



pan-European Management of Biological toxin incidents through standaRdisAtion  
initiatives for Crisis response Enhancement

# D8.5

## Exploitation and impact evaluation – 1st Iteration



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## D8.5 Exploitation and impact evaluation – 1st Iteration

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<b>Abstract</b>	<p>This deliverable establishes the EMBRACE's strategic pathway for exploitation, impact evaluation, and long-term sustainability of results. It defines a structured framework for identifying, protecting, and valorising over 25 exploitable assets, ensuring alignment with European Commission guidelines IPR and knowledge valorisation. By integrating IPR management, partner engagement, and Innovation Radar methodologies, EMBRACE transforms research outputs into assets with commercial, policy, and societal value. The strategy highlights exploitation pathways, sustainability plans, and adoption roadmaps, leveraging EU platforms and partner networks. This document positions EMBRACE to secure lasting impact beyond project completion, maximising return on EU investment.</p>
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## Abbreviations

AI	Artificial Intelligence
BMC	Business Model Canvas ®
CC	Creative Commons
DC	Dissemination / Communication
DoA	Description of the Action
DMP	Data Management Plan
EA / ER	Exploitable Assets / Exploitable Results
FAIR	Findable, Accessible, Interoperable and Re-usable
GDPR	General Data Protection Regulation
IAM	Intellectual Asset Management
IP	Intellectual Property
IPR	Intellectual Property Rights
KER	Key Exploitable Results
KPI	Key Performance Indicator
PC	Project Coordinator
PO	Project Officer
PEDR	Plan for Exploitation and Dissemination of Results (see IPR Helpdesk.eu)
QA	Quality Assurance
QC	Quality Control
R&I	Research & Innovation
ROI	Return on Investment
ROL	Result Ownership List
Tx.y	Task (numbering)
TRL	Technology Readiness Level
UC	Use-case
URL	Uniform Resource Locator
VPC	Value Proposition Canvas
WP	Work Package
WPL	Work Package Leaders

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## EXECUTIVE SUMMARY

This deliverable, being the 1<sup>st</sup> (on M12) of 3 iterations of exploitation and IPR deliverables in total, delivers a comprehensive blueprint for exploitation and impact evaluation of the EMBRACE project at its first major reporting milestone (M12), focusing on how project results will be transformed into lasting real-world impact across scientific, societal, governmental and policy making, as well as economic / commercial domains.

The main aim is to guide the EMBRACE consortium in the systematic identification, protection, and valorisation of all key exploitable results (KERs) generated during the first year. It clarifies terminology and methodology, sets out selection criteria for assets, and provides actionable frameworks for partners to design their own exploitation, sustainability, and business plans in alignment with European Commission guidelines (including PEDR, Innovation Radar, Horizon Results Platform, and recent Codes of Practice on knowledge valorisation, standardisation, and IP management).

EMBRACE's approach integrates the latest EU valorisation and IPR policies, ensuring all assets and plans link to impact KPIs and project objectives such as improved crisis management, novel technologies, standardisation, stakeholder collaboration, and sustained market uptake. Methodological highlights include:

- Structured partner workshops, surveys, and recurring telcos to co-create exploitation plans, valorisation strategies, and business model canvases (BMC, VPC, market segmentation tools).
- Embedded mechanisms for partner guidance in identifying value propositions, market barriers, stakeholder benefits, and pathways for EC platform submission.
- Complementary actions for liaisons with peer networks (CMINE, CBRNe clusters), market actors, standardisation bodies, and government agencies, operationalising adoption and sustainability tracking.

The plan advances by explaining the next steps of second-year execution, with detailed partner exploitation plans, business models, rollout maps, protection instruments, licensing schemes, and targeted adoption strategies being refined through additional workshops and surveys. Subsequent deliverables will expand these frameworks and catalogue emerging results, ensuring that EMBRACE's impact endures well beyond its funded duration.

### Key Achievements – Outputs:

- EMBRACE has mapped **25+ exploitable results (ERs)**, including technical modules, knowledge networks, standards, pilot trial datasets, methodologies, and guidelines. These are detailed in the asset master table and mind-map, forming the backbone for exploitation planning.
- Out of these 3 or 4 KERs, designated “key” and indicative “flagships” of our project, will be voted for, selected, curated with accompanying value propositions and target markets, and promoted to all relevant EC Mechanisms (Innovation Radar, Horizon Results Platform etc.)
- The asset selection process distinguishes between broad “project results” and high-potential Key Exploitable Results chosen for submission to EC platforms. Asset criteria include commercial viability, societal impact, readiness for market adoption, and broader policy influence.
- **7 Key liaisons** for our potential customer – adopter “**engagement tracker**” and another 8 categorized groups from which we will refine more entries like them in the next stage, in collaboration with other WP8 experts
- **14 distinct exploitation pathways** have been defined to accommodate diverse partner strategies, covering not only commercial sales but also licensing, open-source, further research, internal use, policy contributions, data exploitation, training, and network development.
- **28 exploitation output types.** The deliverable expands on EU Innovation Radar output types, creating a catalogue of ideas for products/services ranging from new devices and datasets, to training materials, consulting, standardisation, and community engagement etc.

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- A **10-phase** exploitation plan with **44 action steps**.
- Defining **11 defining categories** for the framework of each exploitation plan: including the asset (what), partner (who), pathway (how), output (for what), beneficiary (for whom), impact factor and project objective (why). Also in what timeframe, and with what resources, based on what needs etc.
- A **six-phase IPR management roadmap** is deployed, ensuring robust documentation and partner engagement for background, foreground, and joint IP claims.
- **IPR claims tables**, result ownership lists (ROLs), and registry templates have been derived and will be iteratively completed.
- Derived clear lists of **Protection Instruments** and **Restriction measures** to be considered for each asset by each partner
- Presented clear **IPR claims Tables with letter coding per asset and per partner**: B-background, F-foreground, I-intention to exploit, C- Contribution claim towards ROL formulation, P-protection intention, O- Opensource potential, etc.
- **Preliminary ROL list** (although tentative at this stage of the project) for Result joint co-ownership is shown after the contribution claims table.

## 1 INTRODUCTION

### 1.1 Purpose and Scope

The present deliverable is documenting the first year (until M12) outcomes of the EMBRACE project's actions which are related to the activities of: exploitation, valorisation, IPR management, market gap analysis, commercial route-to-market, non-commercial route-to-adoption through complementary exploitation pathways (such as further research, governmental, policy making, standardisation contributions, valorisation steps etc.), and the overall sustainability planning. These initial outcomes are the basis upon which we will further build according to the plan that is presented within this deliverable.

Its primary scope is to provide a comprehensive roadmap for the sustainable uptake of the project's key results, focusing on market alignment, value creation, and long-term impact beyond the project's duration. The document also serves as a detailed guide for project partners, ensuring a systematic and coordinated approach to the methodologies and terminology of exploitation, IPR management and Valorisation. It provides the methods, tools and templates to be employed in our workshops and online surveys, necessary to identify, protect, and ultimately transform the project's research outcomes into tangible economic, societal, and scientific value.

### 1.2 Link with WP and Tasks

Being part of the output of T8.4 Valorisation of EMBRACE outcomes, and belonging within WP8 entitled Valorisation, Sustainability and Foresight, it has close collaboration with the other Tasks of WP8, as also indicated in the relevant chapter of valorisation action lists and the engagement tracker that transposes dissemination targets into future potential clients and adopters after the contractual end of the project:

We collaborate with T8.1 Stakeholder Community Building and Sustainability (Lead RAN), to take and expand for our purposes the lists they are devising to identify stakeholders which for the reasons of valorisation and exploitation, we wish to expand also to potential customers, targeted adopters and direct/indirect beneficiaries.

We collaborate and we will continuously assist T8.3 Standardisation Road Map; gaps and needs for biotoxin incidents (Lead TPEB) towards their main activities of execution of gap analysis (y/n) and the Establishment of links to standardisation community (TCs, SDOs) which are closely interrelated with valorisation (see also the valorisation methodology chapter).

We aspire to expand the lists of Dissemination / Communication (DC) targets of the T8.2 Visibility (Communication, Dissemination) (Lead LC) which are used **during** the project, into lists that will be able to narrow down adopters and potential customers, which will be useful as exploitation targets **after** the project's contractual end. Towards this goal we have initiated the "engagement tracker" with real market liaisons from the partner pre-existing network.

### 1.3 Document Intended Audience – Confidentiality and Restriction

The document is classified as PU within the DoA, but due to the sensitive nature of the document and its data concerning exploitation and IPR claims, it is treated as sensitive and is intended for internal use within the consortium and relevant EC services.

Its main purpose is to connect the exploitation team's methodology with the appropriate strategic, business, and IPR tools and terminology, targeting the personnel within each partner organisation responsible for planning and implementing the sustainability phase after the project's contractual completion. Our experienced Exploitation, IPR and Valorisation team supports constantly partners within a series of workshops, by providing methodologies and guidance to help them conceptualise, articulate, and execute these business strategies at the organisational or project partner level.

## 1.4 Document Structure

The document is a structured guide for project partners on how to identify, protect, and exploit project results, turning them into tangible value.

**Identifying Exploitable Assets.** It begins by defining what counts as an exploitable asset, from technical outputs to knowledge, and establishes criteria for cataloguing all valuable results.

**Managing IPR and Valorisation Roadmap.** The core section addresses Intellectual Property Rights (IPR), explaining terminology, ownership rules, protection mechanisms, and licensing options. It also introduces a roadmap for managing contributions, joint ownership, and links to standardisation.

