stakeholder participation and co-creation (WP1); (v) business approach and exploitation (WP3); (vi) assessment (WP6). CLLs actors will cooperate in developing and testing new technologies, products, services, policy instruments, planning tools, organizational forms, and governance arrangements. The network will be a service infrastructure for the project implementation, from the participatory design and review of the competence framework to innovative tools and solutions validation and demonstration (WP4, WP5) to community engagement (WP2, 3, 7) and dissemination activities (WP8).

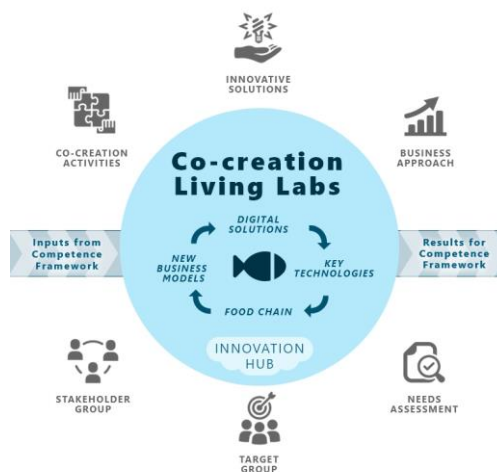


Figure 4. Co-creation Living Labs (CLLs) functioning

Core concept 2: Technological development for quality, safety and traceability in the seafood supply chain (WP4, WP5, WP7)

The technological development includes: (i) suite of tools for determining seafood quality, safety and traceability (Farm-to-Fork) integrating metagenomics (WP4, T4.1), genetic biomarkers (T4.1) and stable isotope approach (T4.2); (ii) digital technologies for traceability based on Product Passport and/or Blockchain, unique identification and labelling of product instances (SEAFOOD^{TOMORROW}, Cobália); and (iii) integrated smart control systems based on sensor technologies to monitor freshness and presence of pathogens, antibiotics and biotoxins along the seafood supply chain. Although FishEUTrust will apply these technologies for seafood supply chain, it has to be stressed that the developed protocols will be readily adaptable to other seafood products and transferable to other food commodities. Nowadays, equipment for DNA extraction is not expensive and affordable for interested fish farms and SMEs.

Core Concept 3: Consider environmental, social and health impacts (WP2-WP6)

The FishEUTrust will adopt the integrated assessment to improve FishEUTrust products environmental, economic and social sustainability, enhance their resilience and ensure their healthiness. A Life-Cycle Thinking (LCT) approach will be adopted. This approach will be based on Life Cycle Assessment (LCA), Environmental Life Cycle Costing (E-LCC), and Social Life Cycle Assessment (S-LCA), allowing the interaction within stakeholders and providing quantitative and qualitative results for both LCT practitioners and non-practitioners. The methodological framework and the Social Life Cycle Assessment will be integrated with a health assessment to evaluate health and well-being. The nutritional value will be modelled and translated into a net health impact using DALYs as a standard unitary measure.

Core Concept 4: Define and maintain a governance (WP3, WP6)

FishEUTrust will need different plans and policies to run and become sustainable. The applicable legal requirements to the project in the context of the environmental sustainability, the compliance of the 'do no significant harm' principle and the environmental objectives of Regulation (EU) 2020/852 and the current relevant legal EU framework for food sustainability labelling in respect to ethical values will be identified. The plans contain a business plan, financial plan and policies covering human resources, access, procurement, data management, and IPR. The FishEUTrust will define plans and policies to run sustainably as an independent organisation after the project. In addition, the DMP will make sure that data collected by FishEUTrust are GDPR compliant.

Core Concept 5: The FishEUTrust innovation platform (WP7): designed in an open way (T7.1) to integrate technologies for seafood transparency (T7.2) and connect consumers and other seafood supply stakeholders and developed applying advanced ICT (e.g., blockchain), AI, data science and HCI (T7.3). The platform will be connected with other relevant European infrastructures (T7.5, T7.6), in order to enable an easy access to harmonised and validated data, tools and services needed to identify any socio-economic and cultural barriers in respect to increase the uptake of seafood as well as to support FishEUTrust businesses and education. The gathered knowledge will serve for educating and nudging the producers and consumers (through gamification in T7.4, e.g., the Kahoot learning platform, virtual games etc.). It will also provide a framework for data integration, unification, analytics and sharing. An ontology will be created and linked with existing ontologies (e.g., FoodOn, ONS, One) to represent the backbone of the formal semantics of the FishEUTrust knowledge. The platform will provide access through two portals, one aimed for consumers and another for aquaculture and food producers from the EU region to provide data (in cases where automated data provision is not supported) and to enable the promotion of their activities and the growth of new businesses. In both portals, technologies for supporting consumer empowerment and engagement strategies will be integrated. Finally, a business model will be developed (in WP3) to enable the sustainability of the FishEUTrust platform after the end of the project.

Core concept 6: Social demands and consumers perspective (WP2, WP4, WP5, WP7):

The concept includes: (i) improvement of traceability in conventional- or e-commerce; (ii) improvement of information about environment, authenticity and safety of seafood products; (iii) increasing confidence and trust. Chemical and biological characteristics of seafood (wild, farmed), feeding products, and products from organic farming will be generated and stored in an open and accessible database. An appropriate analysis of the vulnerability of the seafood supply chain will be performed, and an improved traceability system implemented. Blockchain or similar technology and labelling (benchmark) will be developed as tools to improve product traceability and transparency along the supply chain.

Core Concept 7: Provide key competencies (WP1-8):

The FishEUTrust **consortium will adopt 'multi-actor approach'** including partners from across the complete seafood product supply chain: 20 beneficiaries (9 RTD, 1 International organisation, one NP-SME and 9 SMEs) and two associated partner (EAS, WRG). The integration of FishEUTrust approach is only possible by involving all the actors in the whole supply chain with relevant knowledge and experience that this consortium has. Although some partners have a minor role their involvement is essential for the implementation of the project. The consortium is highly **interdisciplinary**, with each partner specialised in different fields: aquaculture production technology (IPMA, CETGA, ABT, OXY, Bugenvila), food quality, safety authenticity and fish microbiome (JSI, UNIFI, UNIPD, UMF, BTU, IPMA) and assessment (DTU, IPMA, JSI, UNIBO, REDINN). Bugenvila covers the part of food culture by stimulating culinary innovation. The consortium also has expertise in ICT (including HCI and games development) and big data analysis (natural language processing, machine learning, representation learning) (JSI, BELIT, DigitalSmart, EuroFIR, REDINN, ABT, OXY), social sciences and consumer behaviour (UNIBO, WRG, NORCE, BELIT, DigitalSmart), business development, market analysis, regulation and policy (Eurofish, NORCE, REDINN, JdIC) and training and education (JSI, IPMA (EPPO), UNIBO, UNIFI, UNIPD, UMF, BTU, DTU). By introducing innovative and holistic education strategies, FishEUTrust will stimulate behavioural

change and increase consumer trust and uptake of seafood. Innovative education activities will adopt various engagement methods involving different target groups and take advantage of the technological tools of the FishEUTrust platform providing material and tools (e.g., games for kids and adults) to nudge healthy food behaviour and run age-targeted educational campaigns (WP8). Economic considerations are addressed by all ten industrial partners (SMEs) who have dedicated expertise in business development, knowledge transfer, market analysis.

Core Concept 8: Consider relevant target groups and stakeholder knowledge (WP1-WP3, WP6-9):

FishEUTrust will adopt a participatory approach by directly involving target groups and relevant stakeholders in a continuous, participatory, and iterative process (WP1). Target groups will include researchers, public and private institutions: schools, municipalities, youth associations, NGOs, aquaculture and the food industry, SMEs, NGOs, policymakers and regulative bodies. FishEUTrust's main target is the younger generation as a broad category encompassing a gender-balanced mix of pupils and students of different levels, students undertaking vocational training, young professionals and entrepreneurs, young families, and specific vulnerable groups such as migrants. These are the main groups where the changes towards the trust and uptake of seafood can be achieved. FishEUTrust will utilise established CLLs networks, e.g., EPPOs (IPMA), ATB, CETGA, Bugenvila, OXY. For example, 69 visits at EPPOs facilities were organised in the last few years, with 1110 visitors from primary, secondary schools and universities. The young organisation SpoznajPrehrano that supports FishEUTrust represents the communication pathway between the FishEUTrust and the young generation. Equally, the old generation will also be targeted, especially in relation to obtaining a healthy diet to prevent different diseases. This can be achieved by participating in different fairs and organising awareness campaigns. For example, EPPO (IPMA) participated at the Mediterranean Diet Fair (Tavira, Portugal 2018 & 2019) with an outreach of around 60 000 citizens. The **User Stakeholder Group** (USG; WP9) will be built based on the already established networks within CLLs and will comprise representatives from different stakeholders, including fish farmers, the food industry, SMEs, NGOs, policy makers and regulative bodies as a part of WP1. Thanks to FishEUTrust, we count over 3 000 stakeholders who can contribute to the realisation of sustainable aquaculture systems. Public digital (WP7) and non-digital (WP8) engagement will be assured through dedicated dissemination and outreach strategy led by NORCE.

COVID-19 issue: JSI has performed research on food and nutrition issues related to COVID-19. Using artificial intelligence, we explored dietary habits before and during the pandemic. Results clearly show social isolation influenced food choices, and fish especially was significantly less consumed⁵. This outcome was confirmed in another pan-European study conducted classically (collecting data by a questionnaire)⁶. Both studies revealed an interesting fact that during the COVID-19 situation, people followed the seafood diet to a greater extent than pre-pandemic. The COVID-19 pandemic is forcing people to evaluate the existing food alternatives even more profoundly, adopting a more holistic and coordinated approach, including agroecology, organic farming, and other sustainable agricultural practices and improving consumer awareness. Different market opportunities also foster new business models for SMEs. Innovative education activities will adopt various teaching methods involving different target groups. FishEUTrust will take advantage of the technological tools of FishEUTrust platform providing educational material and tools (e.g., games for kids and adults) to nudge healthy food behaviour and run age-targeted educational campaigns (WP7). The current COVID-19 pandemic has highlighted the digital divide within communities and among generations and the detrimental effects of poor online teaching tools and strategies. The implementation of the pilots and the use of e-learning provide opportunities and the means to support teachers, educators and animators by offering innovative and effective educational tools that also support distance learning.

Relevant national and international research and innovation activities: FishEUTrust will benefit from a transnational EU consortium building on the previous and ongoing projects (Table 1.3b). It will also provide knowledge and support for the national Smart Specialisation Strategy (S4) priority areas focusing on specific domains such as Networks for the Transition to a Circular Economy, Sustainable Food and Health-Medicine. Education and innovation are also part of two ITN projects coordinated by the JSI (GMOS-Train and FoodTraNet) and RISE project MERFISH. Further, the FishEUTrust hub will be placed in the ESFRI system, e.g., METROFOOD-RI, promoting metrology in food and nutrition, and FNS-Cloud (<https://www.fns-cloud.eu>) that provides food data services, and COMFOCUS (<https://fnhri.eu/projects/comfocus/>) which is dedicated to consumer science. The JSI is part of the Group of European Data Experts in Research Data Alliance (GEDE), which works on the concept of FAIR Digital Objects and canonical workflow frameworks for open science. JSI has also helped develop the FoodOn ontology (<https://foodon.org>) and coordinates the CAFETERIA project for the European Food Safety Agency (EFSA) to develop semantic resources using artificial intelligence. Other relevant EU projects and their relation to FishEUTrust are presented in administrative part of the partner description and listed in Table 1.3a.

Table 1.3a: Relevant projects linked to FishEUTrust

Project (Funding, Type)	FishEUTrust Partner/s	Relevance and synergies for FishEUTrust
FNS-Cloud H2020 (2019-2023)	JSI, UNIFI, EuroFIR, JdIC, DTU	FishEUTrust will integrate all project data on similar principles considering the EOSC basis (WP4, WP7)
GMOS-Train H2020 (2020-2024); MERFISH H2020, (2021-2024)	JSI, REDINN	Knowledge development about the Hg transport, sources and contamination in the environment and food web including sea, offering insight into human health risks and benefits (WP6)
PRORISK H2020 (2020-2024)	DTU	Best chemical risk assessment professionals for maximum Ecosystem Services benefit (WP6)

FoodTraNet H2020, MSCA (2021-2025)	JSI, WRG	Authenticity and traceability, investigation of consumer behaviour increasing the trust and uptake of seafood, an education and training network in food science (WP2, WP4, WP7)
PerformFISH	Eurofish, CETGA, UNIPD, UNIBO	EU funded collaborative project to increase the competitiveness and sea bream and sea bass production. Consumer driven production (WP2, WP3)
COMFOCUS H2020 (2021-2025)	JSI, UNIBO	Behavioural economic approaches and consumer acceptance (WP2), policy analysis (WP7, WP6)
FOOD-E H2020 (2020-2024)	UNIBO	Sustainability assessment integrating LCA, LCC and SLCA (WP5), business model development (WP3)
REFRESH H2020 (2015-2019)	JSI, UNIBO	Sustainability assessment integrating LCA and LCC (WP6), behavioral economic approaches and consumer acceptance (WP2), policy analysis (WP3, WP6)
H2020-iFishIENCI	OXY, ABT, NORCE	Development of IoT/AI solutions for monitoring and optimizing fish breeding, welfare and feeding. Engaging with consumers and policy-makers (WP7)
PRIMA: 4CEMED (2020-2023)	UNIBO	Sustainability assessment integrating LCA and LCC (WP6)
AQUATRACE	UNIPD	EU funded collaborative project on the development of genomic tools to trace wild and farmed sea bream and sea bass (WP4)
FISHEALTH	CETGA	Control infectious and parasitic diseases in livestock and aquaculture production (WP5, WP6)
DEMETER H2020 (2019-2023)	DigitalSmart	Interoperability of smart agri-food platforms, traceability, data information models (WP7)

Methodology: The concepts and methodologies are combined in a work plan articulated across eight work packages (WPs) that will run for 48 months (Figure 3). FishEUTrust structures its innovative work plan in two main phases: Phase 1 - Capacity building and Phase 2 - Integration and maximisation of impacts with demonstration and validation as the intermediate phase.

PHASE I: Capacity building; Demonstration & validation

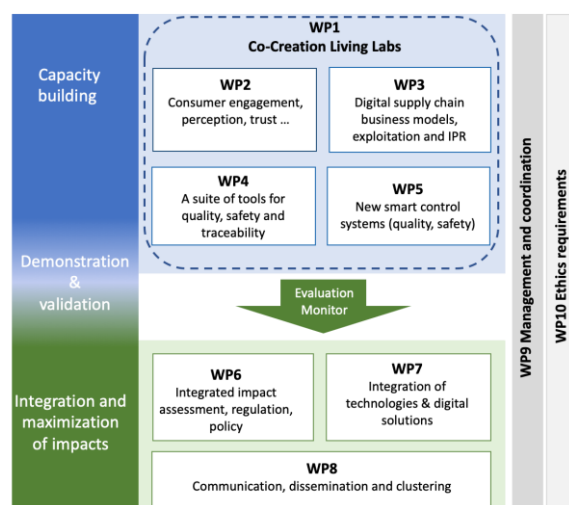


Figure 5. WP scheme with shortened WP titles

The project's work begins with a 'start-up' phase, which is initiated by **WP1: Establish Co-Creation Living Labs (led by IPMA; MI-M45)** and focuses on the development of the concept for a co-creation process to be applied throughout the project, ensuring that a systemic multi-actor approach is implemented in each development step to collaboratively provide a framework to understand consumer expectations, design innovative products, assess their sustainability, and to demonstrate their benefits. An integrated map of local networks of stakeholders and a contextual analysis will establish LLs in partner countries: IPMA (PT), CETGA (ES), ABT (MT), Bugenvila (HR) and OXY (DK), covering three different areas Mediterranean, Atlantic and North Sea integrating across all sectors of the value chain to support the development, test and validation of the FishEUTrust deliverables. At the same time, it should be mentioned that PT, ES, MT and DK have the highest consumption rate of fish in EU. The LLs covers aquaculture (IPMA, CETGA, ABT), gastronomy sector (Bugenvila) and industrial partner developing aquafarm systems

and control technologies (OXY). Pilot innovative aquaculture ecosystems will be established at three different locations: IPMA, CETGA, ABT. These systems work with methods and actions designed to satisfy the local particularities, ranging in size, geography, population, climate, economy and traditions. EPPO at IPMA is a marine core facility dedicated to performing research and technological development on an industrial scale, while ABT is a SME using biosecure and fully licensed land-based (RAS) recirculating aquaculture facilities that are based in MT. CETGA acts as a focal point for several aquaculture companies and companies who manufactured the seafood products covering Atlantic and Mediterranean region. The OXY as a CLL will identify what data, when and how they can be used and the development of standards for e.g. carbon footprint. Drawing on the results of a preliminary SWOT analysis realised before the start of the project, a complete contextual analysis will be carried out (T1.2) based on SWOT and PESTEL approaches for each CLL. Following this, a participatory Pilot Contextual Analysis workshop will be carried out to engage selected stakeholders (T1.1), identify existing best practices for setting up and managing the CLLs, and validate the SWOT and PESTEL analyses. T1.3 will build on the stakeholder mapping performed in T1.1 and will develop the international web of LLs and identify cross-pollination potential to inform T1.5. Validation of CLL through operation and coordination to establish a sustainability roadmap will be achieved in T1.4 with the consumer engagement (WP2) and the selected new technologies: suite of tools for determination, safety quality and traceability (WP4), and new smart monitoring systems (WP5) and digital

technologies. **The developed open platform for cross-pollination (T1.5)** will entail adapting existing pilots to other target groups, the EU food sector or different cultural environments. The CLLs and the pilots will bring together several actors (schools, training institutions, and universities) and empower people and communities towards change at the collective level through participatory processes and cross-cutting actions including the ToC approach.