**Strategy for Valorisation and Exploitation.** The document then moves into strategy, setting out methods for transforming research into economic and societal value. It explains pathways for exploitation, develops business and marketing plans, and uses tools like business canvases to guide sustainability and market readiness.

**Leveraging EU Platforms and Networks.** Finally, it underscores the role of EU dissemination platforms (e.g., Innovation Radar, Horizon Results Platform) and connections with external networks and experts to maximize visibility, uptake, and market entry.

**General Purpose.** Overall, the document ensures a coordinated approach by providing methodologies, tools, and templates that help partners systematically exploit project outcomes for long-term impact.

## 1.5 Partners as Exploitation Beneficiaries

The consortium consists of 18 partners from 14 countries, a core group which EMBRACE aims to build upon to create a thriving biotoxin expert community.

Partner	Partner	Acronym	Country
1	TELESTO TECHNOLOGIES PLIROFORIKIS KAI EPIKOINONION EPE	TEL	Greece
2	DCNA DISASTER COMPETENCE NETWORK AUSTRIA	DCNA	Austria
3	OSTERREICHISCHES ROTES KREUZ	ARC	Austria
4	POMPIERS DE L'URGENCE INTERNATIONALE	PUI	France
5	MEDIZINISCHE UNIVERSITAT GRAZ	MUG	Austria
6	HELSINGIN YLIOPISTO	VER	Finland
7	SAITAMA MEDICAL UNIVERSITY EDUCATIONAL CORPORATION	SMU	Japan
8	BIOTALENTUM TUDASFEJLESZTO KFT	BIOT	Hungary
9	AIRSENSE ANALYTICS GMBH	AIRS	Germany
10	MOBILITY ION TECHNOLOGIES SL	MION	Spain
11	PROMETECH BV	PRO	Netherlands
12	IANUS TECHNOLOGIES LTD	IANUS	Cyprus
13	THE LISBON COUNCIL FOR ECONOMIC COMPETITIVENESS ASBL	LC	Belgium

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14	TECHNOLOGICKA PLATFORMA ENERGETICKABEZPECNOST CR	TPEB CR	Czech Republic
15	CESKA AGENTURA PRO STANDARDIZACI	CAS	Czech Republic
16	URAD PRE NORMALIZACIU, METROLOGIU A SKUSOBNICTVO SLOVENSKEJ REPUBLIKY	UNMS	Slovakia
17	RESILIENCE ADVISORS LTD	RAN	United Kingdom
18	BIOXHALE LTD	BIOX	United Kingdom

**Table 1. The EMBRACE Consortium**

## 2 EXPLOITABLE ASSET LIST WITH ASSET TAXONOMY, DEFINITIONS AND MAPPINGS

### 2.1 Scope and Purpose

The purpose of this chapter is twofold:

- To identify exploitable assets/results, as the basis for further business planning, exploitation, IPR claims and royalties, as well as relevant activities.
- To provide an analytic taxonomy and categorisation in line with the technical tasks, so that the interested reader and every involved stakeholder will have a good understanding in a “synopsis” of tables for the added value of EMBRACE
- The subchapter that follows is the output as derived and agreed in our common workshops-telcos during M2–M10.

Terms and definitions, below, adhere to:

### 2.2 Adherence of terminology to EC official guidelines

For the terms and definitions below (among others, see references [1–34] for full list), we strive to adhere to the principles and the concepts of:

- Horizon Plan for Exploitation and Dissemination of Results” (PEDR).
- IPR Helpdesk Guidelines “How to manage IP in Horizon”
- EUIPO European Union Intellectual Property Office library <https://euipo.europa.eu/knowledge/>
- Commission Recommendation (EU) 2023/499 on a Code of Practice on the management of intellectual assets for knowledge valorisation
- Commission Recommendation (EU) 2024/774 on a Code of Practice on industry-academia co-creation for knowledge valorisation
- Horizon Results Booster (HRB) and Common Exploitation Booster (CEB)
- Digital Single Market “Innovation Radar” (IR) ([innoradar.eu](http://innoradar.eu))
- Horizon Results Platform (HRP)

### 2.3 Exploitable Assets in EMBRACE, properties and methods of selection

#### 2.3.1 Exploitable Assets / Exploitable Results Definition

Within the scope of the exploitation activities, the terms (EA) Exploitable Assets or (ER) Exploitable Results (used interchangeably throughout the document), refer to **any entity** within the range of service/module/integrated solution/ Dataset/ Methodology/ Intangible knowledge, or wider **foreground knowledge derived** during the project, which have one or more of the following properties:

- **contribute** for further work, research or innovations, or further **impactful R&I beyond the project’s contractual lifetime**.
- They (**as stand-alone**) – or with complementary **services** around them – can be deemed **commercially exploitable** by one or more project partners in collaboration.
- can create a notable **impact** (to society, stakeholders, adopters, clients etc.).
- are in principle **re-usable with minor modifications** (i.e. they are not restricted to isolated use only within the project and for the project purposes).
- may bear **licensing, IPR, or other ownership schemes and restrictions** (see relevant chapter)
- Are deemed **worthy of potential protection** and/or **valorisation** by at least one partner

### 2.3.2 Subsets and Supersets of ERs

For reasons of completeness, we distinguish between:

#### Superset of ERs: Project Results

In comparison to EA/ERs, the project “Results in general” (i.e., a superset of ERs) are “Any tangible or intangible output of the action, such as data, knowledge and information whatever their form or nature, whether or not they can be protected”. In the broader sense they can be commercial, societal, political, scientific or for improving public knowledge and action.

#### Subset of ERs: KER

KER (or Key Exploitable Results/Assets) are the **selected subset** of the above ERs (**designated as “key”**) which present, according to the consortium view, the biggest potential in Innovation, Exploitability, Market Impact and Readiness to Market Launch. These are measured, benchmarked and handled properly by the well-known KER Methodology (also used in the Exploitation Booster and Innovation Radar).

## 2.4 Process of our Exploitable Asset Selection

### 2.4.1 Asset Selection and Inclusion Criteria

Following a series of discussions and Telcos among all partners, we considered to include as follows:

- **All entities** that could potentially be sold or promoted or disseminated as **“stand-alone” after the project’s end**, and these include both deliverable outcomes and task outcomes (knowledge, inventions, products, services, software, guidelines etc.), and
- all **intermediary elements** (knowledge, technology, processes, networks, tools, intermediate software) generated during the project by the consortium partners.

This master list was later filtered, evaluated and reduced accordingly (see below).

### 2.4.2 Selection Criteria of KERs

The subset of ERs which are “Promising” KERs, and are also “indicative” (as flagship showcases of the project) will be evaluated and then voted for a final selection of maximum 3 (as per Innovation Radar requirements), and for submission in the relevant platforms (see relevant chapter on the 7 official EC platforms etc.) in the next revision (M24) in terms of:

- Maturity.
- Innovativeness.
- wide applicability.
- impact on society challenges.
- Importance in Risk Mitigation
- potential to influence policy making.
- ability to instigate strong collaboration with wider ecosystems and research initiatives,
- adoption potential by market leaders in key related sectors of the economy
- adoption potential by governmental, policy, regulatory entities
- adoption potential by Health institutions and experts
- having a clear “route to market” potential as per Innovation Radar terms

### 2.4.3 Core Technical Modules as Assets

In the Exploitable Asset lists below, we have considered and revised during our common telco workshops with partners:

- Software tools and services (and their prototypes)

- Sensors and Infrastructure developed and integrated into stand-alone solutions for our tasks
- Software methodology, proof-of-concept, tool demonstrators.
- Data models
- All other final or interim, stand-alone “technical” entities produced by the technical tasks of the project

### 2.4.4 Inclusion of Intangibles as Assets

Intangible assets should not be neglected, as per Horizon guidelines and IPR-Helpdesk. This is particularly important due to the nature of EMBRACE project. In the final phase of IPR and Valorisation (see relevant chapters) we will be populating the extended IPR tables on protection instruments and restriction measures, and the valorisation templates for these types of intangible assets/knowledge.

We include “Intangible” entries from the project that fall under the categories:

- Frameworks incl. standards, methods, guidelines
- Studies and their results and datasets
- Recommendations for policies in collaboration with the Standardisation Task.
- Academic courses, presentations etc. created based on the project outcomes.
- Training Methods (not the material as per above but the method).
- Scientific Publications in Journals.
- Patents, Standardisation contributions, recommendations to governmental bodies and law formulation.
- Assessment and Testing Methodologies.
- All intangible foreground knowledge (usually in the participatory sense)
- or even proposed novel Business Models (if such models are devised) for expanding and penetrating the market (only if they are novel in concept, never used before and characteristic of our project alone – or else they will be omitted as standard business and marketing practice).
- All other intangible knowledge that the partners identify and might wish to apply their rights protect (also pre-existing as background that is being improved as foreground within the project –see next chapter on IPR for terminology)

### 2.4.5 Prominent Candidates as KERs of EMBRACE

Out of the entire list of ERs (see next subchapter), we will select the 3 most prominent (as Innovation Radar dictates to submit maximum 3), from the following “flagships” of the project

- **Biotoxin Task Force:** Creation of a pan-European multidisciplinary task force of biotoxin experts.
- **PPE & Decontamination Testing:** Laboratory and field evaluation of PPE and novel decontaminants.
- **Biothreat Risk Tools:** New tools for biothreat risk assessment (TRL 5–8, depending on tool).
- **Biomarkers & Susceptibility:** Identifying novel human biomarkers of biotoxin intoxication and individual differences in susceptibility.
- **Portable Breath Sampling & Biotoxin Detection:** New portable devices for breath sampling and field detection (TRL 4–7, depending on device).
- **Secure Sampling Procedures:** Development of secure and legally valid sampling procedures for enhanced provenance and analytical accuracy.
- **Enhanced Response Capacity:** Revised CONOPS, new training materials, and response capacity specification.
- **Regulatory Roadmap:** Creation of a regulatory and standardisation roadmap.



### 2.4.6 Trials – Pilots also as clear assets due to exploitable knowledge derived

EMBRACE will also respect the recommendation of IPRHelpdesk.eu for the inclusion of Trial-Pilot based assets and knowledge derived from use cases. As per IPRHelpdesk.eu guidelines, the deployments within the Pilots, are constituting assets themselves. This is indeed true because they produce a series of hardware, software but most importantly **knowledge and datasets that did not pre-exist before EMBRACE**, (or at least not in that form).

These by definition remain in the premises and can be further exploited, researched, improved, become a reference basis for future work etc. These “end-deployments” in the form of integrated installations:

- Will have substantial value, both in physical/tangible terms and also in terms of knowledge
- Can be used and exploited further by the end-beneficiaries yielding opportunities for internal exploitation and further research
- Are a demonstratable “success story” for our project to any external stakeholder
- Have the possibility to be expanded, replicated or augmented in the future at the same or neighbouring premises.

There is also a **dedicated exploitation pathway** foreseen (see the chapter on exploitation pathways) specifically for trial-pilot-use case future expansion after the project’s end, towards relevant beneficiaries.

### 2.4.7 EMBRACE Trial – Pilots and their Datasets, as assets with significant exploitation potential

EMBRACE will organise three evaluation trials, a tabletop trial (TTX) hosted by the Austrian Red Cross in Vienna (March 2026), and two field trials, hosted by the Pompiere De L'Urgence Internationale at an airport near Limoges (November 2026), and by the Medizinische Universitat, Graz, at the Sim Campus underground train tunnel site in the Styrian mountains in Austria (May 2027).

Each trial will be based around a realistic biotoxin scenario to evaluate technical solutions, operational procedures, and preparedness assumptions. The TTX will address issue that relate to long time frames and preparedness policies, while FTX1 considers the aftermath of the release of ricin in an aeroplane, and FTX2 the potential for a biotoxin release (saxitoxin) to be part of an overt terrorist attack. Each exercise will involve external first responder organisations and observers, in the evaluation of a specified subset of solutions and procedures.

ID	Type	Time	Location	Description
01	TTX	March 2026 (M18)	Austrian Red Cross HQ, Vienna	A 2–3-day tabletop exercise in which we will address longer timescale issues, including stealth incident, slow emergence of symptoms allowing uncontrolled spread of the toxin, and assumptions around stockpiling of equipment and medical countermeasures.
02	FTX1	November 2026 (M26)	Airport Biological Alert, Brive International Airport, France	Simulation of a bioterrorist attack using ricin
03	FTX2	May 2027 (M32)	Am Berg Centre, Styria, Austria	A saxitoxin attack in a train, with complicated operational issues.

**Table 2. EMBRACE Pilot-Trials**

**Note for Asset Tables:** The Knowledge and also the Datasets that will be derived from these Trials – Pilots,

will be appended as intangible exploitable assets in the next Asset table revisions (M24 and M36) and accordingly in all the IPR tables that follow.

## 2.5 Master Table of Exploitable Assets (as of M12)

ID	Asset	Link to DoA, WP, Task	Leading Partner	Category / Type	Used in Trial/ Pilot
ER01	A Biotoxin Task Force (BTF)	WP2, T2.1	RAN	Directory/Registry	All
ER02	Biotoxin Knowledge Network (BKN)	WP8, T8.1	RAN	Directory/Registry	All
ER03	Requirements for an effective UCPM biotoxin response capacity	WP2, T2.2	DCNA	Guidelines	TTX, FTX1, FTX2
ER04	CONOPs for improved crisis management and response to biotoxin incidents	WP2, T2.3	DCNA	Guidelines	TTX, FTX1, FTX2
ER05	New Training Materials	WP2, T2.4	VER	System <sup>1</sup>	FTX1, FTX2
ER06	ROPs for forensic analysis of biotoxins	WP3, T3.2	VER	Guidelines	
ER07	New guidelines for individual biotoxins, including purity assessment of detected agents for provenancing	WP3, T3.2	VER	Guidelines	
ER08	Secure and legally valid sampling and forensic chain of custody procedures	WP3, T3.1	PRO	System	FTX1, FTX2
ER09	Portable biosensors, evaluated in comparison with laboratory standards	WP3, T3.3	MION, AIRS	Device	FTX1, FTX2
ER10	Identification of human biomarkers indicative of biotoxin exposure	WP4, T4.6	MUG, BIOT	New knowledge	
ER11	Grab & Go sampling system for high-capacity screening	WP4, T4.4	BIOX	Device	FTX1, FTX2
ER12	Prototypes of mobile diagnostic devices for detecting acute biotoxin exposure	WP4, T4.6	MUG, BIOT	Device	FTX2
ER13	Genetic susceptibility of the central nervous system to biotoxin exposure	WP4, T4.6	BIOT	New knowledge	
ER14	Biothreat risk assessment framework (BioRA), accessible to clinicians, responders, and public health officials to provide up-to-date risk assessment of the incident as it unfolds	WP4, T4.1	IANUS	System	TTX, FTX1, FTX2
ER15	Evidence-based recommendations for PPE, and decontaminants for the target set of biotoxins	WP4, T4.2	MUG, VER, PRO	Guidelines	FTX1, FTX2
ER16	Current regulatory and standardisation landscape relevant to biotoxins	WP8, T8.3	TPEB CZ	Directory/Registry	
ER17	Gaps and needs in provision for biotoxin incidents	WP8, T8.3	TPEB CZ	New knowledge	
ER18	Biotoxin Reference and Stakeholder Hub (BRSH) providing a comprehensive biotoxin knowledge exchange platform	WP7, T7.1-4	IANUS, TEL	System	FTX1, FTX2
ER19	Interfaces designed and evaluated for each sector/interest group	WP7, T7.2	IANUS, TEL	System	FTX1, FTX2

<sup>1</sup> System: Software (+ Hardware) system

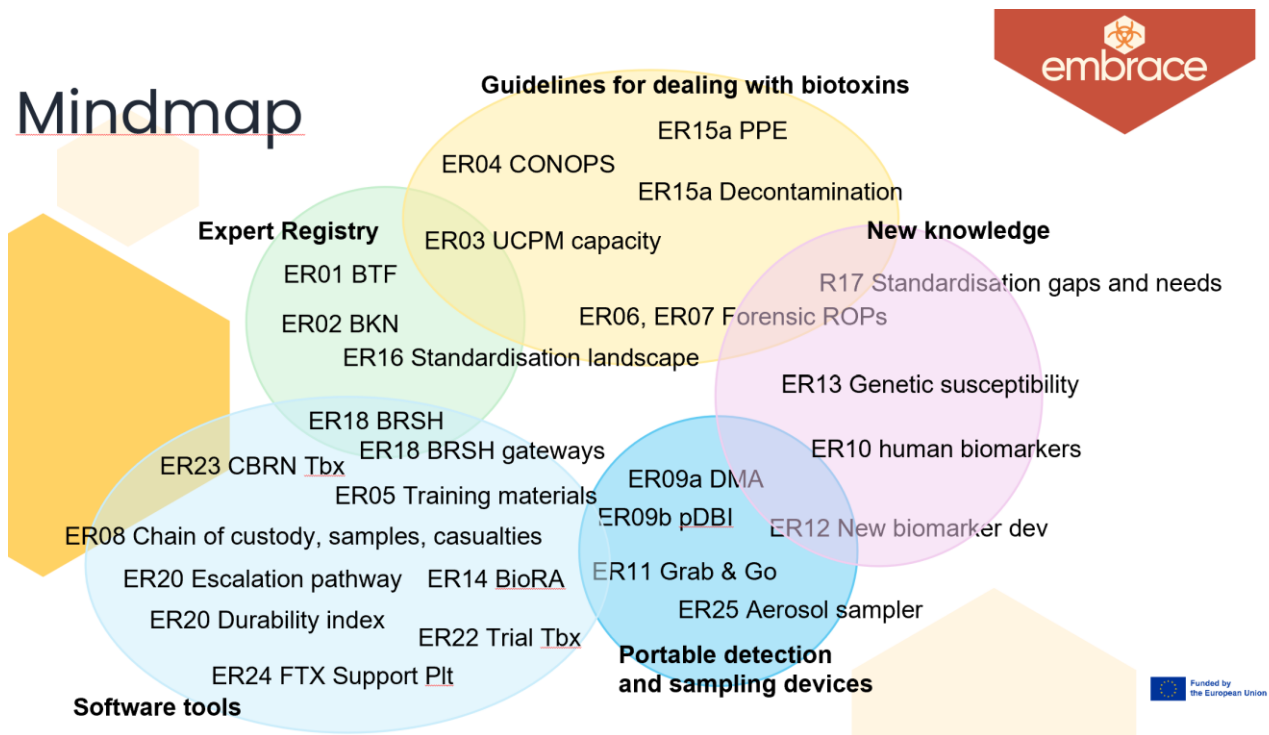
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ER20	Human Durability Indexing	WP5, T5.3	PRO	System	FTX1, FTX2
ER21	Biotoxin Escalation Pathway	WP5, T5.2	PRO	System	FTX1, FTX2
ER22	Trial ToolBox	WP6, T6.5	IANUS	System	FTX1, FTX2
ER23	CBRN ToolBox	WP2, T2.4	VER	System	TTX, FTX1, FTX2
ER24	Field Exercise Support Platform	WP6, T6.5	TEL	System	FTX1, FTX2
ER25	High volume aerosol sampling device	WP3, T3.3	MION	Device	FTX1, FTX2

**Table 3. EMBRACE Master Exploitable Asset Table (as of M12)**

### 2.6 Exploitable Asset Mind-map

A useful Mind-map has also been constructed to assist asset selection discussions, and also for initial dissemination purposes.