WP2 deals with **designing and validating an initial tailored set of intervention strategies to stimulate behavioural change, increase consumer trust, and promote FishEUTrust solutions (led by UNIBO; M1-M40)**. It focuses on identifying socio-economic and cultural barriers, assessing consumer awareness, and accepting innovations that will define the characteristics of more appealing innovations for different groups of consumers as the platform for the promotion and consumer empowerment strategies. This WP is strongly interrelated with WP1 (to engage consumers into co-creation), with WP6 (to provide inputs to the impact assessment), WP3 (to inform the development of innovative business models), digital consumer engagement in WP7 and with WP8 (that will deal with communication and dissemination). WP2 will map consumer expectations to identify selected countries' (Mediterranean, Atlantic, North & Central) characteristics and behaviour drivers (T2.1). It will build on and extend existing knowledge of consumer perceptions, motivations, drivers and practices from previous projects and research (i.e. H2020 REFRESH, H2020 and COMFOCUS) and will take advantage of the results of stakeholder engagement in WP1, to co-design innovations and activities. The activities include a systematic review and analysis, completed via mapping consumer expectations, and identify key characteristics of consumer groups related to fish-based products across Atlantic, Central & Northern, and Mediterranean EU countries. T2.1 will assess consumers expectations toward sustainable food products in the target countries. Homogenous clusters (groups) of Mediterranean consumers from the target countries will be identified through a survey investigating the drivers of food choices of statistically representative samples (T2.2). The assessment of consumer awareness and acceptance of innovations will be conducted using a behavioural economics approach in T2.3. It will include *mapping determinants of consumer decision-making processes to inform intervention strategy development* (T2.3.1) and *sensory and hedonistic analyses of products to inform intervention strategy development* (T2.3.2). Results will define the characteristics of products/innovations that are more appealing for different target consumer groups and will define the most effective monetary and non-monetary interventions that will increase demand for FishEUTrust products (T2.4). Results from T2.4 will serve as data-driven support for the definition of effective nudging strategies and policies for FishEUTrust products. All work will be carried out following ethical recommendations and protocols.

Developing and exploiting of efficient and sustainable digital supply chain and business models is the subject of WP3 (*led by Eurofish; M1-M45*). Business models will be developed based on the already existing and updated mapping of stakeholders - and on the identification of new opportunities based on the developed technologies and data operability. Critically this will also include identification of major bottlenecks, barriers, and challenges within the supply chain to define appropriate mitigating business strategies. FishEUTrust will target specific EU areas, Mediterranean, Atlantic and N Sea, targeting specific business models that will be demonstrated and assessed in collaboration with WP2 and WP8 networking regarding consumer acceptance and respect to existing alternatives on the market (T3.1). The business model will also evaluate the underused fish species that holds potential for human consumption and are underexplored for this use, like sand eel, and EU sprat. The business model will also evaluate the underused fish species that holds potential for human consumption and are underexplored for this use, like the sand eel and EU sprat. They will be analysed concerning increasing intake per capita in the EU. Furthermore, the policy and legislative requirements will be defined and validated (T3.2). WP3 will also transform results from WP1-2 and WP5-7 into exploitable products and services. This will ensure the exploitation of the FishEUTrust outcomes, i.e., their uptake and utilisation from identified end-users and stakeholders, as well as from the project partners primarily at the market level (including societal acceptance) and, secondarily; through collaborations with WP1 and WP7 and through collaboration with WP2 and WP6, at the scientific level (T3.3). The strategy for comprehensive IPR management and sources of investment funding for sustainability will be investigated in T3.4. The validation of a capacity building roadmap to increase the capacity of end-users and stakeholders to replicate and customise the business models proposed by FishEUTrust and to develop individual business plans will be performed in T3.5.

WP4: Advanced suite of tools for seafood quality, safety and traceability within the supply chain (led by UNIFI; M1-M36) will integrate three different approaches: microbiome, genetic biomarkers and stable isotopes. Metagenomic analysis will employ a targeted approach, a targeted approach, 16S 1-4 (Bacteria) and ITS 1 intergenic region (fungi), to produce taxonomical profiles associated with the variables. In addition to the targeted approach, the shotgun metagenomic will also be performed, allowing the identification of pathways associated with detoxification. In order to assess traceability with a high level of objectivity, advanced machine learning algorithms will be used to assess taxonomical profiles and associate them with selected variables. The untargeted approach using shotgun metagenomics will also allow studying biological functions and pathways as a relation of fish diet and fish origin, thus potentially inferring features associated with fish freshness, quality and taste also differentiating wild fish from farmed fish, thanks to the integration of our data (T4.3) with the outcome of WP5 (T5.4). Using Shotgun data analysed as previously described, we will further study the presence and origin of resistance genes and intercellular mobile groups. This will enable us to assess the impact of human activities involving antibiotics on farmed fish. Microbiome profiling will be crucial for shellfish since it could identify known human pathogens (e.g. *Vibrio* spp), other potential harmful microbial species, and the presence of antibiotic-resistant bacteria. Analysing the “resistome” will provide evidence for bacterial species carrying antibiotic resistance genes. Based on the data evaluation, we will identify relevant antibiotics, representing an input for sensors developed

within T5.3 (WP5). Further, the data will help spearhead a discussion around regulations and certification relating to organic standards and acceptance of different aquafarm production systems (WP3, T3.2). The novel microbiome traceability method will be compared with the genomic approach and stable isotope methodology, resulting in testing protocols to ensure consumer trust in certification of origin of fish (T4.2). Further, metagenomic methods will be benchmarked against standard methods, such as mass spectrometry, nanoparticle-assisted microextraction, proteomic methods, performed in laboratory conditions (IPMA) and developed sensors technologies for the determination of pathogens (*E.coli*, *Salmonella*) and biotoxins (DSP, ASP, PSP) in WP5. To minimise costs, we will select the “minimum” number of diagnostic “markers” (either bacterial or genetic). Machine learning algorithms applied to neural networks will enable in collaboration with WP7 to develop a limited number of diagnostic bacteria that can provide the answer eventually by Real-Time PCR or specifically tailored biosensors. The same applies to genetic markers, where we will identify the minimum number of SNPs able to discriminate wild vs aquaculture and, for wild pops, possibly the geographic origin. More substantial statistical power can come from combining tools that may reduce the number of markers for each tool. An added value of T4.3 will be a set of novel bacterial species and genes useful as biomarkers in WP5. Based on the results, a food data platform will be established (T4.5) and included in the FishEUTrust platform (WP7) to verify the origin, safety, quality and sustainability of fish and seafood products to boost consumer uptake and trust. The demonstration and validation of tools will be performed in collaboration with LLs IPMA, ABT and CETGA.

WP5: Smart control systems for monitoring the quality and safety in seafood production and supply chain (led by UMF, M1- M36) Two smart control systems will be developed: one used for freshness addressed to consumers and one platform applicable to fish farms providing information about the presence of pathogens, biotoxins and antibiotics (T5.6). The main targets will be correlated with the finding from WP4, where the presence of genes of antimicrobial resistance will be correlated with the persistent presence of antibiotics (either from human intervention or self-produced by some species). The sensors will be tested on real samples, with the sea bream as a fish model and mussels as a species of seafood widely produced in aquaculture farms. First, the development and validation of a nanostructured system for sensors will be developed (T5.1). Sensors based on nanostructured materials will mainly consist of metal and metal oxide nanoparticles. This development will include three steps: preparation, functionalisation and characterisation using microscopic, spectroscopic, and electrochemical techniques. These sensors will be further used in T5.2 and T5.5. The integrative test tools and sensors based on electrochemical response and redox fingerprint for pathogen bacteria will be developed in T5.2 with *Salmonella* and *E. coli* as targeted bacteria. The development steps include detecting bacteria through its virulence factor, validating the sensors in real samples, and validating sensor performance with ABT and Bugenvila as end-users. Recent advances in the development of (bio)sensors are represented by biomimetic sensors, adaptable to various target molecules, using molecularly imprinted polymers (MIPs) or aptamers. This approach will be used to detect the presence of targeted antibiotics at low concentrations (T5.3). The targeted antibiotics will be identified using microbiome analysis developed in T4.1 (WP5). This process will involve developing novel MIPs and highly specific aptamers, selecting aptamers for targeted antibiotics and validating sensor performance. Based on the experience of the BTU, who have recently developed a freshness sensor that reached a TRL3/4 T5.4 aims to develop an innovative detection device-oriented to consumers as a virtual sensor array that simultaneously determines Total Volatile Basic Nitrogen (TVN-B) and other compounds of the fish to help the consumer decide if the food is fresh. The work will include developing an electronic measurement system, experimental analysis of fish samples, and the acquisition of experimental data on sensor response to the headspace of fish with different storage times. In addition, fabrication of the prototype of a simplified sensor for fish freshness will be made. The sensor will be based on the same structure but without control of the redox state of the chemosensitive layer and without using the concept of a virtual sensor array. It is more straightforward but less selective. Validation of sensor performance will be performed with ABT and Bugenvila. In T5.5, the innovative electrochemical portable analytical devices, such as aptamer-based sensors, will be developed for Diarrhetic shellfish poisoning (DSP) Paralytic shellfish poisoning (PSP) detection. The steps will include designing aptasensors, validating aptasensor performance, and validating in real systems (ABT). All the data will be stored in the FishEUTrust platform (WP7).

PHASE II: Integration and maximization of impacts

Three WPs will build on the project results and represent its interaction with external parties to increase transparency and traceability in fish supply chain and consumer trust and uptake of seafood.

The outcomes from the previous phases will be evaluated to verify and validate the effectiveness of the pilot clusters.

WP6: Integrated impact assessment to quantify environmental footprint, nutritional value, sustainability, safety, traceability and socio-economic benefits of FishEUTrust approaches (led by DTU; M9–M42), will develop and implement an integrated suite of tools to assess the risk, origin, nutrition values, environmental and human health impacts, and socio-economic impacts of innovative sustainable aquaculture systems (T6.3). In T6.1 data collection procedures for the inventory phase will be developed. Data will be gathered for all relevant inputs and outputs for each life cycle stage, activity types, processes and elementary flows. T6.2 will quantify the health, environmental, economic and social impacts of FishEUTrust systems (CLLs in aquafarms, innovative technologies and seafood products) by performing an integrated sustainability assessment on the entire life cycle of these systems, including effects of enhanced consumer uptake on overall carbon footprint (e.g. reduced food miles and energy usage). Health, environmental, economic and social implications will be explored, and hot spots and key risks regarding the three pillars of sustainability will be identified and delivered to WP1-WP5, as basis for improvements. These data will support an integrated sustainability assessment of FishEUTrust by exploring environmental, economic, social and public health impacts and provide a roadmap for the

improvement and sustainable growth of FishEUTrust products (T6.3). After verification, the upscaling phase will allow stakeholders at the local, national, and international levels to conceptualise and exploit the results. Further, the results will comply with the current relevant legal framework and the future EU framework for food sustainability labelling.

The *integration of technologies for transparent seafood value chain and digital solutions for promotion and consumer awareness and empowerment for EU fish consumption will be developed in WP7 (led by JSI; M1-M46)*. FishEUTrust aims to select, optimise and implement various engagement strategies to nudge consumers' behaviour towards increased trust in and uptake of seafood (T6.1). Empowerment strategies will be developed considering both perspectives: to create (new food products) and to select (different alternatives of the final product). Information required for bringing well-informed decisions by consumers and other target groups will be provided through the FishEUTrust platform (nudging content and tools, such as virtual games) and in person, at the events organised by aquaculture and food producer partners (in collaboration with WP8). FishEUTrust will develop the FishEUTrust platform to: i) explore drivers of consumption patterns and lifestyles (WP2); ii) integrate technologies for seafood transparency (WP7); and iii) shape consumer food choices towards more sustainable diet, taking into account behaviours, economics and food environment issues (WP3-6). The beta version of the FishEUTrust platform will be tested for usability, validated in the LLs and released in T7.5. It will be promoted via the project's website and other dissemination channels (in collaboration with WP8).

A strategy for dissemination of the results (**WP8; Communication, dissemination and clustering**) (*led by WRG; M1-M48*) is crucial to describe and ensure that results of the project are available to everyone, to connect the partners and stakeholders and to reach diverse audiences, such as international organisations and networks. FishEUTrust will advance the state-of-art by providing innovative tools for elaborating effective education and communication strategies tailored to policymakers' and stakeholders' needs. These tools include communication plans and marketing materials to ensure efficient and effective dissemination of knowledge and results. These materials will be disseminated under an open-access license through the FishEUTrust platform and on social media channels, with the support of selected influencers (USG). The FishEUTrust Consortium will also include the outputs, results and resources developed within the context of other EU projects (extended from table 1.3a, page 10)) allowing international coordination for efficient use of resources, sharing outcomes and results in a participatory and inclusive way, thereby exploiting synergies and maximising societal impacts.

WP9: Management and Coordination (*led by JSI; M1-M48*): will ensure the timely coordination and execution of project activities and clear-sighted strategic planning, financial control, quality monitoring, risk analysis, and financial and administrative management that conforms to the Consortium agreement and EC rules involving equity and gender issues. The fact that several partners have already collaborated in other projects will facilitate both coordination and management procedures. The project management structure is based on the DESCA 3.0 model Consortium Agreement. It comprises two decision-making bodies, the **General Assembly (GA)** and the **Executive Board (EB)**. The GA will include one participant per partner and will meet at least once per year in conjunction with EB meetings or upon request of 50% of the GA or EB members. Representatives will attend the project midterm and final review together with a representative of the Commission. It is the ultimate decision-making body of the project for major issues like making changes such as the PC or EB members, major changes to the work plan, budget reallocations, IPR, entrance/leave of Beneficiaries and other non-technical matters including amendments to Annex I of the Grant Agreement and reallocation of funds. The EB is the operational management body of the project responsible for the efficient implementation of the project. It consists of the coordinator & WP leaders with the project coordinator (PC) being chairman. An **External Expert Advisory Board (EEAB)** will be established to direct interactions with key stakeholders to achieve balanced interest accelerate uptake, promote user engagement and bring in expertise from outside the consortium. Currently, EAS, SRIP Food expressed their support throughout the letter of support. **User Stakeholders Group (USG)** will also be set up from will also be set up from stakeholders from ministries and their agencies, NGOs, academics, and industry representatives. The project has three management structures and decision-making processes: Scientific & administrative management; Innovation and exploitation management, and Data management. The structure is summarised in the accompanying diagram (Fig. 6).