**Figure 1. EMBRACE Asset Mind-Map**

### 3 IPR METHODOLOGY, TERMINOLOGY AND ROADMAP

#### 3.1 Methodology Adherence to IPRHelpdesk.eu and official EC guidelines

The IP Management Methodology that we follow, has been selected to adhere to the official guidelines and principles of (references [1–34]), the most prominent of which being:

- European IP Helpdesk Library, IPRHELPDESK.eu
- Horizon Europe 2023: Guide to Intellectual Property Management in Horizon Europe 2023
- IPR Helpdesk, Joint Ownership Fact Sheet
- Commission Recommendation (EU) 2023/499 on a Code of Practice on the management of intellectual assets for knowledge valorisation
- Commission Recommendation (EU) 2024/774 on a Code of Practice on industry-academia co-creation for knowledge valorisation
- Commission Recommendation (EU) 2024/736 on a Code of Practice on citizen engagement for knowledge valorisation
- EC Factsheet “Commercializing Intellectual Property: knowledge transfer tools”
- Horizon Results Booster (HRB) and previously Common Exploitation Booster (CEB)
- Horizon Standardisation Booster (HSB) HSBooster.eu
- Digital Single Market “Innovation Radar” (IR) (innoradar.eu)
- Horizon Results Platform (HRP)
- European Patent Academy, department of International Patent Law at EPO & European IP Helpdesk, “IP for Business Training Roadshow: From Idea to Commercialisation.”
- European Standards + Innovation initiative (standardsplusinnovation.eu)
- EN ISO 56002:2019 Innovation management – Innovation management system – Guidance, EN ISO 56005:2020 Innovation management – Tools and methods for intellectual property management – Guidance
- International Patent Classification (IPC) <http://wipo.int/ipcpub/>
- CEN CENELEC, Integrating Standards in Horizon, Linking Innovation and Standardization
- EUIPO European Union Intellectual Property Office library <https://euiipo.europa.eu/knowledge/>
- IPR Guidelines of the European Patent Academy and the Department of International Patent Law at EPO

All the sections below have been gradually passed as knowledge and as quick and concise training to all consortium partners through our online telcos and workshops in order to prepare them with our IPR experts’ guidance for the next IPR steps.

#### 3.2 IPR Time Plan & Action Phases

As technical work progresses, our IPR strategy will deepen with more granularity gradually. In line with the deliverable iterations, we expect to follow these plan phases:

- **M6 PHASE 1:** Deploy the knowledge registry, set IPR methods, devise the preliminary tables.
- **M12 PHASE 2:** Formulate the IPR claims tables (Background-Foreground-Contribution Levels).
- **M18 PHASE 3:** Derive Intention to Exploit/License/Open Potential
- **M24 PHASE 4:** Expand into the official IPRMATRIX<sup>®</sup> and the IPR Helpdesk proposed Tables in their “mini“- condensed versions. Revise Registry if needed
- **M30 PHASE 5:** Address subjects of Licensing, Protection Instruments and Restriction Measures. Link with Valorisation
- **M36 PHASE 6:** Address subjects of Availability (for Assets and for Documentation of Assets) and sustainability after the project closure. Link with Exploitation

The results of the first 2 phases are presented in the present document (next chapters)

We are also in-line with the IPR phases proposed by IPRHelpdesk.eu

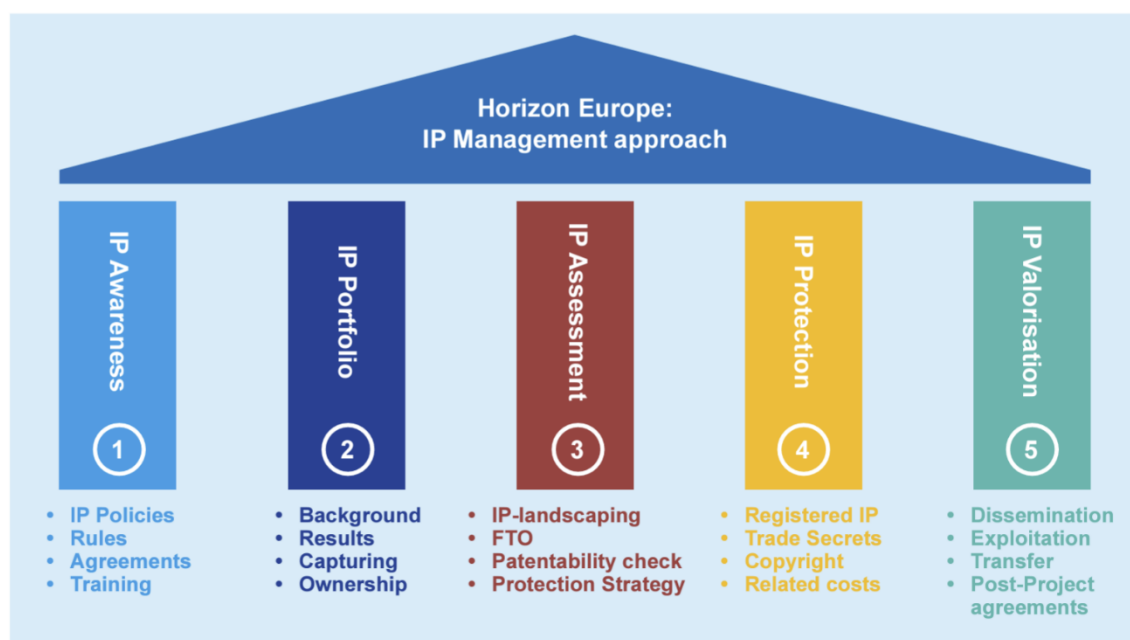


Figure 2. IPR Phases – source IPRHelpdesk.eu

### 3.3 Knowledge registry and record-keeping of all IP

Concerning Intellectual Property Rights (IPR), Royalties, Claims, Licensing, Availability, Protection Measures, Restrictions and a complete knowledge registry maintained, these are the methodological steps to be followed, and PHASE 1 (see below) is already in place with the preliminary tables already devised and explained to partners since the kick-off of the Task. Templates used are presented gradually to partners through our workshops. Knowledge Registry Templates can be found in the Annex of the deliverable.

### 3.4 IPR Steps and Action Elements

- 1 Maintain an expanded **Results Ownership List (ROL)** as dictated by new Horizon Europe guidelines
- 2 Populate **IPR Claims** and **IPR-Matrix** tables
- 3 Populate Templates on **Protection Instruments, Restriction Measures, Availability and Licensing.**
- 4 Adhere to the official **IPRHelpdesk.eu** recommendations and the guidelines of the Horizon Common Support Centre/J5 on Joint-Ownership provision
- 5 Employ the IP concepts clarified within the previous (CEB) Common Exploitation Booster on “Commercializing Intellectual Property: knowledge transfer tools” and its newly updated version as recently launched for HE (HRB) **Horizon Results Booster.**
- 6 Make entries for foreground, background, side-ground and contribution levels which will be included in the ROL per partner, together with a Contribution-Benefits Matrix to mitigate risks of disputes
- 7 Use the Project **Knowledge Registry** within the Program Office will be the tool to ensure proper Background knowledge entries within the Consortium Agreement (CA) and also the proper Access Rights to Background and Results (“**Freedom to operate**”).

- 8 IPR will also account for **intangible assets** and knowledge produced, such as patents, articles, journal publications, methodologies, frameworks, trainings, etc.
- 9 Preferred choice of Fair, Reasonable, and Non-Discriminatory (**FRAND**) Licensing Commitment towards Governmental entities
- 10 Preferred **License schemes** are those that permit the widest use possible. Preferred licensing for developed toolboxes and software is Open-Source code.
- 11 To ensure that interested third-parties have the ability to utilize EMBRACE's **open data** as much as possible, **open-source** schemes and specifically Creative-Commons (CC) approaches will be encouraged. It is quite early to solidify these, but the envisioned approach is expected to revolve around the lines of the Data Management Plan DMP
- 12 KER assets deemed as cornerstones to the promotional strategy of the project will be submitted in the Digital Single Market "Innovation Radar" and the Horizon Results Platform.