Scientific & administrative management

JSI as Coordinator supervises the Programme execution and acts as the intermediary with the European Commission, as defined in the Rules for Participation. Nives Ogrinc (PC) has considerable experience in national and international project management and has completed several FP7 and H2020. Currently, she is a coordinator of the ITN project FoodTraNet. **The Project Manager (PM)**, Ms Vanja Usenik, will be assisted by other management support team members made up of highly skilled administration, finance, accounting, and legal professionals. The PC will act as the Executive Manager. **Siân Astley (EuroFIR)** will be the **Gender Officer**. **The ethical Officer** will be Matteo Vittuari (UNIBO), whose primary responsibility will be monitoring any ongoing ethical considerations of individual research activities.

Innovation & exploitation management

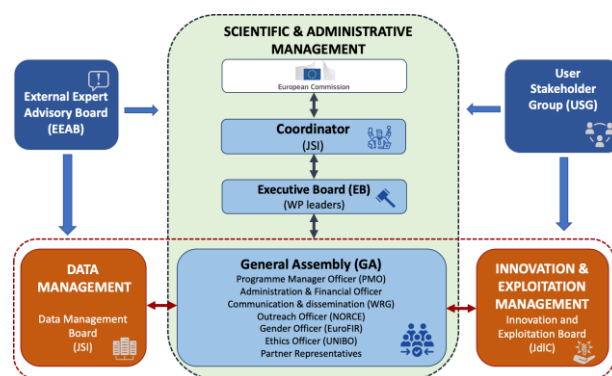


Figure 6. Schematic diagram of the management structure

The **Innovation and Exploitation Board (IEB)** will monitor the project innovations and their possible exploitation, taking into account IP management. It will be coordinated by the **Innovation Manager** Javier de la Cueva (JdIC). The JdIC will guide the innovation management strategy throughout the project towards commercialisation of project results considering the technological aspects, improved or adapted products/services with an exploitable capacity.

Data management

The Data Management Board (DMB) will manage data generated during the project. It will be coordinated by the **Data Manager**, Barbara Koroušić-Seljak (JSI), and a comprehensive DMP will be developed to detail how and what data and metadata will be exploited or made accessible for verification and re-use (with respect to the FAIR principles), and how it will be preserved.

Communication, meetings and reporting

Communication & dissemination Officer Mark Langley (WRG) is the WP8 leader and will lead external communication. The **Outreach Officer** is Dominique D. Durand (NORCE), a WP8 team member and leader of T8.5. His primary responsibility will be to establish contacts with relevant stakeholders and representatives of administration, governing, and standardization sectors – both at public and research levels – and establish and maintain close links with other organizations investing interest in the project programme. While WP8 covers external communication, internal communication is the responsibility of the PC and the WPLs. Consortium meetings will be two-day meetings at 6 – 12-month intervals and will coincide with GA meetings. Although interactive meetings are essential to internal communication, two-day face-to-face meetings have been proven to enable more detailed scientific and technological discussions. FishEUTrust proposes four GA face-to-face meetings, while other meetings will be virtual using different communication tools, such as Zoom, Microsoft Teams and Twist. Also, dissemination events, site visits and training events, where possible, will be arranged in conjunction with the meetings. Mid-period internal reporting (M24) will consist of drafts for the periodic reports and will assure the quality and early recognition of deviations. Together with the management support team, the coordinator will review cost reports (from each partner). The WPL will check WP progress reports (per task and WP) against the DoA (deliverables and the fulfilment of milestones), which will be checked by the coordinator and selected partners.

Social sciences and humanities: The social sciences and humanities are fundamental to the FishEUTrust concept and methodology of approach, which focuses on the translational components required to maximise the resultant impact and benefit from utilising the established research products across the whole value chain from sea to fork. The integration of the developed technologies across the diverse value chain will be built on a platform of informed feedback from and analysis of stakeholders, actors and consumer sectors. A range of social science, socio-economic, business and marketing, tools will be employed across 3 dedicated work packages (see WP2, WP3 & WP8 for details). This cross-cutting approach bridging the respective boundaries will provide key data and insights in respect of the interrelationships and preferences across the European fish supply chain and consumer sector outlooks, which will directly inform and guide the technological developments throughout the project. In addition, by focusing on the identification of socio-economic and cultural barriers, assessing consumer awareness, and validating innovations that will define the characteristics of more appealing approaches for different groups of consumers FishEUTrust is designed to provide a ground-breaking strategic platform for the promotion and enabling of consumer empowerment strategies to increase consumer awareness, engagement, and confidence.

Gender issues: The FishEUTrust beneficiaries are committed to a work environment in which all individuals are treated with respect and dignity. The consortium believe that everyone has the right to work in a professional environment that promotes equal employment opportunity and prohibits discriminatory practices. Equal opportunities and access to the labour market, and the social rights enshrined therein, are fundamental principles governing the activities of the FishEUTrust consortium. They shall also ensure that FishEUTrust in the short-, medium- and longer-terms promotes actively that assignments and advancement must be based on personal capabilities and qualifications, without regard to race, colour, sex, gender identification, language, religion, political or other opinion, national or social origin, property or birth. In terms of HR, FishEUTrust is committed to ensuring a balance between (those identifying as) women and men in the various teams implementing the project. FishEUTrust will monitor representation and publish and implement a gender action plan across all WPs via WP9. The consortium is composed of men and women, with both genders are leading and participating in WPs and contributing to decision-making processes throughout the project, but FishEUTrust acknowledges that improving female participation in research requires actions with respect to recruitment, working conditions, monitoring, and management. FishEUTrust will not only monitor representation women within activities, but also seek actively to address inequality. Finally, FishEUTrust will address gender dimensions in research and innovation by facilitating inclusion of sex and gender as key analytical and explanatory variables in research and promoting understanding that, if sex and gender issues are missed or poorly addressed, research results will be partial and potentially biased, sex and gender are important factors in research excellence, and research resources must be devoted to specific sex and gender research. In this respect the T9.3 (WP9) will develop an appropriate Gender Action Plan.

Open access to scientific publications is obligatory in H2020. The Gold open access model will be applied for FishEUTrust scientific publications, as the comprehensive dissemination and exploitation programme in WP8 will target and reach all involved actors and stakeholders within the respective aquaculture sectors and the research community. Thus, enabling rapid and inclusive awareness to facilitate swift uptake within the sectors. The consortium is aware of open science publication and their impact—for example, Dr. Jolliet's (DTU) work on healthy and sustainable foods and products in

Nature food (e.g. “36 minutes of healthy life lost per hot dog!”) has been reported by more than 1000 news media, reaching 50+ million individuals worldwide, with the potential to induce significant behavioural changes (120,000 likes on CNN Instagram). All scientific publications will be deposited via OpenAIRE in the lead authors’ institutions repository or, were not available, in the centralised, EC-supported, Zenodo repository.

Open access to the data: The data will be available in a public repository. According to an exhaustive analysis we have performed among the existing database, the three most relevant are considered:

a. ZENODO: A multi-disciplinary open repository maintained by CERN. Datasets, documents and other research materials can be located via the Zenodo search engine. Scholars from any research discipline can upload data in any file format. A digital object identifier (DOI) is automatically assigned to all Zenodo files.

b. FIGSHARE: A repository where users can make all their research outputs available in a citable, shareable, and discoverable manner. According to the FAIR principles, this general and public repository allows users to publish up to 100 GB of data for free. In addition, it is integrated with the Scientific Data manuscript submission system.

c. Open Science Framework (OSF): The OSF supports the entire research lifecycle: planning, execution, reporting, archiving, and discovery. Features include automated versioning, logging of all actions, collaboration support, free and unlimited file storage, registrations, and connections to other tools/services (i.e., Dropbox, Figshare, Amazon S3, Dataverse, GitHub). It is 100% free, open-source, and intended for use in all domain areas. However, it is not integrated with the Scientific Data manuscript submission system. The regulations related to the Open Science following the role ‘as open as possible, as closed as necessary’ in compliance with GDPR are part of T3.3 (WP3).

Data management and management of other research outputs

FishEUTrust will comply with all the requirements of Horizon Europe as described in Article 15 of the Grant Agreement, in compliance with the applicable EU, international and national law on data protection, in particular Regulation 2016/679. A DMP will be prepared in M6 to describe the data management life cycle for data to be collected, processed and/ or generated by the project. As part of making research data findable, accessible, interoperable and re-usable (FAIR), the DMP will include information on: i) how research data during & after the end of the project will be handled; ii) what data will be collected, processed and/ or generated; iii) which methodology & standards will be applied; iv) whether data will be shared/ made open access; and v) how data will be curated and preserved (also after the end of the project). The DMP will follow the following template:

1. Data description. Datasets that will be used:

- Databases for traceability using stable isotope approach (updated www.foodtrack.ijs.si); ii) Marine metagenomics studies consist of large datasets, confronting our fish data with marine metagenomics data will be essential to detect biomarkers of human contamination, the latest exploration of marine datasets derives from the TARA project, (<https://www.ocean-microbiome.org/>).
- FishEUTrust datasets will be compared through queries with the Marine Metagenomics Portal (MMP), i.e., freely accessible microbial genomics and metagenomics reference databases that include: i) MarRef: a database for completely sequenced marine prokaryotic genomes, ii) MarDB: a database of sequenced marine prokaryotic genomes regardless of level of completeness; iii) MarCat: a catalogue of marine genes and proteins derived from metagenomics samples; iv) TSoneDB: a database for fungal ITS1 sequences; v) The MMP also includes a search engine that you can use to query all databases at once; vi) We will contribute to the MMP from Elixir a FISH Metagenomics database (FMD) where we will include annotate all the data and metadata from the Salmon metagenomics⁴, Codfish metagenomics⁵ and other datasets of interest available in the public domain, starting from those reviewed from Tarnecki et al⁶.
- Other datasets include: i) Raw data generated by different technologies (suite of tools for safety, quality, traceability (WP4); smart monitoring devices (WP5)); ii) Data coming from focus groups and interviews (WP2); iii) Aggregated data – the results obtained by Cobália that allow data collected during the production (including feed source, water quality, fish, medications, health reports, fish characteristics at delivery to slaughter); and iv) Data and results coming from other research activities.

2. Data collection methods

- Manual collection of the data
- The main instrument to collect sequence data will be the Illumina NovaSeq and Illumina miSeq sequencers at University of Florence. Collecting, analysing, archiving and browsing metagenomic data will be performed using [MGnify](#) and the resources provided by Elixir. By a direct collaboration with the Marine metagenomics community in Elixir we will contribute to the development of the META-pipeline a free resource for analysing, archiving and browsing metagenomic datasets. Metadata including geolocalization of the samples, fish size, origin, and fisheries will be included according to the EU standard required in the traceability project.
- Other metadata including those from analytic chemistry, NMR, metabolomics, fatty acids etc, will be annotated using the proper ontologies, (FOODON, CHEBI, ONS) using standard and machine searchable ontological terms also through the collaboration with the Elixir-EU metabolomics community and the <https://elixir->

⁴ <https://www.mdpi.com/2076-2607/8/12/1861/htm>

⁵ https://journals.asm.org/doi/10.1128/AEM.02788-19?url_ver=Z39.88-2003&rft_id=ori:rid:crossref.org&rft_dat=cr_pub%20%200pubmed

⁶ <https://sfamjournals.onlinelibrary.wiley.com/doi/full/10.1111/jam.13415>

europe.org/communities/metabolomics, and the Food and nutrition community.

- Cobália is designed to receive sensor and other data such as welfare and disease as these become available.
3. **Documentation and metadata associated to the datasets:** The following metadata will accompany the data: a) Research protocol: This document will contain information on CLLs' design, sampling methodology, fieldwork, reliability measures used and all information necessary for a secondary analyst to understand the study design and reproduce the study. This research protocol will be recorded in a readme.text file; b) Standardized codebook: Definition of variables. This codebook will specify the procedures used to codify the data. This codebook will be recorded in a readme.text file; c) Syntax: This document will describe the algorithms used to analyse the data. This file will be recorded in a readme.text file.
 4. **Ethical and legal issues:** FishEUTrust will comply with the Ethics requirements laid down in the Horizon Europe Grant Agreement in Article 14 and in Annex 5. The procedures and criteria that will be used to identify/ recruit research participants, the informed consent procedures that will be implemented for the participation of humans and the templates of the informed consent/ assent forms and information sheets (in language and terms intelligible to the participants) will be submitted as deliverables. More information is provided in the Ethical part.
 5. **Costs & Allocation of Resources:** Currently no costs are expected for the big volume of data storage. SLING - The Slovenian national supercomputing network is available for researchers in universities, research institutions and industrial development centers who need significant computing capacities to run compute-intensive algorithms and massively parallel algorithms (HPC/supercomputing) and use distributed processing of large numbers of tasks across several clusters (compute grid, HTC/high throughput computing) and big data processing. The network provides access to cluster-based Slovenian and international computing and storage capacities. It is available to eligible ARNES network users, members of industry research teams and SLING members. As part of international collaborations and projects, users can also access the network through the EGI network and collaborations, such as ELIXIR and CLARIN. In case that the situation would change and possible effective commercialization of some deliverables would occur, the situation will be considered and included in the Data Management Plan (WP9).

2. Impact

2.1 Project's pathways towards impact

In 2018, the EU produced 5.7 million tonnes of fishery products of which live catches amounted to 4.6 million tonnes with one fifth (1.1 million tonnes) from aquaculture. The EU is also the world's second-largest seafood importer (\$19.8 billion 2020), with 55% of the seafood consumed coming from outside EU borders, with developing countries account for about half of the imports. This creates a substantial opportunity to supplant these imports with high-quality, authenticated local fish alternatives. The growing demand by consumers for environmental information, and to a smaller extent for ethical and social information, confirms the relevance of adopting a Farm-to-Fork strategy and empowering consumers to choose sustainable food. This trend is also evidenced by the success of sustainability certifications across the whole of Europe, i.e., those awarded by the Marine Stewardship Council (MSC) and the Aquaculture Stewardship Council (ASC). That said, European consumers are also keen to have additional information on the fish they buy. 76% of them would like to see the date of catch/harvest on the label. In addition, environmental information has gained interest since 2018 (+ 5 percentage points), with 44% of consumers declaring that this should appear on the label.

Traceability is also key to reducing food waste and ensuring that all EU food products are safe for consumers. This traceability and permanent monitoring of the supply chain gets even more crucial when products must be kept refrigerated, as in seafood. Nevertheless, singularities of the seafood supply chain, such as its global trade character and complex value chains, make it challenging to identify the origin and history of seafood products consistently.

Impact Goal Strategy (via Target Industrial, SME, Policy, and Consumer Groups)

It is the central goal of FishEUTrust to move consumer trends and behaviours towards increased sustainable, authenticated seafood consumption from European and local sources through its innovative solutions, combining smart control systems for safety and quality, advanced suite of tools integrating microbiome, genetic and stable isotope approaches and advanced digital technologies/solutions to assure quality, safety and traceability in the seafood supply chain and with comprehensive engagement strategies and business models. Specifically:

- (i) introducing innovative, demonstrable CLLs, modern logistic mechanisms (short food supply chain -see Section 1 for more detail), and increased food traceability (via smart control systems - sensors, suite of tools integrating fish microbiome, genetic and stable isotope approaches, digital technologies/solutions);
- (ii) comparing new seafood production technologies such as recirculating aquaculture systems (RAS) to wild caught fish and fish produced through other aquaculture production methods (including organic) in terms of safety, quality and traceability to help spearhead a discussion around regulations and certification relating to organic standards;
- (iii) carrying out effective communication and dissemination; developing an innovative FishEUTrust hub (integrated with other relevant European infrastructures) to connect consumers, producers, policymakers and other stakeholders, and providing the means for data provenance and transparent information exchange across the supply chain;
- (iv) introducing evidence-based engagement and education to inform citizens, with a focus on seafood authenticity, sustainability and health/nutrition, including targeting schools, and marginalised communities;

- (v) nurturing industrial and SME entrepreneurial and exploitation instinct through more informed/targeted business models, talent networking, capacity building, and e-commerce.

It should be noted that this project will serve as an exemplar that will allow the adoption of the technologies and solutions for other fish and shellfish species, other countries, and even other food sectors such as meat.

2.1.1 Pathway to achieving the expected outcomes and impacts in the work programme (*scale & significance*)

The primary Destination to which this call relates is “**fair, healthy and environment-friendly food systems from primary production to consumption**”. The ultimate long-term vision of this project is that Europe achieves a “gold-standard” stamp of quality on seafood packaging (date of catch, origin, etc.) that is recognised throughout Europe and highly valued by consumers and commerce (including the restaurant trade). The pathway to this will be facilitated by:

- Demonstrating the use of industry exemplars in applications across fish and aquaculture, product manufacture, supply chain, and consumer sectors in the critical, related market areas.
- Validating the new CLLs, smart control systems, suite of tools integrating metagenomic, genetic and stable isotope approaches, digital technologies/solutions, and response to consumer perceptions/demands, food standards and safety concerns, whilst ensuring compliance with current and future legislation.
- Demonstrating a suite of tools integrating metagenomic, genetic and stable isotope approaches, smart control systems, digital solutions and protocols within the fish and aquaculture sectors and relevant elements of the supply chain.
- Demonstrations, through exemplars, of the response to consumer and fish industry demands for safe, local, authenticated higher quality and traceable, fish products.

With respect to these points, **Key Performance Indicators (KPIs)** monitoring the performance of this demonstration IA project will be implemented on two levels. Firstly, on the level of wild fish, aquaculture, society, and industry (overarching KPI's -Table 2.1a) and secondly on the level of individual tasks and outputs (specific KPI's -Table 2.1b). The overarching KPIs, which will ultimately achieve the longer-term impacts/destinations, are facilitated by (i.e. the pathway from) more granular specific KPIs for the project. Four overarching KPIs have been identified related to the required work programme impacts and are presented in Table 2.1a. Where appropriate these KPIs will be measured through the requisite government statistics.

Table 2.1a: Expected wider impacts with overarching KPIs

<i>Expected impact (from the call scope)</i>	KPIs for (post) project Impact
IMPACT 1 <i>Sustainable fisheries and aquaculture increasing aquatic biomass production</i>	KPI: 5xLiving Labs (CLLs) integrated: (WP1, WP3): European CLLs integrated within FishEUTrust (and supply chain) become exemplars of traceable, sustainable, and authentic seafood. Project approaches and technologies can be adapted to different seafood species and food sectors.
IMPACT 2 <i>Sustainable, healthy and inclusive food systems delivering co-benefits for climate mitigation and adaptation, environmental sustainability and circularity</i>	KPI: 6xdigital solutions and 1xbusiness model validated: (WP3-WP7): Demonstrated smart control systems for quality and safety and suite of tools integrating microbiome, genetics and stable isotopes and digital technologies/solutions for short supply chain will create measurable increases in seafood nutritional content sold to the consumer (with associated health benefits and increased consumer trust and uptake), whilst delivering produce that is more sustainable in terms of environmental (carbon) footprint and aquatic impacts (quantified via WP6).
IMPACT 3 <i>Increased trust in seafood products creating increased uptake of European products and associated health benefits to citizens</i>	KPI: 1xFishEUTrust data platform & 1xlabelling strategy demonstrated (WP2, WP7, WP8): FishEUTrust will create the pathway for a European seafood “gold standard” labelling of quality, authentic seafood that is recognised and valued by consumers, industry, and trade. This will substantially augment consumer trust in seafood, positively impact health, and increase recognition and market penetration of European seafood supply-chain (reducing reliance on imports).
IMPACT 4 <i>Sustainable healthy nutrition, safe food consumption, food poverty reduction, the inclusion of marginalised people, the empowerment of communities, and flourishing businesses</i>	KPI: Government statistics indicate improvements in societal metrics: (WP2, WP6, WP7, WP8): Statistical distribution of seafood consumption and production across Europe improves over wider demographics (ethnically, socially, regionally) and a broader cross-section of organisations (e.g. artisan producers), including contribution to nutrition strategies of schools and healthcare (e.g. care homes).

The project specific KPIs which represent the pathway to the overarching KPIs are listed in Table 2.1b.

Table 2.1b: Project Specific Outcome KPI's (Pathway to Overarching KPIs)

KPI	Description	FishEUTrust Target (Technological/Economic Societal)
Technology	Engagement with Living Labs; D1	• 5 exemplar CLLs created and demonstrated.
	Implementation of consumer perception and intervention strategies; D2	• Assessment of 2+ aquaculture systems (organic, RAS) • 5+ awareness campaigns • 5+ intervention strategies/games

	Deployment of business models to support uptake of seafood; D3	<ul style="list-style-type: none"> • 1+ business model(s) developed, assessed, and iterated • Fully commercially implemented by 2027
	Utilisation of suite of tools integrating metagenomic, genetic and stable isotope approach; data platform for traceability and origin determination; D4	<ul style="list-style-type: none"> • Assessment of 3+ aquaculture systems, non-EU seafood • 3+ tools (metagenomics, genetic, stable isotopes) • 3 databases • 1 knowledge graph
	Utilisation of smart control systems for safety (bacteria, biotoxins, antibiotic), freshness; D5a, D5b	<ul style="list-style-type: none"> • Assessment of 2+ aquaculture systems • 4+ sensors • 2 integrated smart control systems
	Utilising digital technologies/ solutions D7a	<ul style="list-style-type: none"> • 3 solutions: passport/blockchain, SEAFOOD^{TOMORROW} benchmark tool, digital/data Cobália • 1 ontology to support data interoperability and standardization
Sustainability Specific	Acceptance & awareness of health impacts of European seafood; D6	<ul style="list-style-type: none"> • 5% increase in aqua-food products export by 2027 • 5% increase in fish & aquaculture consumption by 2027
	Consumer acceptance of European fish products and technologies for traceability, origin, quality and safety; D7a, D7b	<ul style="list-style-type: none"> • 2 Educational games • 5% increase in aqua-food products export by 2027 • 5% increase in fish and aquaculture products consumption by 2027
	Uptake of business offerings, and recommendations to relevant stakeholders including policy makers, aquaculture product manufactures, legislative and standards bodies & authorities; D7	<ul style="list-style-type: none"> • Identification of 2+ funding sources • 1+ business model(s) developed, assessed, and iterated • 5-10% revenue & staff growth for related SME partners
Outreach & Consumer Specific	Increased public awareness and demand for seafood products, and consumer labelling strategies; D8	<ul style="list-style-type: none"> • 14+ awareness campaigns in SI, IT, PT, MT, ES, DK, ME, RO, HR, BE, SR, UK, DE, NO (100+ attendees). • 10 Educational materials provided for each new product, 3+ School activities/exhibitions, 2+ Science on the street presentations, 3+ promotions at fairs • 1+ open access publication per partner • SEAFOOD^{TOMORROW} benchmark tool implemented

2.1.2: Major economic/technological impact – enhancing innovation, strengthening competitiveness and growth, creating new market opportunities and delivering innovation to the market

The FishEUTrust platform for use across all sectors and stakeholders, from producers to consumers, is designed to stimulate growth and uptake of European seafood products with a minimum of 5% increase, benefiting the economy by over €3.8 Billion Euro per annum, helping to improve the health and wellbeing of millions of EU citizens, and garnering environmental benefits due to reducing food miles and energy consumption. Moreover, the business offerings (including short supply chain), smart control systems, suite of tools integrating metagenomic, genomic and stable isotope approaches, digital technologies/solutions, and engagement platforms developed in this project and listed in Table 2.1c **could be easily adapted and applied to other seafood species and other food sectors** (e.g. meat and poultry), thereby increasing overall potential and impact. A list of key innovations and their impacts are given in table 2.1c below. Collectively they form the basis for the impact and KPI's listed above.

Table 2.1c: Major innovation and impacts

Innovation and Impact (Scientific/Technological/Societal)	
D1: Living Lab demonstration, integration and evaluation (See WP1) TRL5→TRL7	
European exemplars of EU seafood produce: Engaging citizens and industrial stakeholders, foster uptake of seafood, maximise consumer experience and health benefits through seafood products validated for quality, safety and traceability.	
D2: Novel consumer interventions (See WP2) TRL4→TRL6	
Novel behavioural tools, economic approaches, and engagement tools: Confidence and trust in products, helping consumers make more-informed choices, maximising uptake of quality European seafood products.	
D3: Demonstration of the FishEUTrust specific business models as exemplars (See WP3) TRL4→TRL6	
Novel business and exploitation models: Maximise market position, revenue, sustainability, robustness, inimitability, scalability, etc., uptake and utilisation from identified end-users and stakeholders at the market level, collaborations in related scientific areas.	
D4: Advanced suite of tools for quality, safety and traceability (See WP4) TRL4→TRL6	
Metagenomic, genetic and stable isotopic approaches: Quality, safety, traceability and regional authenticity of seafood products from the CLLs sites, consolidated into open-platform data hub, boost consumer trust and uptake, increased consumption of European fish.	
D5a: Smart control systems for freshness: (See WP5) TRL4→TRL7	

Two sensors for freshness: Increase in quality and safety of fish sold/exported, boost to EU reputation and CLLs on quality, nutritious seafood, increased consumer and trade trust and uptake.
D5b: Smart control systems for pathogens, antibiotics and biotoxins: (See WP5) TRL4→TRL6
Sensors for pathogens, biotoxins and antibiotics: Increase in safety and quality of seafood, increased reputation of CLLs and EU, data available through blockchain on FishEUTrust platform, increased consumer trust and uptake.
D6: Integrated environmental, health and social-economic impact assessment: (See WP6) TRL5→TRL7
Comprehensive impact analyses: Understanding of specific health, environmental, and societal impacts of FishEUTrust approaches, enhanced consumer awareness, uptake, and health, and food/environmental sustainability.
D7a: SEAFOOD^{TOMORROW} benchmark tool for seafood traceability: (See WP7) TRL3/4→TRL7/8
SEAFOOD ^{TOMORROW} benchmark tool for food quality and traceability: Linked to FishChoice/ EU-average nutrient composition dataset, single online tool/app, information based on sustainability/ environmental impact and nutrient information for fish and seafood species consumed in EU.
D7a: Digital support for consumer engagement (See WP7) TRL3/4→TRL6
Nudging and gamification solutions: Digital consumer engagement strategies will be implemented through various tools that will be integrated with the FishEUTrust platform and assessed in collaboration with the CLLs.
D7a: Upgraded Cobália ‘Industry 4.0 navigation’ for aquaculture traceability: (See W7) TRL6→TRL7/8
Updated Cobália ‘Industry 4.0 navigation’ software: All available data in the seafood supply chain, for CLLs identify what data, when, and how it can be used to develop standards, e.g., carbon footprints, link to other clouds (FNS-Cloud, Blue Cloud), consumer empowerment, support to regulatory development.
7b: FishEUTrust platform integrated with relevant European e-infrastructures: (See WP7) TRL4/5→TRL7
The FishEUTrust platform: Stakeholder and consumer access to rich data and information, exchange with other relevant e-infrastructures enabled, information in this platform will encourage substantial uptake of European seafood, fish producers, trust and reputation.

2.1.3 Sustainability and future deployment of the project (including ‘do no harm principle’)

FishEUTrust is designed and targeted towards a clear approach to innovation and sustainability, whilst ensuring its activities comply with “do no harm principles” by ensuring ethical and sustainable approaches and validated through detailed analysis within WP6. This is exemplified by the detailed and comprehensive business, exploitation, and dissemination activities that are integral to WP3 and WP8. This will ensure that, through the CLLs partners and the multi-actor consortium, the project results and innovations will be converted into processes and products competitively, growing existing markets, and creating a trajectory of growth for high-quality seafood diets across multiple consumer demographics. The innovative suite of tools integrating metagenomics, genetic and stable isotope approach, smart control systems, digital technologies/solutions for traceability, and consumer engagement methods and platforms within FishEUTrust will also sustain and create new opportunities and jobs (estimated at 10% for MICRUX, for example) for related SMEs (and SMEs within the supply chain) in and outside of the consortium. In support of this, the project results will be actively disseminated and promoted among other actors and stakeholders and related European Operational Groups outside the consortium through the comprehensive exploitation program. See section 2.2 below. In summary:

- FishEUTrust will provide clear international industrial leadership and competitive advantage to the partner EU based companies leading to increased market share.
- The exemplar demonstrations CLLs are designed to validate and enhance consumer confidence and trust which together with the full exploitation and business plan developed within WP3 will enable rapid uptake and integration of these products throughout the aquaculture and seafood related sectors.
- FishEUTrust will give the opportunity for the industrial partners to expand their markets for other fish species and food sectors (e.g. meat & poultry) and consequently the creation of new opportunities and jobs.
- The new demonstrated smart control systems, advanced analytical suite of tools, digital technologies/solutions and platforms will greatly improve the capacity of partner companies and allow them to sustain and grow product offerings, create new market opportunities, and encourage further take-up of seafood-related dietary choices.
- RTD groups within FishEUTrust will extend their research expertise enabling future potential for other applications and strengthen their relations with industry; thus, helping to reduce and remove the translational gap and ensuring increased industry leadership and competitiveness.

2.1.4 Other important environmental and societal impacts

FishEUTrust directly targets **Food 2030 and the EU’s bioeconomy strategy**: (i) addressing nutrition for sustainable and healthy diets, (ii) climate-smart and environmentally sustainable food systems, (iii) circularity and resource efficiency of food systems and (iv) innovation and empowerment of communities, (v) and creating jobs.

Environmental impact: FishEUTrust will create solutions that maintain ecological balance and biological diversity. By focusing on the microbiome, FishEUTrust will develop novel biomarkers of environmental quality. Also, **by adopting the short food chain approach, i.e., directly from fish farm to fork, FishEUTrust will reduce the complexity and environmental (carbon) footprint of the food supply chain**, put power back in the hands of the SME local producers, increase trade in local/traditional products and reduce food waste thereby increasing food security and access to nutrition. Allied to this, the FishEUTrust project will improve overall environmental (carbon) footprint of the industry by increasing

consumer uptake of more local and sustainably produced fish, thereby reducing aspects such as food miles and energy usage (quantified as part of WP6). The eRAS technology will be also investigated and evaluated since allow reduction of waste, low water use, optimal feeding strategy, efficient energy and land use and full disease control.

Aquaculture, Sustainable Food Security, and Rural Renaissance: Fish and aquaculture in Europe offers excellent potential for providing sustainable, high-quality, and trustworthy fish sources, thus playing a pivotal role in achieving food security and nutrition, employment, and economic development. As stated previously, around 55% of consumed fish is imported, which presents a huge opportunity for local, sustainable, healthy, authentic sources of seafood to replace this.

Health and wellness: 76% of European consumers say they want to see the date of catch/harvest on the label. In addition, for environmental information, 44% of consumers declare that this should appear on the label. This awareness means that attention to quality and authenticity is becoming an increasingly important factor in consumer purchasing decisions. Through engagement with advanced modern tools plus the authentication provided by the sensors and genomic tools, FishEUTrust will support this requirement by ensuring quality seafood produce. The FishEUTrust platform will also create the possibility to improve the nutritional plan of schools, kindergartens, and care homes.

Sustainable Development Goals (SDGs): Open data has been called the SDGs' bedrock. McKinsey estimates it worth at \$3 trillion a year globally, including efficiency gains for sustainable development in health, education, water, and agriculture. It has already been demonstrated that sharing data from multiple nutrition studies can improve the ability to answer complex questions regarding the role that nutrition and diet play in health and disease. **SDGs particularly relevant to the FishEUTrust are SDG 1: Zero Poverty which is closely connected to SDG 9: Industry and innovation and SDG 2: Zero Hunger, SDG 3: Good health and well-being (captured above), and SDG 12.2: By 2030, achieve the sustainable management and efficient use of natural resources.** With all these activities, FishEUTrust will significantly contribute to the European Action Plan (EAP).