Start of the Project	During Project Implementation	After Project End
<ul style="list-style-type: none"><li>• Define existing IP that is brought into the R&amp;I cooperation</li><li>• Take a look at the patent landscape and/or other relevant IP rights</li><li>• Look at opportunities and risks of sharing knowledge with consortium partners</li><li>• Check whether default Horizon IP rules or other relevant default rules are suitable</li></ul>	<ul style="list-style-type: none"><li>• Consider existing and potential knowledge creation and management tools</li><li>• Discuss possible IP protection methods (e.g. patents, copyright, trade secrets, defensive publications, semiconductor topographies, etc.) and their pros and cons</li><li>• Identify potential complementary IP protection methods</li></ul>	<ul style="list-style-type: none"><li>• Discuss and agree on (joint) exploitation strategies and pathways</li><li>• Look at possible IP ownership arrangements and related responsibilities including the definition of relative contributions of joint-owners</li><li>• Weigh potential (licensing) agreement and remuneration options linked to the use of IP resulting from the project and options for remuneration</li></ul>

Figure 3. Alignment with proposed IPRHelpdesk.eu Phases

### 3.5 Assisting and guiding partners throughout the IPR phases – workshops and guides

Recursive online telcos, explanatory mini-workshops and dedicated large workshops, take place gradually: Not only for IPR but later they will be expanded with marketing surveys, business modelling workshops and dedicated exploitation workshops, including face-to-face guidance of all consortium partners. Our experienced exploitation, IPR and Valorisation team provides partners with methodologies and guidance to help them envision, describe and implement these business strategies at the organisation/project partner level, while respecting IPR royalties as per above.

### 3.6 Relevant Terminology and IPR claims theory used in the next chapters and their Tables

#### 3.6.1 Access to Assets

While the Grant Agreement (GA) establishes the rights and obligations of beneficiaries towards the European Commission and is signed at the end of the grant preparation phase, the Consortium Agreement (CA) sets out the legal basis for the share of rights, obligations and responsibilities related to the implementation of the project among the beneficiaries themselves and needs to be signed before



the signature of the GA, defining central management principles and guidelines for all partners. The general access rights concept (as per Horizon IPR–Helpdesk guidelines) is depicted below:

Purpose	Access to background	Access to results
Implementation of the project	Royalty-free, unless otherwise agreed by participants before their accession to the grant agreement	Royalty-free
Exploitation of project results	Subject to agreement, access rights shall be granted under fair and reasonable conditions (which can be royalty-free)	

*Figure 4. Access to Assets – source IPRHelpdesk.eu*

### 3.6.2 Basic Terminology used in the Claims Tables

- **Background** is a type of knowledge that pre-exists in the project in time and is brought into the project by partners in an assistive way to fulfil the scope of the action.
- **Foreground** is created as a final (substantial) result during the project. Often, the leading responsible partner for the foreground has received substantial assistance (i.e., contribution) from fellow consortium partners in creating foreground knowledge.
- Finally, the above should not be confused with the term **side-ground**, which refers to knowledge created by a partner during the project time frame. It is unrelated to the project (for instance, parallel endeavours, work, and research) and should be neglected in the present context

### 3.6.3 Joint Ownership Provision in short

According to IPR helpdesk guidelines, results are jointly owned if:

- two or more participants have jointly generated them, and
- it is not possible to:
  - a. establish the respective contribution of each beneficiary or
  - b. separate them to apply for, obtain or maintain their protection.

In most cases, joint ownership will occur in specific situations due to its nature. It is best practice to regulate the rules on joint ownership of results in the consortium agreement. However, since this agreement is entered into force before the launch of the project and the creation of the results, participants should establish a separate joint ownership agreement during the project implementation, defining the allocation and terms of exercising their ownership in concrete terms. For this purpose, as per Horizon Europe guidelines of 2022, a **ROL (Results Ownership List)** is proposed.

**We indeed construct a ROL whose basis is the IPR Claims recorded in the next chapter, and for which of course partners reserve the right to revise in every deliverable iteration until the contractual end of the project**

### 3.6.4 Further Clarification on Background IP

According to the Grant Agreement (GA), background IP is defined as 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 the background is subject to the rights of a third party, the beneficiary concerned must ensure that it can comply with its obligations under the Agreement.

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- Ownership: Partners retain ownership of their background IP. They bring this IP into the project to leverage it for its objectives, a testament to their value and importance in the project.
- Access Rights: the consortium agreements between partners at the beginning of the project define how background IP will be used within the project. Requests to exercise access rights and waive access rights must be in writing. Partners must grant each other access, on a royalty-free basis, to use their background IP for the project's purposes unless it was previously specified in writing by the partner.

Protection: partners are responsible for protecting their background IP and ensuring its use aligns with the project's goals.

### **3.6.5 Alignment with AMGA: Annotated Model Grant Agreement and CA (Consortium Agreement)**

The above is aligned with the official recommended templates for the GA and CA.

According to the GA, the consortium partners must exploit their results directly or have them exploited indirectly by another entity, through transfer or licensing, up to four years after the end of the action.

As the project nears its conclusion, the need to safeguard innovations through various means, such as patents, licensing, copyrights, or trademarks, becomes increasingly imperative. This underscores the project's commitment to protecting its intellectual property (see also Valorisation chapter below).

The project CA also outlines how foreground IP will be exploited or commercialised, including licensing, spin-off companies, open access, or other strategies. In the case of joint ownership, the project CA foresees typically: "Where IPR covers such joint Results, the joint owners shall execute a joint ownership agreement regarding the allocation and the terms and conditions of Exploitation of the joint Results as soon as possible and before any industrial or commercial Exploitation."



## 4 IPR OUTPUTS ACHIEVED BY M12: IPR CLAIMS & CONTRIBUTIONS TABLE AND PRELIMINARY RESULT OWNERSHIP LIST (ROL)

In the following Tables we used the following easy letter coding to assist partners. As per the IPRMatrix methodology, defining background pre-existing (as per the previous chapter and as mentioned in the CA consortium agreement) is not the only step. We then have to link within which newly produced assets (and foreground knowledge) these background claims correspond. Most importantly for further ROL creation, we wish to capture contribution claims per partner and map them per asset.

### 4.1 Background – Foreground and Contribution Letter coding

**C – Contribution:** Partner claiming to have provided substantial assistive Contribution to the Asset development. Obviously, the partner must be participating in the task related to that asset with non-zero person-hours.

**B – Background:** Partner claiming to have brought Background knowledge being used for the Asset development, that existed before the project, either mentioned in the CA Appendix as background knowledge, or registered in the knowledge registry afterwards for future approval (due to needs that have arisen during the project implementation).

**F – Foreground:** Partner claiming to have developed (or will develop) new Foreground knowledge while working on the asset. Foreground is notable output, self-standing (not fragmented parts), re-usable in principle, and possibly worthy of potential protection and of potential exploitation (by the partner themselves or by another partner upon agreement)

**E – Exploitation Intention:** Partner claiming to consider asset as "worthy" and as an "opportunity" for potential exploitation (individually or jointly), irrespective if they claim to jointly co-own this asset (as per C –see above), or if the asset is owned by some other partner, but they wish to exploit it, within their pre-existing market of reach, (through a licensing schema).

**P – Protection-Restriction Intention:** Partner would consider/evaluate the possibility of applying "protection instruments" and "restriction measures" after the project (like patent, copyright, corporate confidentiality, GDPR, sensitive data, other ownership, or data protection etc.).

**O – Open License Potential:** Partner would like to consider/evaluate the possibility of releasing whole or part of the asset as "open"/opensource/free/or similar.

**NOTE:** Letter codes are independent of each other. Any combination of claims is permitted.

### 4.2 IPR Claims Tables

*Table 4. IPR Contribution Claims, Background, Foreground and Intentions (PART A Partners 1-9)*

ID	Asset	TEL	DCNA	ARC	PUI	MUG	VER	SMU	BIOT	RAN
ERO1	A Biotoxin Task Force (BTF)									CFE
ERO2	Biotoxin Knowledge Network (BKN)	CBFEP O								CBFEP O
ERO3	Requirements for an effective UCPM biotoxin response capacity		CBFEP							

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ER04	CONOPs for improved crisis management and response to biotoxin incidents	CB	CBFO	CF	CF					
ER05	New Training Materials	BFO					CBF			
ER06	ROPs for forensic analysis of biotoxins					CBF	CBFEP			
ER07	New guidelines for individual biotoxins, including purity assessment of detected agents for provenancing						CBFEP			
ER08	Secure and legally valid sampling and forensic chain of custody procedures	CFE					CFE			
ER09	Portable biosensors, evaluated in comparison with laboratory standards					CFE	CFE			
ER10	Identification of human biomarkers indicative of biotoxin exposure					CBFEP			CBFEP	
ER11	Grab & Go sampling system for high-capacity screening	CEP							CBFEP	
ER12	Prototypes of mobile diagnostic devices for detecting acute biotoxin exposure					CBFEP			CBFEP	
ER13	Genetic susceptibility of the central nervous system to biotoxin exposure									
ER14	Biothreat risk assessment framework (BioRA), accessible to clinicians, responders, and public health officials to provide up-to-date risk assessment of the incident as it unfolds		CBF	CBF			CBF			CBF
ER15	Evidence-based recommendations for PPE, and decontaminants for the target set of biotoxins					CBFEP	CBFEP			
ER16	Current regulatory and standardisation landscape relevant to biotoxins									CBFEP O
ER17	Gaps and needs in provision for biotoxin incidents									CBFEP O
ER18	Biotoxin Reference and Stakeholder Hub (BRSH) providing a comprehensive biotoxin knowledge exchange platform	CBFEP								
ER19	Interfaces designed and evaluated for each sector/interest group									
ER20	Human Durability Indexing					CBF	CBF			
ER21	Biotoxin Escalation Pathway	C								
ER22	Trial ToolBox									