Impacts on education, training and research: FishEUTrust aims to strengthen people's intercultural, entrepreneurial and sustainable development skills, with a focus on marginalised groups, to create initiatives to increase uptake of European seafood. The participatory method will provide partners with new opportunities for vocational integration in sustainable development and inspire them to play a more active role in changing eating behaviours through educational activities. Beneficiaries and stakeholders will ensure that the bar is raised in teaching, learning and "recruiting" youth who are dynamic, operational, open to the world and more aware of current food issues. FishEUTrust will also strengthen existing collaborations between participating educational institutions with complementary expertise (UNIBO, UNIFI, JSI, UNIPD, DTU, BTU, UMF).

Impact on Regulatory, Standardization and Pre-normative Aspects: The applicable legal requirements to the project in the context of the environmental sustainability, the compliance of the 'do no significant harm' principle and the environmental objectives of Regulation (EU) 2020/852 and the current relevant legal EU framework for food sustainability labelling in respect to ethical values will be identified. These aspects are part of WP3 (T3.2) and WP6 (T6.3). A coordinated dissemination and outreach plan (WP8) to all related actors and stakeholders as well as the regulatory agencies will ensure informed policies and practices and provide them with the low-cost tools and protocols for quality, safety and traceability necessary for implementation. With respect to standardisation in WP7, activities for data interoperability and standardisation will be performed using best-practices from prior work conducted in recent EU-funded projects.

2.1.5. Barriers/Obstacles and framework conditions

All outreach, dissemination, exploitation and business development plans described below will be developed against the following SWOT analysis.

Table 2.1d: FishEUTrust SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Project technologies will maximise seafood quality and traceability and alleviate health and safety concerns. • All developed technologies can be easily adapted to other fish/shellfish species and food stuffs/sectors. • These technologies will support regulatory needs and legislature. • The FishEUTrust platform will create a centralised wealth of knowledge accessible by consumers and supply-chain to maximise uptake and awareness of European seafood. • The FishEUTrust strong network structure connecting with all aquaculture sectors the project ensuring maximum uptake. • Highly qualified teams enabling development of novel unique technology platforms building from their existing programs. 	<ul style="list-style-type: none"> • Project innovations have not yet been demonstrated in an industrial setting. • Fragmented seafood production with many small, low volume producers means genomic and sensor tools must be low cost and easy to use. Current tools costs must be reduced. • Sustainability, economic and health and safety benefits within supply chain must be validated. • Lack and/or non-integration of cohesive and robust organisations of fish producers in different European countries. • Lack of acceptance of RAS technologies
Opportunities	Threats
<ul style="list-style-type: none"> • Market importance to Europe is 100s of billions of Euro/annum. • Opportunities for new business models (e.g. e-commerce) and product offerings to support lifestyle changes due to COVID-19. • Validated innovations increase traceability & quality of fish and seafood, whilst conferring increased nutrition & health benefits. 	<ul style="list-style-type: none"> • Investment & uptake of technologies & concepts across all sectors is risk and cost adverse. • Parallel competing technologies: Europe has the platforms that FishEUTrust needs to react quickly to lead and sustain.

<ul style="list-style-type: none"> • Increasing market demand and consumer uptake through better products, better promotion, and better communications. • Using more sustainable fish product/species whilst reducing food waste • Opportunities for fish farms – quality comparable to wild fish, testing new production technologies (organic farming, RAS) • Fish producers and related associations are willing to work together for improvement within FishEUTrust. • Opportunities for fish and aquaculture ecotourism. 	<ul style="list-style-type: none"> • Regulatory and legislative standards will need updating to police and strengthen the requirements enabled through FishEUTrust. • FishEUTrust technologies may levy additional cost, increasing price for supply chain. • Imported and low-quality fish might remain preferential for consumers. • Current inadequate consumer information on European and fish limits uptake.
--	--

This SWOT analysis has been used to define critical risks within the project, and this is reflected in the risk table (Table 3.1e) in Section 3. These risks and their associated mitigations will be used to ensure that the project can navigate any potential barriers and obstacles with the minimum of issues.

2.2 Measures to Maximise Impact -Dissemination, exploitation and communication

FishEUTrust will create an integrated Dissemination, Communication and Exploitation Plan (DCEP) to ensure efficient and sustainable impact as well as aligned dissemination, communication and engagement objectives, addressing user communities and other audiences. It also incorporates a strategic approach for the full project lifetime and post-project sustainability, which will be evaluated and updated on an annual basis. A comprehensive Exploitation Plan (TO3.3) will be regularly updated according to the changes made during the project. In respect of these, technology exploitation plans will be developed in WP3 targeting the respective production and supply chain sectors as well as for each partner. This will include business development plans for the future roles of the technologies and protocols building from the showcase demonstrator sites which will act as proof-of-concept exemplars.

The depth and breadth of the consortium partners (covering a wider range of stakeholder groups), including highly networked partners such as EuroFish and EuroFir, will generate broad and substantial interest in the projects' outcomes in respect of their future commercial development and use. The industry is diverse from small localised producers, to larger European and global industries. The multifaceted range of technology developments within FishEUTrust supported by a world-leading consortium are designed to respond to these different respective needs and identified KPI's as targeted measurable take up through the technology business development plans.

2.2.1 Dissemination and Exploitation of results

FishEUTrust will develop a detailed and comprehensive dissemination, exploitation and business plan as an integral part of the project, see WP3 and WP8. This will ensure that:

1. The project results and innovations will be converted into commercial application competitively consolidating and growing existing markets.
2. All project results will be actively disseminated and promoted among other actors and stakeholders outside the consortium through a comprehensive business plan and exploitation program.
3. The above 2 measures will create the desired socio-economic impacts including public health, EU market growth, and environmental sustainability.

Furthermore, the dissemination and exploitation plan has been specially tailored to generate maximum awareness of the project outcomes (in conjunction with related consumer engagement activities within FishEUTrust such as WP2), to consumers, industrial beneficiaries, investors, governmental and regulatory bodies, potential customers and stakeholders in addition to academics and research organisations. This will be achieved through conference papers (JSI organises each year two international workshops as part of two big events, i.e. IEEE BigData conference and the Applied Machine Learning Days EPFL), open access peer reviewed journals, sustainability magazines, newspaper articles, visual media. The wider consumer audience, as well as younger generations, will be targeted through social media using Twitter, Instagram, TikTok. Key conferences will also be established to promote the technology advances including plenary presentations and keynote speeches given by members of the consortium. This will be significantly aided by the extensive network of the partners: **EuroFIR** has more than 50 members from Europe, New Zealand, Canada, USA and Japan, **Eurofish** currently has a network 13 member countries in Europe and EAS (associated partner) has over 1000 members in more than 60 countries and through engagement of relevant associations.

Training and educational workshops for training new staff and updating the skills of existing staff will be established as part of the dissemination strategy. Dissemination through open day events and visits by media to the test and validation sites will also be carried out to establish maximum awareness and project marketing for exploitation. FishEUTrust's successful demonstration of the technologies at appropriate scale will be a pre-requisite to justify investments into commercial developments and the project is designed to provide the necessary demonstration data and exemplars.

2.2.2 Business plan and Exploitation programme

The legacy of FishEUTrust will be a suite of tool integrating metagenomics, genetics and stable isotope approaches, smart control systems for safety and quality, digital technologies/solutions for traceability and engagement tools, and data platforms tested and validated in industrial and consumer settings. These are designed for authenticity, traceability and health and safety monitoring as well as suitable for regulatory and standards compliance at all stages and across all sectors of the seafood production chain.

In order to efficiently develop the commercialization strategy and approaches, specific exploitation and business plans will be developed for the test and validation installations in the first step. As part of the overall knowledge transfer activities, engagement and outreach programmes extensive collaboration of all partners with external end-users and/or stakeholders (e.g. fish farms, seafood producers, and the supply chain) will take place. WP1 and WP3 will directly validate the technical and economic performance at each level. Similarly, WP1 and WP3 will validate the technologies against the standards and regulations as a platform enabling direct market uptake.

There is a clear plan to exploit the technologies further on a commercial basis after the project has finished. Consortium partners within the Management Team (such as EuroFish and EuroFIR) are European leaders operating worldwide and have already begun preliminary identification of market applications and opportunities where the FishEUTrust technologies and process can be most effective. These include systems promoting aquaculture development worldwide in cooperation with respective seafood associations, and scientific and regulatory bodies as well as individuals.

This identification will be just one component of the developed exploitation and business plan as an integral part of the wider programme to encourage uptake and implementation of the FishEUTrust concepts throughout Europe and globally. This will be used within the targeted aquaculture/seafood sectors (sea bream and mussels) initially but many of the technologies will themselves be useable and adaptable for other fish species and food sectors. The technology test sites will act as demonstrators and exemplars to the respective industrial sectors. Risk assessment is one of the biggest curtailments to commercial and industrial investment; such that be illustrating successful deployment of these technologies as exemplars supported by comprehensive performance analysis and cost/benefit breakdown within the developed business plans, actors and stakeholders will have all the primary information required to consider uptake and implementation in their sectors. This process will run throughout the project such that initial targeted uptakes will be in place within 18 months to 2 years of the project end. The business plan outline will be further developed and consolidated during the project (WP3) and is structured through three stages building directly from the necessary multidisciplinary and cross sector members of the project consortium. This is reinforced by the extensive respective sector expertise and network capability of the Management Team (such Eurofish, EuroFIR, and NORCE). The 3-stage exploitation and impact of FishEUTrust is based around the following groupings of partners and their respective project benefits.

Type	Partner	Exploitation and Impact Areas (Stages 1-3)
RTDs	JSI, UMF, UNIFI, BTU, UNIPD, UNIBO, IPMA, DTU, NORCE	Awareness of RTD capabilities, new collaborative projects, spin-outs, IP creation, staff growth.
SME/Industrial	WRG, MICRUX, BELIT, DigitalSmart, REDINN, JdIC, CETGA, ABT, Bugenvila, OXY	Awareness of capabilities, new collaborative ventures, new products/markets, IP creation, revenue growth, staff growth.
Networks & consumer bodies	EuroFIR, Eurofish, EAS	Awareness of organisation, growth of networks and members, increased interaction with policymakers, staff growth.

Stage 1 (In Project): Initial stages of the business plan, commencing within the project, therefore strategically focus on the dissemination and consumer engagement programmes, including site visits, in order to raise awareness across the respective sectors reinforced with the test and validation sites acting as exemplars to stimulate and facilitate commercial uptake at all levels.

Stage 2 (Immediate post project): The projects outcomes will enable significant benefits to both industrial and RTD partners arising directly from the project deliverables. For RTD partners, the sensors, tools and data platforms developed within FishEUTrust could be readily deployed and/or adapted to suit other applications, particularly in other food sectors thereby leading to future collaborative opportunities. The SME partners, particularly MICRUX, BELIT, and DigitalSmart, will see growth in awareness, revenue, market share, and staff exemplified through the Living Labs. The tasks in WP3 will also ensure that funding and investment is stimulated post-project to sustain the philosophies and project offerings. For MICRUX, BELIT, and DigitalSmart, the key post-project (Stage 2) impact is recognition and awareness of their technologies and offering, which will then lead to exploitation and growth in Stage 3.

Stage 3 (Subsequent exploitation and commercialisation): As stated above, the recognition and awareness of the food production companies allied to investment opportunities created by the FishEUTrust project will allow rapid commercial growth. For example, MICRUX has estimated an increase of revenue relating to their sensors by 10% by 2027, 10% in staff growth within 4 years, 2 new service offerings within 4 years, and 2 new collaborative projects.

The FishEUTrust project creates substantial potential to improve trends in European seafood consumption and related healthy food choices. All associated KPIs, where relevant, will be measured through government statistics. Moreover, the position of European Aquaculture Society (EAS), CETGA and *Portuguese Aquaculture Association – APA* as a central hub within the numerous aquaculture associations and other agencies will be a crucial element augmenting exploitation.

The planned targets are given in Tables 2.1a and 2.1b and include the goal of a 5% increase in fish consumption by 2027, which would yield €3.8B in revenue to associated regions with associated carbon footprint benefits that will quantified as part of WP6. It is also the goal to redress the import/export imbalance by increasing fish exports by 5%. These plans will be fulfilled through the specific activities established in WP3 and WP8 in conjunction with the industrial members of the consortium and Management Team. Throughout Phase 3 there will be close liaison with consumers, supply-chain and the regulatory bodies a lot of whom are driving the FishEUTrust targets.

2.2.3 Intellectual Property (IP)

IP Intelligence: An essential part of exploitation strategies within the FishEUTrust project is related to management of Intellectual property. Successful commercialization of results relies essentially on IPR already present within the consortium and new IP generated during the project. The consortium will protect, share, manage and exploit IP generated within FishEUTrust to achieve maximum outreach, engagement, impact and benefit. IP related aspects of the FishEUTrust refer to: (1) protection for sensor and labelling technology developed within the project; (2) development of suite of tools integrating metagenomics, genetic and stable isotope approaches; and (3) innovative data platforms supporting technology integration, consumer engagement and the infrastructure. The IPR will be managed according to the best international standards and best practices and will be in absolute accordance with those set out in the European Charter for Researchers. Traceability and recognition of Background and Foreground IP will be handled throughout the project via the Coordinator and the DMP. Scientific results of general interest will be freely disseminated. However, authors wishing to publish foreground IP must obtain necessary permissions from participants owning foreground before submitting papers for publication. Specific procedures will be defined in the CA and will follow the DESCA agreement guidelines. Dissemination of exploitable knowledge relevant only for partners will be restricted by confidentiality agreement until protection through patents (or other means of protection). The PC and IEB board will closely follow the technological developments and will, for identified novelty, facilitate an IP protection strategy, in conjunction with legal support, to determine the best course of action be that trade secrets or patenting, and including country coverage.

Licensing IP: Each partner shall promptly disclose to the other partners all resulting IPR during the term of the project consortium agreement. Partners shall co-operate about the preparation and prosecution of patent applications and any other resulting IPR applications, with regards to any legal proceedings, concerning such patents and patent applications and any other resulting IPR applications. Each partner shall own the resulting IPR generated by it under the project and shall be responsible for securing ownership of such resulting IPR from its employees, students and other agents.

2.2.4 Communication activities

Communication will be facilitated by integrating consumer engagement (WP2), digital and data platforms (WP7) within the dedicated work package (WP8) led by WRG Europe. FishEUTrust identified the following target audiences: **1) Industrial stakeholders** (aquafarms, seafood producers, and supply chain) interested in adopting techniques to assure product authenticity and quality; **2) Research community** (e.g. aquaculture, health, genomics, sensor technologies, data and computer science); **3) Policymakers and legislature** to support legislative frameworks of research activities; **4) Consumers.** Each audience will have a different communications strategy to ensure maximum engagement and impact. The strategy will focus specifically on the following:

- Identify and engage stakeholders regularly to ensure that the results of the project are applicable and appropriate.
- Communicate the project results to a wide-reaching audience through a comprehensive public outreach programme to raise awareness of the technology and resultant benefits.
- Engage with, inform and influence industry decision-making bodies, policymakers, regulatory bodies, and national associations to accelerate the development of market sectors.
- Inform and promote activities within the wider public and consumer organisations, including educational material.
- Eurofish, as an international organization, will utilise its global network through **Globefish** to communicate results on a global scale Eurofish also publishes the Eurofish Magazine in Europe to reach targeted audiences through articles.

This strategy will be achieved via the summary plan shown in Table 2.2a. After the project commences, this will be converted into a detailed communications plan within WP8.