## D8.5 Exploitation and impact evaluation – 1st Iteration

ER23	CBRN ToolBox						CBFEP			
ER24	Field Exercise Support Platform	CBFEP O								
ER25	High volume aerosol sampling device									

**Note:** Knowledge and Datasets that will be derived from Trials – Pilots will be appended also as intangible exploitable assets in the next table revision

**Table 5. IPR Contribution Claims, Background, Foreground and Intentions (PART B Partners 10–18)**

ID	Asset	AIRS	MION	PRO	IANUS	LC	TREB CR	CAS	UNMS	BIOX
ER01	A Biotoxin Task Force (BTF)									
ER02	Biotoxin Knowledge Network (BKN)	CBFEP O								
ER03	Requirements for an effective UCPM biotoxin response capacity									
ER04	CONOPs for improved crisis management and response to biotoxin incidents	CB								
ER05	New Training Materials	BFO								
ER06	ROPs for forensic analysis of biotoxins									
ER07	New guidelines for individual biotoxins, including purity assessment of detected agents for provenancing									
ER08	Secure and legally valid sampling and forensic chain of custody procedures	CFE		CBFEP						
ER09	Portable biosensors, evaluated in comparison with laboratory standards	CBFEP	CBFEP							
ER10	Identification of human biomarkers indicative of biotoxin exposure									
ER11	Grab & Go sampling system for high-capacity screening	CEP								CBFEP
ER12	Prototypes of mobile diagnostic devices for detecting acute biotoxin exposure									
ER13	Genetic susceptibility of the central nervous system to biotoxin exposure									CBFEP O
ER14	Biothreat risk assessment framework (BioRA), accessible to clinicians, responders, and public health officials to provide up-to-date risk assessment of the incident as it unfolds				CBFEP					

## D8.5 Exploitation and impact evaluation – 1st Iteration

ER15	Evidence-based recommendations for PPE, and decontaminants for the target set of biotoxins									
ER16	Current regulatory and standardisation landscape relevant to biotoxins						CBFEP O			
ER17	Gaps and needs in provision for biotoxin incidents						CBFEP O			
ER18	Biotoxin Reference and Stakeholder Hub (BRSH) providing a comprehensive biotoxin knowledge exchange platform				CBFEP					
ER19	Interfaces designed and evaluated for each sector/interest group				CBFEP					
ER20	Human Durability Indexing			CBFEP						
ER21	Biotoxin Escalation Pathway			CBFEP						
ER22	Trial ToolBox				CBFEP					
ER23	CBRN ToolBox									
ER24	T4S									
ER25	High volume aerosol sampling device		CBFEP							

**Note:** Knowledge and Datasets that will be derived from Trials – Pilots will be appended also as intangible exploitable assets in the next table revision.

### 4.3 Preliminary ROL Creation

#### Contribution Claims towards ROL List creation:

Based on the IPR claims tables, here is the list of partners with contribution claims ('C') and the assets they have contributed to. **Claims are tentative and preliminary**, and partners reserve the right to revise as this is still an early stage of the project.

- **TEL** (has contribution claims C) in assets ERO2, ERO4, ERO8, ER11, ER18, ER21, ER24
- **DCNA** (has contribution claims C) in assets ERO3, ERO4, ER14
- **ARC** (has contribution claims C) in assets ERO4, ER14
- **PUI** (has contribution claims C) in asset ERO4
- **MUG** (has contribution claims C) in assets ERO6, ERO9, ER10, ER12, ER15, ER20
- **VER** (has contribution claims C) in assets ERO5, ERO6, ERO7, ERO8, ERO9, ER14, ER15, ER20, ER23
- **BIOT** (has contribution claims C) in assets ER10, ER11, ER12
- **RAN** (has contribution claims C) in assets ERO1, ERO2, ER14, ER16, ER17
- **AIRS** (has contribution claims C) in assets ERO2, ERO4, ERO8, ERO9, ER11
- **MION** (has contribution claims C) in assets ERO9, ER25
- **PRO** (has contribution claims C) in assets ERO8, ER20, ER21
- **IANUS** (has contribution claims C) in assets ER14, ER18, ER19, ER22
- **TPEB CR** (has contribution claims C) in assets ER16, ER17
- **BIOX** (has contribution claims C) in assets ER11, ER13

#### Notes:

- 1 Although it is too early to build a full ROL table at this stage (M12) with several revisions pending, it is planned as interim for M24 and final for M36.
- 2 ROL (Result Ownership / co-Ownership List) will be built according to IPRHelpdesk.eu guidelines based on the IPR claims and contribution tables above. Contribution Claims "C" as per above will be the starting point.
- 3 Protection Instruments and Restrictions will be taken into Account (see next chapter)
- 4 Joint ownership provision foresees that the consortium agrees among others, to respect the contribution of each respective partner on the creation of foreground knowledge on each of the aforementioned assets, according to the contribution claims above, while the background is obviously governed by the CA (Consortium Agreement) Annex I.
- 5 We will ensure upon final submissions that partners agree and acknowledge the contribution of other partners as per below, in the successful completion of the assets and the foreground produced within the project.
- 6 After the project closure, and upon specific request by future adopters or clients, the joint exploitation plan will take over, and new potential agreements may arise (with refinements on exact percentages, income, costs, further business aspects, etc.) that will be agreed each time, within fair and reasonable conditions, depending and taking into account parameters each time such as: the clients, adopters, the particular case at hand, its costs and needs as well as peculiarities such as: reaching and serving the client, adopter, etc. for each specific case.

## 7 ADVANCED IPR TOPICS FOR M24 & M36: PROTECTION INSTRUMENTS, RESTRICTION MEASURES, LICENSING AND AVAILABILITY TYPES

### 7.1 Introduction

Although this is a topic to be addressed at the last stage of the project, we have prepared in advance the following additional **templates and categorization**, and we have also formulated the **final tables** in the **online survey** that is currently being built so that the partners will fill in our exploitation workshops. We also added all options and alternatives mentioned in IPRHelpdesk.eu as well as options from the bibliography on IPR.

We intend to deliver in the next iterations of the present exploitation deliverable (M24 and M36) the answers to the following topics for the Exploitable Assets of the project

### 7.2 Advance IPR Topics to be Covered

We built our tables and webforms to provide answers to the following points of IPR and Sustainability:

#### 7.2.1 Protection Instruments

- As per official IPRHelpdesk.eu guidelines, which potential protection instruments could the partners consider applying for? (if applicable and per partner)

#### 7.2.2 Restriction Measures

- As per official IPRHelpdesk.eu guidelines, which potential restrictions would be most appropriate for each asset? (if applicable and per partner)

#### 7.2.3 Licensing and Preferred Pricing Model

- Under what licensing scheme will these be found (open-source, proprietary, other)? (if applicable and per partner)
- What pricing model might be applicable (free or paid or both in the case of freemium availability)? (if applicable and per partner)
- Consider/evaluate the possibility of releasing whole or part of the asset as "open"/opensource/free/or similar. (investigate the potential – per partner)

#### 7.2.4 Availability

- Where (under which channel joint or individual) and under which terms (as per licensing above):
  - Is the Asset Available
  - Is the Documentation of the Asset Available
  - Is the Accompanying Dataset of the Asset Available

#### 7.2.5 Reference Tables

We intend to deliver in the next iteration of the present exploitation deliverable (on M24) the following table per Asset and per Partner Claim.

## D8.5 Exploitation and impact evaluation – 1st Iteration

ID	Partner Claim Asset	IP Ownership	Access Policy	Availability of Asset	Availability of documents	License Foreseen	Pricing	Protection Instruments	Restriction Measures
		partner name	Commercial Open Other	-Project website -Company website -Upon request -3 <sup>rd</sup> party <u>Market-place</u> -Not available -internal only -Other	-Project website -Company website -Upon request -3 <sup>rd</sup> party <u>Market-place</u> -Not available -internal only -Other	-Proprietary -Opensource -creative commons -Apache -Freeware -Freemium -Other	-FREE -PAID -DUAL (both)	-Patent Application -Copyright -Trademark -Utility model -Commercial exclusivity -NDA/ Confidentiality Agreement -No protection	-GDPR -NDA/ Confidentiality Agreement -Corporate Agreement -Privacy Restrictions -Other sensitive data

**Figure 5. Protection and Availability Reference Table**

### 7.3 Specific preparatory entries in our Online Survey webforms and Tables

We have already selected the options as per below, we have built them in our online exploitation survey (still under finalisation stages and to be launched after M15) and also on our template tables

Lists of options and the relevant snapshots from the web-survey follow below

### 7.4 Protection Instruments and Restriction Measures Considered

We are currently preparing our online exploitation and IPR survey and its webforms. We have already devised the categories from which partners will consider for each asset of their business interest.

#### 7.4.1 Protection Instruments Considered

We chose the options:

- ☐ Patent Application
- ☐ Copyright
- ☐ Trademark
- ☐ Utility Model / Corporate Exclusivity
- ☐ Trade Secret
- ☐ Registered Design
- ☐ NDA/Confidentiality Agreement
- ☐ Other Licensing
- ☐ No protection – Free to use – redistribute, but with obligatory reference to our organisation
- ☐ No protection – Opensource / Creative Commons or similar
- ☐ No specific protection but we will evaluate each case upon request

## D8.5 Exploitation and impact evaluation – 1st Iteration

\* 45. Do you intend to apply any **protection instruments** to your "assets" and "knowledge" produced or co-produced in the project?