Table 2.2a FishEUTrust Communication activities

Tools & Channels	Details	Success Indicators
Owned media production and distribution Target group: Industry & SME; Researchers, Policy & Legal bodies, Consumers	Project Corporate Identity: logo, claim, MS Office templates used as a common public identity for all management, communication and dissemination activities. The project logo will be implemented on a media. Material: Project leaflets, factsheets, 4 promotional flyers for target stakeholders, additional promotional flyers for open events, scientific posters, promo roll-up, brochure on final results. Distribution: Digital, live communication and events, attendance at externally organised events. EU funding will be acknowledged in all dissemination activities.	Number of events where used (> 1000 printed copies considering brochure, flyers, leaflet and contact cards) and made available for download on the website.
Digital Target group: Industry & SME; Researchers, Policy & Inspector bodies, Consumers	A public website integrated with FishEUTrust including data access, advanced data tools and services, user logins, user experience surveys, informative content, news & events, e-learning tools & materials, video animations, integrated social media accounts. Minimum two project newsletters/, live streaming of final event. Distribution: project website and FishEUTrust hub, social media (to target also young generations). The project will map appropriate communication channels, individuals and organisations, user communities to include in the FishEUTrust network. Digital and awareness campaigns, events and activated networks to help redirect to the website where data and services can be accessed. Regular social media activity will also help to generate followers.	Website traffic will be monitored and analysed for engagement (visitors, pages, etc.). Considering the wide geographical coverage of the Consortium and the wide target communities, it is expected to reach – as an example - a n°. of 3000

		followers on Twitter and 1500 on LinkedIn.
<p>Scientific and Technical</p> <p>Target group: Researchers, Industry & SME;</p>	<p>Scientific papers will be published to inform the scientific communities and potential users about FishEUTrust achievements. Publications will be through high-ranking, peer-reviewed multidisciplinary journals and more specialised peer-reviewed international journals. Technical papers and application specific results will be published in trade journals and media targeting end user groups. All publications will be available via open access channels. Gold open access will the default standard unless data and/or IP prevents this. In any case publications will be made available via public online repositories and the projects webpage.</p>	<p>At least 1 open access publication per partner will be produced.</p>
<p>Conferences, Workshops, Trade fairs, Symposia</p> <p>Target group: Industry & SME; Researchers, Policy & Legal bodies, Consumers</p>	<p>The consortium will define important international conferences to be attended by its members to present the latest achievements, to discuss progress, developments and challenges in this field, and to find new industrial partners. The expert consortium will ensure a broad exposure in many fields. Examples of conferences are €ensors, IEEE Sensors Conference, and for Food technology the EFFoST International Conference. To reduce travel costs the consortium plans to organise the annual consortium meeting in conjunction with these conferences (such as Food Forum organised by partner EuroFir)</p>	<p>Over 25 presentations at national and international events, addressed to the different user categories such as researchers, FBOs, consumers (expected audience 50-200 participants per event).</p>
<p>Press and Media</p> <p>Target group: Industry, SME, Researchers, Consumers</p>	<p>Press release on launch (M3), press releases on interim results, activities and events. Additionally, press & media representative will be invited to the final project PR event.</p>	<p>Number of articles (target minimum 25 per annum) being generated in the media.</p>

2.3 Summary

KEY ELEMENT OF THE IMPACT SECTION

SPECIFIC NEEDS	EXPECTED RESULTS	D & E & C MEASURES
<p><i>What are the specific needs that triggered this project?</i></p> <ol style="list-style-type: none"> 1) Ensuring sustainable, healthy, traceable wild and farmed seafood in Europe from sea/farm-to-fork. 2) Increasing public awareness and trust in quality European seafood (particularly shellfish) and consumption thereof. 3) Increasing overall European competitiveness and position in sustainable, high-quality seafood. 4) Inclusion of marginalised people, and the empowerment of communities relating to food and food production. 	<p><i>What do you expect to generate by the end of the project?</i></p> <ol style="list-style-type: none"> 1) 2 smart control systems for fish quality and safety validated to TRL7 and TRL6 in CLLs for sea bream and mussels, aquaculture 2) Suite of tools integrating metagenomic, genetic and stable isotope approach validated to TRL6 in CLLs for sea bream and mussels 3) 1 integrated FishEUTrust platform and data platform validated by industry and consumers 4) Completed comprehensive consumer perception/engagement programme including nudging/gemification 5) SEAFOOD^{TOMORROW} benchmark tool for seafood traceability (TRL6) 6) Passport/blockchain technology for seafood traceability (TRL6) 7) Upgraded Cobália 'Industry 4.0 navigation' for aquaculture traceability (TRL7/8) 8) Completed comprehensive public engagement campaign, including local producers, and minority groups 	<p><i>What dissemination, exploitation and communication measures will you apply to the results?</i></p> <ol style="list-style-type: none"> 1) Business and exploitation plan (including short-supply chain) validated for demonstrated smart control systems, suite of advanced analytical tools, and digital technologies/solutions for traceability (WP3). 1) Comprehensive industrial engagement programme, including the use of TrustEUFish digital platform, with seafood farms, producers, supply-chain, distributors, policymakers, vendors, and exporters (WP3, WP8). 2) FishEUTrust platform with data (blockchain/passport created and validated with consumers and industry (WP7). 2) A detailed consumer perception study relating to seafood (WP2) allied to a comprehensive stakeholder engagement programme, including a website integrated with the FishEUTrust platform, and social media presence (WP8). 3) Business and exploitation plan validated with test sites (WP3) allied to industrial and stakeholder engagement (e.g. demo days) (WP8). 3) Business and exploitation plan validated with SMEs and supply chain (WP3) allied to detailed stakeholder engagement and publicity (WP8). 4) Business and exploitation plan (WP3) to focus on cost efficiency. CLLs visits and tours for artisan and local seafood and food producers. Consumer education and engagement with a focus on youth and marginalised communities (WP2/WP8).

TARGET GROUPS	OUTCOMES	IMPACTS
<p><i>Who will use or further up-take the results of the project? Who will benefit from the results of the project?</i></p> <ol style="list-style-type: none"> 1) Aquaculture, seafood producers, supply-chain, vendors, distributors/exporters (inside and outside consortium), and researchers/RTDs. 2) Seafood consumer groups, seafood networks, the general public, youth and schools. 3) Aquaculture, seafood producers, supply-chain, vendors, distributors/exporters (inside and outside consortium), policymakers and regulatory bodies. 4) Marginalised communities (ethnically and regionally, small and artisan/local food producers, youth and schools. 	<p><i>What change do you expect to see after successful dissemination and exploitation of project results to the target group(s)?</i></p> <ol style="list-style-type: none"> 1) Adoption of project exemplars and technologies including short-supply chain by related consortium partners, organisations outside the consortium, and adaption to other fish species and food sectors. 2) Measured increase in positive attitude towards European fish (through continued post-project consumer studies) allied to the 5% increase in European fish consumption. 3) 5% increase in European fish consumption. 5% increase in fish export. 4) Measured increased uptake of seafood in marginalised communities and regions and quantifiable increase in use of project tools and methods by artisan and local producers. 	<p><i>What are the expected wider scientific, economic and societal effects of the project contributing to the expected impacts outlined in the respective destination in the work programme?</i></p> <ol style="list-style-type: none"> 1) Implementation of novel standard operating procedures and novel perspectives in the transfer of machine learning, artificial intelligence and big data from bench to fish farms 2) Europe becomes worldwide exemplar of traceable, sustainable, and authentic seafood, including shortening and digitalisation of seafood supply chain. 2) Europe creates seafood “gold standard” labelling of quality, authentic seafood that is recognised and valued by consumers and industry. This will hugely increase consumer trust and uptake whilst positively impact health and the environment. 3) Rising success, growth, recognition and market penetration of European seafood supply chain. 4) Distribution of seafood consumption and seafood production across Europe reaches wider demographics and a broader cross-section of organisations. 5) Education of next generation of food experts including interdisciplinary approach using innovative technologies and solutions

3. Quality and efficiency of the implementation

3.1 Work plan and resources

FishEUTrust has 10 work packages (WP1-7 Technical, WP8 Dissemination, communication and clustering, WP9 Coordination and management, WP10 Ethics), and tasks (T) with clearly defined objectives and alternative plans as detailed in Figure 7, planned over 4 years.

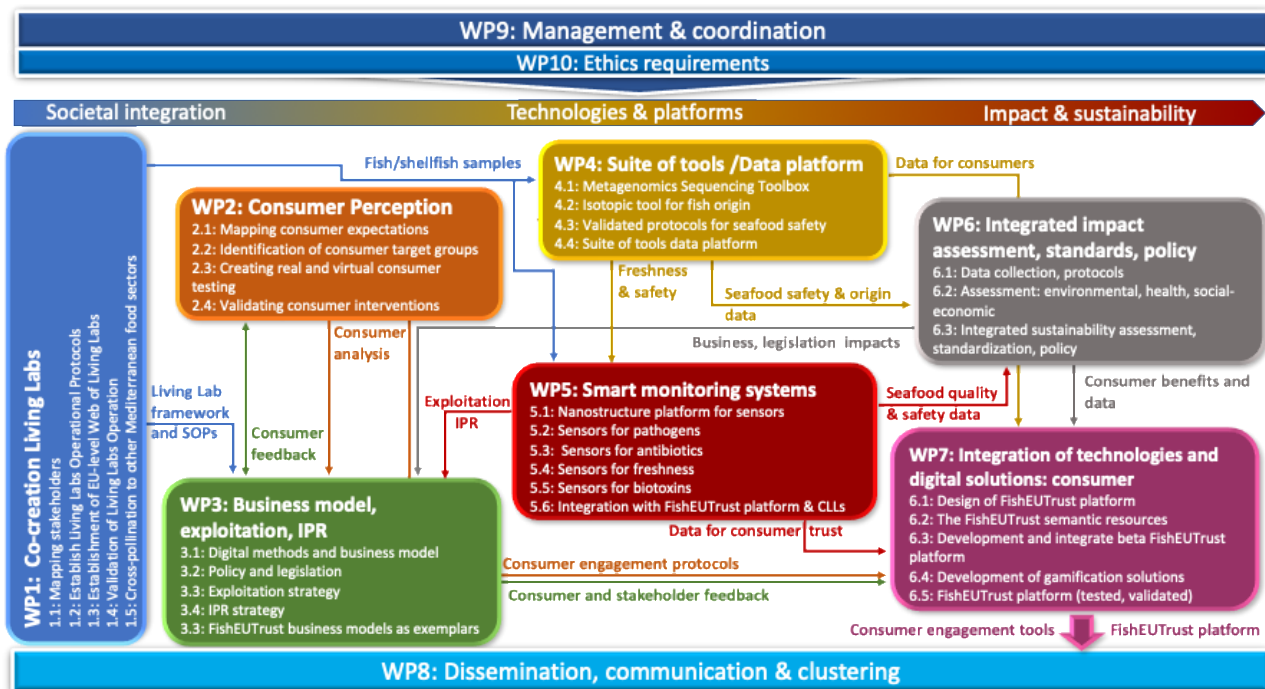


Figure 7. Work Package flow scheme together with relevant task and flow information

The timing of the WPs and Tasks together with deliverables and milestones are shown in the Gantt chart below.

Figure 8. Gantt Chart

Identification of any conflicts that arise in the project is the responsibility of each project participant. Any signs of disagreement between project participants should notify the PC, who should then initiate the conflict resolution procedure according to the principles and rules established in the Consortium Agreement. Conflict resolution procedures will mediate among the beneficiaries in a dispute to solve any conflict through negotiation based on good faith and the principles of collaborative research. The conflict resolution procedure is as follows: (i) the PC will separately contact all concerned parties to identify the different viewpoints. Based on the clarification of viewpoints, the responsible party will try to propose a solution. If one is achieved, it will be recorded in short minutes and sent to the EB; (ii) if step 1 fails, the PC will present the dispute to the EB, deciding whether to suggest the application of the dispute resolution clause in the Consortium Agreement or present the dispute to the GA whenever the dispute might interfere with the implementation of the project. The GA constitutes the highest level of conflict resolution body. Any decision taken by the EB and GA should be informed in writing. Beneficiaries will consider alternative dispute resolution mechanisms such as mediation and arbitration in the Consortium Agreement without affecting their right to attend the judicial procedure. A Risk Management Plan will be prepared by M3 (TO9.2), which will outline the process for identifying and mitigating risks in the project and include a risk register to be reviewed at every EB meeting. All known project risks should be made explicit before they become issues and lead to delays. Risks will be translated into mitigating actions (both present and future). Table 3.1e lists the identified critical projects. These risks include technical, operational, but also economic risks. This table will be included in the project handbook and continually reviewed and updated. FishEUTrust will adopt the guidelines for good practice of The European Code of Conduct for Research Integrity.

Sensors based on nanostructure does not correspond to the desire analytical performance	WP5	Many sensors based on nanomaterials are commercially available and represent alternative solution. Micrux with their expertise can assist to obtain nanostructured sensors.
Restrict capacity to undertake activities that dependent on face-to-face interactions	all	The consortium is aware about the restriction related to COVID-19 issues, therefore the project methodology was design in a way that the tasks do not exactly required face-to-face interactions between partners.

Resources to be committed

A summary of resources is found here, and in the Budget Table. The maximum grant amount comes to 4.629.816,25€ . The effort split between the WPs is well balanced with the most PMs going into development WPs 1-7. Management is at 10.0% and 9.5% goes to Dissemination & stakeholder engagement.

The table 3.1a describes the justification of the costs for ‘travel’, and ‘other goods and services’ of those participants whose sum of these costs exceed 15% of their personnel costs:

Table 3.1a: ‘Other direct cost’ items (travel, equipment, other goods and services, large research infrastructure)

2/IPMA	Cost (€)	Justification
Travel	6 032	5 PM (1 person, 800€; 4000€); CLLs meetings (2 032€)
Other goods and services	82 615	<p>Open Access Publications (5 000€); Conference fee – EU level (2 000€); Preparation of seafood feeds and biochemical analyses (31 000€); Purchase of feed ingredients: 7500€; Purchase of pre-mix and special fish nutrition supplements: 4300€; Purchase of deparasitizing chemical agents and other substances for veterinary use: 4000€; Purchase of nets, shovels, plastic fittings, and other accessories for the operation and maintenance of the aquaculture tanks: 3700€; Purchase of packaging and sampling material for the storage and transport of the fish post-mortem: 1 100€.</p> <p>Performance of biochemical analyses in fish: For determination of lipid content, purchase of current glass labware (flasks, tubes, ballons, decanters, etc.): 2400€; Spear parts for agitators, rotary evaporator, and other devices: 2200€; For the determination of the fatty acid profile, purchase of current glassware (tubes, vials, etc.) and plasticware (pipette tips, Pasteur pipettes, etc.): 2800€; For the determination of the fatty acid profile, purchase of accessories for all the instrumental part of the Gas Chromatography-Flame Ionization Detector system: 3000€.”</p> <p>Consumables and analysis: solvents, reagents, chromatographic standards, gases, chromatographic accessories, current glassware, filters (39 615€)</p> <p>Organization of the meetings: workshop on cross-pollination and project meeting (5 000€) Varied preparatory expenses (administration costs, invitations, panels for posters, room preparation, bags, USB keys): 700€; Rental of appropriate room and spaces for the meeting: 1 800€; Rental of audiovisual equipment for the meeting: 400€; Catering for the meeting, including 2 coffee-breaks and a buffet lunch for 100 participants: 1 500€; Project documentation to be distributed to the participants during the meeting: 600€;</p>
(<15% of pers. Costs)	18 385	
Total	107 032	
3/UNIBO	Cost (€)	Justification
Travel	9 600	5 PM (2 persons 800€; 8000€); Conferences – EU level (2 persons 800€; 1600€)
Other goods and services	88	Conference fee
(<15% of pers. Costs)	30 112	
Total	39 800	
5/UNIFI	Cost (€)	Justification
Travel	13 000	5 PM (2 persons 800€; 8000€); Conferences – EU level (5 persons 1000€; 5000€)

Other goods and services	158 331	Open access publication (10 000€); Conference fee (2 000€); Audit (2 940€); Chemical reagents, consumables, sequencing (143 391€); Chemical and biochemical reagents (13 391€) Screen-printed cell, electrodes (10 000€) Sequencing reagents, enzymes, DNA extraction kit (120 000€)
(<15% of pers. Costs)	24 609	
Total	195 940	
6/UMF Cluj	Cost (€)	Justification
Travel	10 000	5 PM (2 persons 800€; 8000€); Conferences – EU level (2 persons 1000€; 2000€)
Other goods and services	36 891	Open Access Publications (2 000€); Consumables, reagents (34 891€): Chemicals and reagents (e.g. solvents, acids, bases and salts for buffers and electrolytes, redox probes, virulence factors and siderophores for bacteria, culture media, standards for selected antibiotics, monomers, polymerization initiators and additives for molecularly imprinted polymers etc.) (16 891€) Screen-printed electrodes (carbon-based and modified with nanomaterials (e.g. graphene, carbon nanotubes, metallic nanoparticles etc.) or redox probes (Prussian Blue) (11 000€) Reference electrodes, auxiliary electrodes, electrochemical cells and other accessories for electrochemistry (7 000€)
(<15% of pers. Costs)	20 109	
Total	67 000	
8/BTU CS	Cost (€)	Justification
Travel	5 500	5 PM (1 person 800€; 4000€); Conferences – EU level (3 persons 5000€; 1500€)
Other goods and services	4 430	Open Access Publications (3 000€); Conference fee (1 430€);
(<15% of pers. Costs)	16 170	
Total	26 100	
11/UNIPD	Cost (€)	Justification
Travel	6 000	5 PM (1 person 800€; 4000€); Conferences – EU level (2 persons 1000€; 2000€)
Other goods and services	3 300	Open Access Publication (2 000€); Conference fee (1 300€);
(<15% of pers. Costs)	11 700	
Total	21 000	
12/ABT	Cost (€)	Justification
Travel	15 000	5 PM (3 persons 800€; 12 000€); Conferences – EU level + LLs workshop attendance (3 persons 1000€; 3 000€)
Other goods and services	5 861	Shipping of samples (4 000€); Dissemination material (1 861€)
(<15% of pers. Costs)	19 639	
Total	40 500	
15/MICRUX	Cost (€)	Justification
Travel	4 500	5 PM (1 persons 800€; 4000€); Conferences – EU level (1 persons 500€; 500€)
Other goods and services	80 203	Consumables for construction and fabrication of electrodes (80 203€): Labware, Chemical reagent (10 000€); Substrates (polymer/glass/ceramic,...) (9 000€); Print process (inks, screens, squeegee, ...) (18 200€) Clean room process (photomask, resins, resist,...) (18 000€) Electronic components (cables/ accessories/platforms,...) (12 000€) Characterization services (Microscopy, automation, SEM, AFM,...) (12 000€) Shipping (1 003€)
(<15% of pers. Costs)	19 297	
Total	104 000	
17/CETGA	Cost (€)	Justification
Travel	1 675	1 PM (1 person 800€; 800€); Local traveling to fishfarming (875€)
Other goods and services	18 911	Fish maintenance including animal feed, plant cleaning products,... (14 000€) Lab consumables including general laboratory equipment, analysis equipment (acids) (4 911€)
(<15% of pers. Costs)	19 780	
Total	40 366	

Other sources of financing

The project involves two associated partners – EU Aquaculture Society (EAS) and WRG Europe Ltd. (WRG). The total estimated costs of the associated partner EAS to implement the project tasks amount to 33.700,00 €, and the total costs of the associated partner WRG to implement the project tasks amount to 521.336,25 €.

3.2 Capacity of participants and consortium as a whole

Multi-actor and multi-disciplinary consortium members represent either public non-profit or private profit organizations and includes 20 partners: 9 RTD (JSI, IPMA, UNIBO, UNIFI, UMF, DTU, BTU, NORCE, UNIPD; 40.9%), 9 SMEs (ABT, REDINN, BELIT, MICRUX, JdIC, CETGA, DigitalSmart, Bugenvila, OXY; 40.9%), 1 association (Eurofish; 4.5%), one NP-SME (EuroFIR; 4.5%) and two associated partners: one NGO (EAS; 4.5%) and one SME (WRG; 4.5%). CLLs from PT, MT, ES, DK and HR play an important role in the project either to support pilot study and testing of developed sensors and technologies to address current quality, safety and traceability concerns and as fish/shellfish producers to provide the samples, which are typical for the occupied countries and of economic importance. **Thus, the multi-actor approach of FishEUTrust includes all actors in the seafood supply chain: aquafarms (fish farming), retailers and consumers. Only involving all the actors in the supply chain with relevant knowledge and experience enables efficient integration of the FishEUTrust approach.** Although some partners have a minor role, their involvement is essential for the implementation of the project. The complementary and key qualifications of the involved consortium partners are described in the separate section under Part A. The appropriate equipment, facilities, infrastructure needed to complete the work program is also listed and includes analytical instruments, aquaculture facility, ICT facility. Partners have cooperated previously in many EU projects such as: FNS-Cloud (EuroFIR, UNIFI, JdIC, DTU, JSI); RICHFIELDS (JSI, EuroFIR, JdIC), METROFOOD (JSI, IPMA, UNIBO), PerformFISH (CETGA, Eurofish, UNIPD, UNIBO), FoodTraNet (JSI, WRG), iFishIENCi: NORCE, OXY, ABT. The contributing RTD partners have established substantive international reputations in their respective areas. Their competencies are complementary in terms of minimum critical mass required for the successful conclusion of the work programme on behalf of the SME's involved, will form a strong team for the successful completion of the proposed project. They will support the FishEUTrust in the whole supply chain from fish/shellfish production, quality, assessment to social values for now and future. The suite of tools for quality, safety and traceability integrates different analytical approaches including microbiome (UNIFI), genetic biomarkers (UNIPD) and stable isotopes (JSI) (WP4). All three partners have applied these methodologies in different studies related to food traceability and authenticity, while UNIPD has broad experience using genetic biomarkers in aquaculture. The traceability solutions also include digital technologies: passport and/or blockchain developed by DigitalSmart; labelling developed by EuroFIR; Cobália a multi-user online 'Industry 4.0 navigation' system for aquaculture developed by OXY. All of them will be used specifically for seafood to track and trace the supply chain delivering reliable information to consumers, however can be adopted to other food sectors. Cobália is designed to receive sensor and other data as these become available (WP7). The smart control systems with different sensors for safety and quality will be developed by UMF, UNIFI and BTU (WP5). It will include the determination of antibiotics and bacteria (UMF), biotoxins (UNIFI) and freshness of fish (BTU). Rapid and simultaneous electrochemical detection will be used for contaminants (UMF, UNIFI). At the same time, the freshness sensor will be based on the recent scientific achievements in the field of new functional materials and solid-state electrochemistry using the strategy of virtual sensor arrays (BTU). MICRUX will be focused on the design, development and manufacture of novel miniaturized analytical systems based on Lab-on-a-Chip (LOC) technologies that can be implemented at aquaculture production systems and later on the market. Smart control systems will be validated and tested in collaboration with UNIFI using metagenomics. Further implementation and testing of all relevant technologies will be performed in CLLs production system as a part of WP1 with IPMA, ABT, CETGA, Bugenvila. The integrated assessment of FishEUTrust includes environment (DTU, JSI), health and nutrition (IPMA, EuroFIR) and social-economic impacts (UNIBO, REDINN) (WP6). DTU, JSI, IPMA, EuroFIR, UNIBO and REDINN will identify indicators that can affect the sustainability of aquaculture, from the assessment of the factors related to fishfarming and safety factors, either for a standard production or engaged with different signs of quality. All partners have relevant expertise in this respect (see publication record in separate section under part A). In addition, EuroFIR deals with food composition resource in Europe bringing together food composition datasets from 26 EU countries. Three partners will study societal demands, perceptions, beliefs and claims towards seafood production systems and quality with extensive expertise in societal aspects and consumer behaviour science including UNIBO, WRG, JSI and NORCE. UNIBO will lead a dedicated WP2 with specific tasks. UNIBO will also work together with CLLs, EAS, and other partners carrying out the social science studies to review and understand the ethics requirements of the project. These organizations also benefit from participating in community development without having to deal with political and legal regulations and permit issues. The result of a cross-sector partnership is a win-win situation for all the parties involved. Eurofish, WRG, REDINN, BELIT DigitalSmart and NORCE carry out trade and marketing studies and will be thus involved in the preparation of FishEUTrust appropriate business model for aquaculture promoting intake of unused fish, recycling and blue economy.

Further, Eurofish, WRG, NORCE and EAS have long experience in scientific outreach to and with research user communities through training, monitoring and measuring awareness, interest, uptake and added value via their scientific experts, network of stakeholders (>20,000), online newsletters. This should be extremely important to engage in users and stakeholders for the development and testing of the proposed FishEUTrust as well as helping to reduce fragmentation of existing governance models. The promotion and dissemination will be also achieved throughout Eurofish that is the international organization and a global network player and includes 13 countries from CEE and takes part of the FISH INFOnetwork. EAS is also a valuable partner in creating awareness about the project and its outcomes. It has 1000 members in more than 60 countries. Membership is mainly scientific/academic, but also includes producers, suppliers and policy makers. The high proportion of enterprises, ready to cooperate with research and non-profit organizations ensures the innovative and participatory approaches required for an *Innovation Action*. The SMEs involved has complementary expertise (Table 3.2a) and they confirm that the researchers included in the project are employees of relevant SMEs (WRG, ABT, REDINN, BELIT, DigitalSmart, JdIC, CETGA, Bugenvila, OXY). Further, regarding partner JdIC, he acts as a

natural person in the consortium and is the person who is developing the work. Therefore, in this case there is identity between the beneficiary and the person assigned to the project. Javier de la Cueva, the beneficiary, is the same person as Javier de la Cueva, the person assigned to the project. He does not assign any other person to the project but himself.

It is worth mentioning Bugenvila and JdIC. Bugenvila represents the gastronomy sector related to the history and cultural heritage of the Mediterranean diet. Indirect communication with consumers he will provide seafood SUPERCHEF meals. By dramatically shortening the supply chain between actual sea product producers and the consumers, SUPERCHEF acts as an excellent communication channel between the producers and the consumers. JdIC brings long-term experience in advising public/private institutions and defending court cases related to IP/IT/Privacy, Information law, open data, open access, and open science. FishEUTrust will apply open access for publications, in particular journal articles. The partners

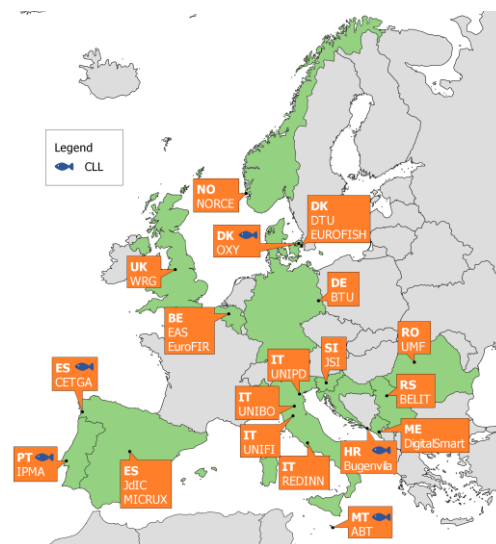


Figure 9. Multi-actor approach of FishEUTrust partners

Table 3.2a. Innovation potential of SMEs in relation to their task

	WRG	ABT	REDINN	BELIT	MICRUX	JdIC	CETGA	Digital	Bugenvila	OXY
Aquaculture system innovation		✓					✓			✓
Technological innovation (environmental)					✓		✓			
ICT innovation				✓				✓		✓
Social innovation	✓		✓							
Innovation in gamification			✓	✓						
Food innovation							✓		✓	
IPR management incl. technology transfer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Open innovation and innovation management						✓				

the needs of FishEUTrust including data processing and integration, e-RI governance, service development and provision, bioinformatics. EuroFIR, JSI, UNIFI, JdIC bring previous experience and best practices from EU-funded RIs (METROFOOD, ELIXIR) in several aspects including open data. For example, by directly collaborating with the Marine Metagenomics Community in ELIXIR, FishEUTrust will develop the META pipeline as a free resource for analyzing, archiving, and browsing metagenomic datasets. Other metadata, will be annotated using the formal ontologies (FOODON, CHEBI, ONS) using standard and machine searchable ontological terms also through the collaboration with the ELIXIR-EU metabolomics community (<https://elixir-europe.org/communities/metabolomics>), and the Food and nutrition community (<https://elixir-europe.org/communities/food-nutrition>). The Consortium partners are coming from 14 European countries and will therefore provide services within a whole 4 regions, i.e. Southern (IT, ES, PT, MT, HR), Central (SI, DE, BE), Northern (DK, NO, UK), and Eastern (RO, RS, ME) part of Europe. Three of the countries are third countries associated to EU (ME, SR, UK). The geographic distribution of FishEUTrust partners is presented in Figure 8. Such a geographical distribution will contribute to the integration in the EU area by promoting a more balanced and sustainable 'territorial development'. The basic principle of solidarity with less favoured and knowledge exchange and transfer between partners and regions will support those partners in widening countries and regions. By being able to share ideas, results and experiences with different countries and cultures, often with distinct political backgrounds, partners will also have an opportunity to learn and receive enhanced professional experience on an equal basis. *The current balance in the*

research team: the FishEUTrust consortium is gender-aware and aims at gender balance: the coordinator and 20% of all primary partner contacts are women, while the leadership of WPs and Project Management Team are divided equally (45/55). Among named 77 persons to be involved in the project (separate section under Part A), 52% are women.

4. Ethics self-assessment

The FishEUTrust beneficiaries ensure that all ethics issues related to activities in the grant are addressed in compliance with ethical principles, the applicable international and national law, and the provisions set out in the Grant Agreement. This includes the ethics issues identified in this report and any additional ethics issues that may emerge in the course of the grant. In case any substantial new ethics issues arise, beneficiaries will inform the granting authority. For each ethics issue applicable, beneficiaries will follow the guidance provided in the How to complete your ethics self-assessment.

4.1 Ethical dimension of the objectives, methodology and likely impact

STUDIES INVOLVING HUMANS

In FishEUTrust the WP2 (led by UNIBO) deals with the design and validate an initial tailored set of intervention strategies to stimulate behavioral change in consumers and suppliers, increase consumer trust, and promote seafood products and solutions: identify socioeconomic and cultural barriers and identify local determinants of food choices. In this WP focus group discussions involving consumers will be conducted in each of the three EU regions: Mediterranean, N Sea and Atlantic to dive deeper into specific results obtained by the survey and to understand people's motivation behind their responses. Moreover, consumers' emotional and spontaneous responses towards different production systems will be examined by means of different implicit measurements to stimuli. The WP deals with different approaches and involves different approaches including: (i) Virtual supermarket settings in two (or more) different local units will be configured to engage 150 consumers from the three selected EU Countries (50 per country) with different habits and preferences. The setting of a virtual supermarket would require software creating Virtual Reality Systems (VRS) emulating different store settings. VRS will operate via virtual reality visors and joysticks and through laptops or tablets to steer the consumer within the virtual supermarket. Using the VRS, consumers will be able to perform a simulated shopping experience, in which a variety of parameters/constraints could be applied, such as time and money limitations, labelling, and the possibility to use a shopping list. After each emulation, data on consumer choices, such as typologies and quantity of products purchased, willingness to pay, and the role of product positioning, will be collected, (ii) the seafood products (fish, shellfish) will be sensory evaluated by a group of 10 highly trained panelists who can perceive small differences between products and create through Quantitative Descriptive Analysis (QDA) a sensory profile for each of these products. Subsequently, a selected group of at least 100 consumers will be involved in culinary and tasting events to test their preferences and perceptions about the seafood products in relation to sensory and hedonistic properties; (iii) consumers from three EU countries will be involved in virtual choice experiments to test the impact of selected monetary and non-monetary interventions. Results from these activities will support the definition of the most effective monetary and non-monetary interventions to increase the consumers' demand for seafood products and their trust by acceptance of the innovative FishEUTrust technologies. The tailored intervention strategies for both consumers and the supply chain will be defined. The FishEUTrust consortium will deal with these issues by complying with the legal and ethical requirements for participation in EU research. In particular, FishEUTrust will aim to ensure respect for people and human dignity, fair distribution of research benefits and burden and protecting the values, rights and interests of the research participants. For all these tasks involving human participants, an informed consent of participation will be obtained. All participants will be volunteers and in full decision capacity. Details of recruitment, inclusion and exclusion criteria will be presented. For all the actions, retrospective informed consent will be obtained and participants will be debriefed. All human studies involved in this project will be covered by an ethical approval for human studies, as stipulated by EU and national legislation, if and where needed. Also, all the necessary information regarding the collection, storage and protection of their personal data will be provided to the participants when asked for their consent. The participants will be also informed about their right to refuse to participate or to withdraw their participation at any time — without any consequences. The content of the informed consent form provided to the participants will be written in a language and in terms fully understandable to them. Moreover, data presented in publications will use aggregated data only, in which individuals cannot be identified. The FishEUTrust will not use deceptive methods during the research, nor for obtaining consent.