**Select all that apply**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Patent Application                    | <input type="checkbox"/> Trade Secret                  | <input type="checkbox"/> No protection - Free to use - redistribute, but with obligatory reference to our organisation |
| <input type="checkbox"/> Copyright                             | <input type="checkbox"/> Registered Design             | <input type="checkbox"/> No protection - Opensource / Creative Commons or similar                                      |
| <input type="checkbox"/> Trademark                             | <input type="checkbox"/> NDA/Confidentiality Agreement | <input type="checkbox"/> No specific protection but we will evaluate each case upon request                            |
| <input type="checkbox"/> Utility Model / Corporate Exclusivity | <input type="checkbox"/> Other Licensing               | <input type="checkbox"/> N/A - not decided yet   |

### 7.4.2 Restriction Measures Considered

Likewise, we chose:

- ☐ Privacy - GDPR
- ☐ Ethics Restrictions
- ☐ Corporate Confidentiality - Protected Corporate Knowledge
- ☐ NDA Non-Disclosure Agreement
- ☐ Safety Restrictions
- ☐ Security Restrictions
- ☐ EU Sanctions (Restrictive Measures on Countries, Individuals, Other Entities etc.)
- ☐ No specific restriction but we will evaluate each case upon request

\* 46. Are there any **restrictions** concerning your "assets" and "knowledge" produced or co-produced in the project, that should be taken into account?

**Select all that apply**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Privacy - GDPR  | <input type="checkbox"/> NDA Non Disclosure Agreement | <input type="checkbox"/> EU Sanctions (Restrictive Measures on Countries, Individuals, Other Entities etc.) |
| <input type="checkbox"/> Ethics Restrictions                                       | <input type="checkbox"/> Safety Restrictions          | <input type="checkbox"/> No specific restriction but we will evaluate each case upon request                |
| <input type="checkbox"/> Corporate Confidentiality - Protected Corporate Knowledge | <input type="checkbox"/> Security Restrictions        | <input type="checkbox"/> N/A - not decided yet  |



## 8 VALORISATION METHODOLOGY AND STEPS

### 8.1 Actions Completed for our Methodology and for Partner Guidance

During the first year of the project, we have

- 1) Gathered, analysed and created structured reference on the Guiding principles for knowledge valorisation
- 2) We adapted our plan and activities list to ensure that we adhere our valorisation methodology to official references and guidelines
- 3) We also created the synopsis and the first round of basic training and reference material in order to effectively guide our partners within the consortium
- 4) Through a series of Telcos and mini workshops we have made the preliminary round, but we will continue more intensively in the second year, to make available this guiding material to the consortium and especially focus our work with responsible task leaders of WP8
- 5) This leads to our methodological steps and our action list that is divided according to the official references, into 4 lists of Activities, Outputs, Outcomes, and Impact expected. From these, we will select the common steps that the exploitation, valorisation, IPR, and standardisation actions.

Concise reference material follows:

### 8.2 Synopsis, History and Guiding principles for knowledge valorisation

On 9 August 2022 the European Commission adopted a proposal for a Council Recommendation on the guiding principles for knowledge valorisation ([COM\(2022\)391 final](#)). The aim of the Recommendation is to adopt a common line on policy principles and measures for national, regional and local policy makers to maximize the transformation of research and innovation results into solutions that benefit society.

The Council of the EU adopted a [Recommendation on the guiding principles for knowledge valorisation](#) on 2 December 2022.

A Code of Practice on [intellectual assets management](#) and a Code of Practice on [standardisation](#) have been adopted as Commission Recommendations on 1 March 2023 to support the implementation of the guiding principles by providing more detailed guidance on these areas of knowledge valorisation.

Two new codes of practice on [industry-academia co-creation](#) and [citizen engagement](#) for knowledge valorisation were adopted on 1 March 2024.

### 8.3 Adherence of EMBRACE valorisation methodology to official references and guidelines

Our methodology adheres to the prominent references:

- Council Recommendation 2022/2415 on the guiding principles for knowledge valorisation
- Commission Recommendation 2023/498 on a Code of Practice on standardisation in the European Research Area
- Commission Recommendation 2023/499 on a Code of Practice on the management of intellectual assets for knowledge valorisation in the European Research Area
- Commission Recommendation 2024/774 on a Code of Practice on industry-academia co-creation for knowledge valorisation
- Commission Recommendation 2024/736 on a Code of Practice on citizen engagement for knowledge valorisation

But we also take into account and adapt our approach according to the EC published Factsheets:

- Factsheet: Guiding principles for knowledge valorisation

- Factsheet: Code of Practice on the management of intellectual assets for Knowledge valorisation
- Factsheet: Code of Practice on Standardisation in the European Research Area

And we also consulted the various published EC documents within the:

- (MLE) Mutual Learning Exercise on Knowledge Valorisation, from the PSF Policy Support Facility
- Especially the ones that focus on (IAM) Intellectual Asset Management

## **8.4 Partner Guidance through online telco workshops in the Key Strategy and Insights**

Key Scope and Insights made available to the partners, which will also be recursively used in our workshops and Telcos, include in short:

### **8.4.1 Synopsis**

The Commission Recommendation (EU) 2023/498, published in March 2023, focuses on enhancing research and innovation (R&I) actors' active engagement in standard development to foster innovation and gain competitive advantages. "Valorisation" refers to creating social and economic value from knowledge and research results, and this recommendation emphasizes linking research with standards development as a key pathway for results valorisation, particularly for advanced technologies and innovations.

### **8.4.2 Synopsis of the Key Aspects of the EC Recommendations**

#### **Defining Valorisation:**

The Commission Recommendation (EU) 2024/774 defines knowledge valorisation as the process of creating social and economic value from knowledge, transforming it into products, services, solutions, and policies.

#### **Standardization as a Key Valorisation Pathway:**

The recommendation highlights that R&I actors can gain significant economic and social benefits by actively participating in standards development processes.

#### **Benefits of Early Involvement:**

The recommendation stresses that early and proactive involvement in setting new standards enables R&I actors to bring innovations to market faster, securing greater value and competitive leadership.

#### **Alignment with Horizon Europe:**

This focus on valorisation through standardization is an integral part of the Horizon Europe program, which includes initiatives to support this process, and the aforementioned guidelines, factsheets and platform tools.

#### **Support for R&I Actors:**

The Commission provides mechanisms to support this, such as the Standardisation Booster, which helps Horizon Europe and Horizon 2020 projects test the relevance of their research for standardization.

#### **In summary**

We delve into the details of the policy and practical measures, particularly under Commission Recommendation (EU) 2023/498, that encourage the transformation of research outcomes into tangible social and economic benefits through strategies like early engagement in standard-setting, which is a crucial aspect of the Horizon Europe valorisation framework.

## 8.5 Synopsis of the Key Definitions for EMBRACE Partner Guidance through the workshop process

By combining the above official recommendations and guidelines, we have devised an alphabetized, combined master list of key definitions to share with our partners, to guide and assist them through the process. We also take these into account both in our methodology and in our recurring workshops and productive Telcos.

1. **Academia** means universities and other higher education institutions, including public and private research and technology organisations, universities of applied science and other higher vocational education and training institutions.
2. **Citizen engagement** refers to the involvement of citizens in participatory processes of decision making, implementation and monitoring, to improve quality, transparency and ownership of policies at local, national and EU level, which has been strongly supported by the Conference for the Future of Europe and the resulting European Citizens Panels for addressing current and future challenges and adapting new tools through citizens' panels in key areas. This also links to the revamped Have Your Say portal, including the online Citizen Engagement Platform.
3. **Citizen engagement for knowledge valorisation** refers to the engagement of citizens, citizens groups, civil society organisations, and communities with R&I actors to valorise knowledge and research results for innovative solutions that address societal needs, help exploit market opportunities and inform policy making. This is achieved through the commercialisation and market uptake and deployment at the workplace or in society of innovative products, technologies or services that better respond to users' needs, through creating value for society that is not monetized, through informing policymakers, and improving policy making, as well as through raising awareness, cultivating skills and knowledge and developing new organizational, consumption, and production models that support behavioral changes and transformations within society.
4. **Citizen science** refers to the voluntary participation of non-professional scientists in research and innovation at different stages and at different levels of engagement, from shaping research agendas and policies, to gathering, processing and analysing data, and assessing the outcomes of research.
5. **Industry-academia co-creation** means the process of joint production and valorisation of knowledge between industry, R&I actors and possibly other stakeholders, such as public authorities, social partners and civil society.
6. **Intellectual asset** means any result or products generated by any R&I activities (such as intellectual property rights, data, know-how, prototypes, processes, practices, technologies, software).
7. **Intellectual assets management** means a set of strategic processes to handle intellectual assets in all stages of their life, from their creation to market, including: the identification of potential assets created or acquired, the evaluation of the technical, legal and market advantages of the potential asset, the decision making on the available forms of protection, the determination of marketing and technology transfer strategy, the identification of the best partners for their management – in accordance with the business goal and socially responsible policy of the organisation.
8. **Intellectual property** means the result of intellectual activities that is eligible for legal protection and includes inventions, literary and artistic works, symbols, names, images, and designs.
9. **Intellectual property rights** include patents, trademarks, designs, copyright and neighbouring rights, geographical indications and plant variety rights, as well as trade secret protection rules.
10. **Knowledge valorisation** is the process of creating social and economic value from knowledge by linking different areas and sectors and by transforming data, know-how and research results into sustainable products, services, solutions and knowledge-based policies that benefit society.
11. **Open access** means access provided free of charge to the end user, to research data, including scientific publications, in accordance with Article 14(1)(a) and Article 39(3) of Regulation (EU) 2021/695.