ANIMALS

FishEUTrust aims to study aquaculture production systems, thus involving animals in this case, fish/shellfish mainly Sea Bream and mussels. Fish will be mainly involved in WP4 and WP5. All animals involved in this project will be covered by an ethical approval for animals in research, as stipulated by EU legislation, and absolutely no work will be undertaken without ethics committee approval.

4.2 Compliance with ethical principles and relevant legislations

FishEUTrust will comply with the Ethics requirements specified in the Horizon Europe Grant Agreement in Article 14 and in Annex 5. The procedures and criteria that will be used to identify/recruit research participants, the informed consent procedures that will be implemented for the participation of humans and the templates of the informed consent/assent forms and information sheets (in language and terms intelligible to the participants) will be submitted as deliverables. In FishEUTrust, the main ethical issues in the project involve humans (human beings and personal data) and Animals, in the project research. For this reason, Matteo Vittuari (UNIBO) will be the ethical officer who will be responsible for legislative and ethical considerations for all aspects of human and animal studies. Currently, there is no Research activity involving third countries, but three countries that are non-EU members are involved in Montenegro, Serbia and United Kingdom. It is assumed that Laws and Statutes in these two countries will parallel EU Regulations and Directives regarding research for the foreseeable future, as these are based on international guidelines. In addition the external independent Ethics Advisor will be appointed by M1 as a part of WP10.

PERSONAL DATA

Personal data will be collected and processed throughout FishEUTrust project, specifically in WP2. Although no specific sensitive data is expected to be collected (the type of data collected includes: behavioral data, general lifestyle, eating habits, preferences, health status and general social, cultural and economic aspects), a detailed data protection policy will be developed in close collaboration with each WP, including justification for using any sensitive personal data and description of measures taken to safeguard rights and freedoms of participants. Justification for the processing of sensitive personal data will be included in the grant agreement before signature. Partners carrying out research involving consumer studies will ensure the protection of individuals with regard to the processing of personal data – informed consent, data protection, privacy, confidentiality, security of data storage and processing - complying with all applicable EU (incl. GDPR 2018; Directive 2001/20/EC; Directive 99/5/EC; Directive 2002/58/EC and Directive 2009/136/EC), Charter of Fundamental Rights, World Medical Association Declaration of Helsinki (2013) and national-level legislation for data protection and personal rights at all times and in all respects.

All humans involved in this project will be treated fairly and always be asked for an informed consent of their participation (as legal basis Art.6.1(a) GDPR). This includes data processing and any relevant GDPR aspects. Also, the data subjects will be informed about their rights and the mechanisms to exercise them, through the information sheet, which will be prepared based on Art. 13 of GDPR - Information to be provided where personal data are collected from the data subject. Personal data will be processed in accordance with certain principles and conditions that aim to limit the negative impact on the persons concerned and ensure fairness, transparency and accountability of the data processing, data quality and confidentiality.

Security and storage: Details of the technical and organisational measures to safeguard the rights of the research participants will be provided. Security of the data will be ensured through pseudonymisation, ensuring integrity, confidentiality, availability and resilience of processing systems, regular testing, assessing and evaluating security measures. All data systems used will comply with security and data protection by design principles. Each participant will be given a code and only the code will be used for data central hub collection and analysis.

As in FishEUTrust also Artificial Intelligence (AI) methods will be applied, Ethics guidelines for trustworthy AI (presented in 2019 by the independent High-Level Expert Group on AI) will be followed. All our approaches and activities will comply with all applicable laws and regulations, as well as with ethical principles and values, considering both from technical perspective while taking into account its social environment. Our AI solutions will ensure each of the key requirements will be satisfied: Human agency and oversight; Technical Robustness and safety; Privacy and data governance; Transparency; Diversity, non-discrimination and fairness; Societal and environmental well-being; and Accountability. As part of the DMP, technical and non-technical methods will be applied to ensure the implementation of these requirements. In our communication, we will be transparent about the fact that we are dealing with AI solutions.

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 - JSI	376 000.00	0.00	0.00	0.00	7 200.00	0.00	32 800.00	0.00	104 000.00	520 000.00	100	520 000.00	520 000.00	520 000.00
2 - IPMA	122 568.00	0.00	0.00	0.00	6 032.00	0.00	101 000.00	0.00	57 400.00	287 000.00	100	287 000.00	287 000.00	287 000.00
3 - UNIBO	200 750.00	0.00	0.00	0.00	9 600.00	0.00	30 200.00	0.00	60 137.50	300 687.50	100	300 687.50	300 687.50	300 687.50
4 - EUROFISH	232 500.00	0.00	0.00	0.00	4 500.00	0.00	3 000.00	0.00	60 000.00	300 000.00	100	300 000.00	300 000.00	300 000.00
5 - UNIFI	164 060.00	0.00	0.00	0.00	13 000.00	0.00	182 940.00	0.00	90 000.00	450 000.00	100	450 000.00	450 000.00	450 000.00
6 - UMF Cluj	134 061.00	0.00	0.00	0.00	10 000.00	0.00	57 000.00	0.00	50 265.25	251 326.25	100	251 326.25	251 326.00	251 326.00
7 - DTU	249 521.00	0.00	0.00	0.00	20 000.00	0.00	14 000.00	0.00	70 880.25	354 401.25	100	354 401.25	354 401.00	354 401.00
8 - BTU CS	107 800.00	0.00	0.00	0.00	5 500.00	0.00	20 600.00	0.00	33 475.00	167 375.00	100	167 375.00	167 375.00	167 375.00
9 - NORCE	0.00	151 500.00	0.00	0.00	18 300.00	0.00	3 500.00	0.00	43 325.00	216 625.00	100	216 625.00	216 625.00	216 625.00
10 - EUROFIR AISBL	187 500.00	0.00	0.00	0.00	10 200.00	0.00	0.00	0.00	49 425.00	247 125.00	100	247 125.00	247 125.00	247 125.00
11 - UNIPD	78 000.00	0.00	0.00	0.00	6 000.00	0.00	15 000.00	0.00	24 750.00	123 750.00	100	123 750.00	123 750.00	123 750.00
12 - ABT	130 928.00	0.00	0.00	0.00	15 000.00	0.00	25 500.00	0.00	42 857.00	214 285.00	70	149 999.50	149 999.50	149 999.50
13 - REDINN	176 000.00	0.00	0.00	0.00	9 000.00	0.00	0.00	0.00	46 250.00	231 250.00	70	161 875.00	161 875.00	161 875.00
14 - BELIT	252 000.00	0.00	0.00	0.00	5 000.00	0.00	11 000.00	0.00	67 000.00	335 000.00	70	234 500.00	234 500.00	234 500.00
15 - MICRUX	128 650.00	0.00	0.00	0.00	4 500.00	0.00	99 500.00	0.00	58 162.50	290 812.50	70	203 568.75	203 568.75	203 568.75
16 - JdIC	0.00	0.00	133 261.77	0.00	4 000.00	0.00	0.00	0.00	34 315.44	171 577.21	70	120 104.05	120 102.50	120 102.50
17 - CETGA	131 869.00	0.00	0.00	0.00	1 675.00	0.00	38 691.00	0.00	43 058.75	215 293.75	100	215 293.75	150 706.00	150 706.00
18 - DIGITALSMART	163 800.00	0.00	0.00	0.00	5 600.00	0.00	13 000.00	0.00	45 600.00	228 000.00	70	159 600.00	159 600.00	159 600.00
19 - BUGENVILA	80 000.00	0.00	0.00	0.00	3 000.00	0.00	8 900.00	0.00	22 975.00	114 875.00	70	80 412.50	80 412.50	80 412.50
20 - OXY	160 000.00	0.00	0.00	0.00	12 300.00	0.00	0.00	0.00	43 075.00	215 375.00	70	150 762.50	150 762.50	150 762.50
21 - EAS														
22 - WRG														
Σ consortium	3 076 007.00	151 500.00	133 261.77	0.00	170 407.00	0.00	656 631.00	0.00	1 046 951.69	5 234 758.46		4 694 406.05	4 629 816.25	4 629 816.25

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.

ADDITIONAL INFORMATION ON UNIT COSTS AND CONTRIBUTIONS**SME owners/natural person beneficiaries without salary** (Decision C(2020) 7115¹)

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:

$$\begin{aligned} &\{ \text{EUR } 5\,080 / 18 \text{ days} = \mathbf{282,22} \} \\ &\text{multiplied by} \\ &\{ \text{country-specific correction coefficient of the country where the beneficiary is established} \} \end{aligned}$$

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 actions²

Type: unit costs

Units³: 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:

$$\frac{\text{average annual total trans-national access costs to the installation (over past two years}^4\text{)}}{\text{average annual total quantity of trans-national access to the installation (over past two years}^5\text{)}}$$

For virtual access:

$$\frac{\text{total virtual access costs to the installation (over the last year}^6\text{)}}{\text{total quantity of virtual access to the installation (over the last year}^7\text{)}}$$
Euratom staff mobility costs⁸**Monthly living allowance**

Type: unit costs

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 2021¹⁰

EU-Member States¹¹

Country / Place	Coefficient (%)
Bulgaria	59,1
Czech Rep.	85,2
Denmark	131,3
Germany	101,9
Bonn	95,8
Karlsruhe	98
Munich	113,9
Estonia	82,3
Ireland	129
Greece	81,4
Spain	94,2
France	120,5
Croatia	75,8
Italy	95
Varese	90,7
Cyprus	78,2
Latvia	77,5
Lithuania	76,6
Hungary	71,9
Malta	94,7
Netherlands	113,9
Austria	107,9
Poland	70,9
Portugal	91,1
Romania	66,6
Slovenia	86,1

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 children¹²}

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.)

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

INSTITUTO PORTUGUES DO MAR E DA ATMOSFERA IP (IPMA), PIC 953379924,
established in RUA C AO AEROPORTO, LISBOA 1749 077, Portugal,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust (‘the Agreement’)

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA)
(‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA (UNIBO), PIC 999993953,
established in VIA ZAMBONI 33, BOLOGNA 40126, Italy,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) **and** the **European Research Executive Agency (REA)**
(‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

INTERNATIONAL ORGANISATION FOR THE DEVELOPMENT OF FISHERIES AND AQUACULTURE IN EUROPE (EUROFISH), PIC 986599902, established in HC ANDERSENS BOULEVARD 44-46, COPENHAGEN 1553, Denmark,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA) ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSITA DEGLI STUDI DI FIRENZE (UNIFI), PIC 999895789, established in Piazza San Marco 4, Florence 50121, Italy,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust (‘the Agreement’)

between INSTITUT JOZEF STEFAN (JSI) **and** the **European Research Executive Agency (REA)** (‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSITATEA DE MEDICINA SI FARMACIE IULIU HATIEGANU CLUJ-NAPOCA (UMF Cluj), PIC 999842439, established in VICTOR BABES STREET 8, Cluj-Napoca 400012, Romania,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA) ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

DANMARKS TEKNISKE UNIVERSITET (DTU), PIC 999990655, established in ANKER ENGELUNDSVEJ 1 BYGNING 101 A, KGS LYNGBY 2800, Denmark,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA) ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

BRANDENBURGISCHE TECHNISCHE UNIVERSITÄT COTTBUS-SENFTENBERG (BTU CS), PIC 937759529, established in PLATZ DER DEUTSCHEN EINHEIT 1, COTTBUS 03046, Germany,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA) ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

NORCE NORWEGIAN RESEARCH CENTRE AS (NORCE), PIC 905860788, established in NYGARDSGATEN 112, BERGEN 5838, Norway,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA) ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

EUROPEAN FOOD INFORMATION RESSOURCE AISBL (EUROFIR AISBL), PIC 994382018, established in RUE WASHINGTON 40, BRUXELLES 1050, Belgium,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust (‘the Agreement’)

between INSTITUT JOZEF STEFAN (JSI) **and** the **European Research Executive Agency (REA)** (‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSITA DEGLI STUDI DI PADOVA (UNIPD), PIC 999995602, established in VIA 8 FEBBRAIO 2, PADOVA 35122, Italy,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) **and** the **European Research Executive Agency (REA)** ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

AQUABIOTECH LIMITED (ABT), PIC 996843393, established in NAGGAR STREET
CENTRAL COMPLEX TARGA GAP, MOSTA MST 1761, Malta,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) **and** the **European Research Executive Agency (REA)**
(‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

REDINN - SRL (REDINN), PIC 968427922, established in VIA MAR DI BERING 39B, POMEZIA 00040, Italy,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) **and the European Research Executive Agency (REA)** ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

PREDUZECE ZA INFORMACIONE TEHNOLOGIJE I ELEKTRONSKO TRGOVANJE BELIT DOO (BELIT), PIC 975084450, established in TRG NIKOLE PASICA 9, BEOGRAD 11000, Serbia,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA) ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

MICRUX FLUIDIC SL (MICRUX), PIC 956824491, established in C/ JUAN DE LA CIERVA 2C
NAVE 6 POLIGONO MORA G, GIJON 33211, Spain,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust (‘the Agreement’)

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA)
(‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

DE LA CUEVA GONZALEZ COTERA JAVIER (JdIC), PIC 937532161, established in CALLE RODRIGUEZ MARIN 90 PO4 D, MADRID 28016, Spain,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust (‘the Agreement’)

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA) (‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

CLUSTER DE LA ACUICULTURA DE GALICIA ASOCIACION (CETGA), PIC 957778486,
established in PUNTA DE COUSO AGUINO, A CORUNA 15960, Spain,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA)
(‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

**DRUSTVO SA OGRANICENOM ODGOVORNOSCU DIGITALSMART DOO
PODGORICA (DIGITALSMART)**, PIC 891952346, established in BULEVAR DZORDZA
VASINGTONA 3/21, PODGORICA 81000, Montenegro,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA)
(‘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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

BUGENVILA INVESTICIJE DOO (BUGENVILA), PIC 891199529, established in OBALA DR ANTE STARCEVIC 9, CAVTAT 20210, Croatia,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) **and the European Research Executive Agency (REA)** ('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

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

OXYGUARD INTERNATIONAL AS (OXY), PIC 965476212, established in FARUM GYDEVEJ 64, FARUM 3520, Denmark,

hereby agrees

to become beneficiary

in Agreement No 101060712 — FishEUTrust ('the Agreement')

between INSTITUT JOZEF STEFAN (JSI) and the European Research Executive Agency (REA) ('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

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.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/PPR: D.5 PCP/PPR 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						
A.2 Natural persons under direct contract																						
A.3 Seconded persons																						
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 +a+ 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).

① 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.

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 2015/444¹ 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 Integrity².

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 Commons 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 Researchers³, 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).



SUB-ACCOUNT DEBIT CERTIFICATE

Title of box	
Related reference number	SE24051564079901
BoS Reference mark	BP00007385827340
Settlement system	
Date of transfer execution	15.05.2024
Time of transfer execution	10:37:29

Amount of transfer and currency	30.135,00 EUR
Amount of transfer and original currency	30.135,00 EUR
Payer <ul style="list-style-type: none">- Account- Name- Address- Postal code	011006030344242 INSTITUT JOŽEF STEFAN JAMOVA CESTA 039 1000 LJUBLJANA
Debit reference	99
Beneficiary bank <ul style="list-style-type: none">- BIC code- Bank name- Bank address- National clearing code of the bank	RZBHHR2X
Beneficiary* <ul style="list-style-type: none">- Account- Name- Address- Postal code	HR6824840081990001849 BUGENVILA INVESTICIJE D.O.O. OBALA DR ANTE STARCEVICA 9 20210 CAVTAT
Credit reference	99
Purpose of payment	FISHEUTRUST 101060712
Type of costs	SHA

*Data on the name of the beneficiary were provided by the budget user.

SUB-ACCOUNT DEBIT CERTIFICATE is extracted from the online application UJPnet, 15.05.2024 13:08