12. **Open innovation** means the approach of opening up the innovation process outside of an organization.
13. **Open science** means an approach to the scientific process based on open cooperative work, tools and diffusing knowledge, as set out in Article 14(1) of Regulation (EU) 2021/695 of the European Parliament and of the Council.
14. **Standard** means a technical specification, adopted by a recognized standardization body on international, European or National level, for repeated or continuous application, with which compliance is not compulsory.
15. **Standard Development Organization** means a body that specializes in the development of standards through the process of consensus and facilitates experts to participate in the standardization process.
16. **Standardisation** means a process aiming at the definition of voluntary technical or quality specifications with which current or future products, production processes or services may comply. Standardisation can cover various issues, such as standardization of different grades or sizes of a particular product or technical specifications in product or services markets where compatibility and interoperability with other products or systems are essential.
17. **Technical committee** means a diverse stakeholder group of experts responsible for the development and drafting of standards which are then recognized by a standardization body.
18. **Technical specification** means a document that sets out technical requirements to be fulfilled by a product, process, service or system and which lays down the characteristics required of a product or service such as quality and performance, the production methods and processes used and the methods and the criteria for assessing the performance of construction products.
19. **Technology transfer (TT)** refers to the process of conveying results stemming from scientific and technological research to the marketplace and to wider society, along with associated skills and procedures, and is as such an intrinsic part of the technological innovation process

## 8.6 Methodological Steps and Action Items

Based on the official references and guidelines, we have concatenated a table of the related activities, outputs and impacts. Action Items follow:

Activity	Output	Outcome	Impact
Execution of gap analysis (y/n)	Establishment of links to standardisation community (TCs, SDOs)	Number of medium-term pre-standard reference documents (e.g. CWAs, DIN Specs) created	Number of newly created or amended standards
Establishment of links to standardisation community (TCs, SDOs)	Number of technical reports (or equivalents) on standards/standardisation	Number of technical reports (or equivalents) on standards/standardisation	Level of take-up and use of standardisation deliverables of the project by industry
Number of participations in standardisation forums/committee meetings	Number of short-term pre-standard reference documents (new work item proposals or equivalents)	Level of industry support (e.g. voting behaviour in committees)	Number and type of product or process innovations developed with support from standardisation activities
Number of seats on committees	Number and types of contributions to development of new	Number and types of contributions to development of new	Economic impacts (turnover, jobs created, number of spin-offs)

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	and/or amendment of existing standards (short-term)	and/or amendment of existing standards (medium-term)	created) attributable to standardisation activities
Number of committees chaired	Number and type of initiations of standardisation activities (e.g. establishment of working group)	Objective performance increase in relation to the application of new/amended standard or pre-standard reference documents (e.g. lower error margins with measurement standards)	Societal impacts (e.g. degree of improved health, safety or environmental standards)
Number and type of courses for researchers to increase standardisation skills	Number and type of joint initiations	Number of SEPs/IPR (patent citations) and licensing thereof (number and volume of agreements)	Impact on R&I: citations of standards and of pre-standard reference documents in academic literature and patents
Number of participations in such trainings	Number and type of international initiations	Number of standard-essential publications	
	Extent of stakeholder management (number of marketing events, webinars, take-up by industry participants, etc.)		

**Table 6. Concise Valorisation Strategy and Action Items based on Commission Recommendations 2023/498 and 2024/774**

## 9 LIAISONS, REAL-MARKET LINKS, ENGAGEMENT TRACKER, PARTNER PRE-EXISTING NETWORKS

### 9.1 Activity linked to Valorisation

This activity is aligned with the official target of “promoting long-term and sustainable post-project engagement and fostering ongoing relationships and partnerships between industry and academia” which is a key target (target number “I”) – of the communication and networking action list, as this list is recommended within the 2024/774 Code of Practice on industry-academia co-creation for knowledge valorisation.

### 9.2 Collaboration with other WP8 Tasks towards devising the master lists and the liaisons

Close collaboration within the WP takes places, in order to devise the master lists of targets as per above and construct the further liaisons. Towards that goal:

- Identify stakeholders and beneficiaries without neglecting indirect ones which is a challenge.
- Narrow down potential adopters and potential customers.

We collaborate with T8.1 Stakeholder Community Building and Sustainability (Lead RAN), to take and expand for our purposes the lists they are devising to identify stakeholders which for the reasons of valorisation and exploitation we wish to expand also to beneficiaries without neglecting indirect ones which is a challenge.

We collaborate and will assist T8.3 Standardisation Road Map; gaps and needs for biotoxin incidents (Lead TPEB) towards their main activities of execution of gap analysis (y/n) and the Establishment of links to standardization community (TCs, SDOs) which are closely interrelated with valorisation (see also valorisation steps above)

We aspire to expand the lists of targets of the T8.2 Visibility (Communication, Dissemination) (Lead LC) which are useful **during** the project, into lists that will narrow down adopters and potential customers, which will be useful as exploitation targets **after** the project’s contractual end. Towards this goal we have initiated the engagement tracker with real market liaisons from the partner pre-existing network.

### 9.3 Linking to the Real-Market

The central target (upon which we will later expand more widely) is that **industrial partnerships** and **collaborative ventures** will be sought through consultation with **industry associations** and **government agencies** accessible within the BRSH among others.

### 9.4 Engaging pre-existing networks – Online Engagement Tracker –potential adopter identification

From the first year of the project, we requested partners to refer to their pre-existing networks of friends, collaborators, clients, vendors, affiliated projects and clusters etc. and identify entities that could either be potential customers of our project, or wider “adopters”. The intention is to create a master online reference list that complements dissemination efforts and the similarly maintained “communication lists”. While our “engagement tracker” also builds upon liaisons, its scope is more for valorisation and for exploitation and sustainability purposes (after the contractual end of the project). In plain terms, we try to transpose liaisons of communication into adoption targets and a first candidate list of “potential customers”. This tracker will be fully populated after the wide exploitation survey and the accompanying workshop, in which we aspire to gather at least 10 entries from each partner’s pre-existing network (leading to approximately 150. –200 liaisons totally if possible). Below we mention our initial entries.

## 9.5 Building our Adopter Engagement Tracker in tandem with other WP8 Tasks

EMBRACE is closely allied with the Crisis Management Innovation Network Europe (**CMINE**), and its **CBRNe** and Standardisation Cluster (**CSTAC**). Moreover, EMBRACE interacts with projects and people within these groups, the most relevant projects being PEERS, EuroBiotox, and Holozcan.

Our T8.4 efforts on valorization, exploitation, and potential adopter target building, capitalizes and tries to expand (with a more “marketing focus” of course) upon on the work performed by T8.1 Stakeholder Community Building and Sustainability (led by RAN) and reported accordingly in D8.1.

Key liaisons for our potential adopter engagement tracker include:

- The CBRNe Information Group (CIG)
- CIG Related projects PEERS, EMBRACE and, most recently, STBernard
- CBRNe and Standardisation Cluster of projects (CSTAC)
- CERIS Disaster Resilient Societies (DRS) community
- Disaster Risk Stakeholder Hub – an evolving product of the project PARATUS
- EMBRACE / PEERS cooperation – Reference and Knowledge hub
- Union Civil Protection Knowledge Network (UCPKN)

## 9.6 Categorisation in Targeted Adopters and Beneficiaries

The above master lists and the Engagement Tracker are gradually categorised in the following groups of beneficiaries that we can link to:

- **Research Institutions and Universities:** improved scientific understanding of the biochemistry of target biotoxins and biomarkers.
- **Standardisation bodies:** identification of gaps and needs in the regulatory landscape and proposals for topics.
- **Forensic laboratories:** harmonization of analytical procedures for target biotoxins.
- **Policy makers, Decision Makers and Government Agencies:** evidence-based information for biotoxin policy decisions to enhance civil protection and resilience.
- **Health Authorities and Organizations:** Advanced scientific knowledge and improved preparedness
- **First Responders and Emergency Services:** new tools and procedures with specialized training, better equipment and protective gear.
- **Law enforcement and Security – Response agencies:** improved access to biotoxin expertise and intelligence on biotoxin threats, comprehensive response planning.
- **Civil society:** access to information about biotoxin threats and how to respond when faced with an incident. Involvement in preparedness efforts.



## 10 EXPLOITATION PROGRESS UNTIL M12 – FORMULATION OF THE CONSTITUENT PARTS OF THE INITIAL EXPLOITATION PLANS (PER PARTNER AND PER ASSET)

### 10.1 Preliminary Sustainability Plan Formulation

We have devised the **11 important elements** that we will map to each other in our first round of synoptic exploitation plans, before we expand them further. This cross-mapping should give already **a very solid “frame” of what exploitation plans and types** we can expect from partners. During our next exploitation workshops with partners, we will cross-map (for each partner and for each asset) the following **constituent parts** that we have already prepared until M12:

- Which **Partner** (for individual plans) and which **Partner Group** (for Collaborative plans)
- Is interested in exploiting which **Asset of EMBRACE**
- Though what **Exploitation Pathway**
- Towards producing which **Output- Result**
- Producing, which **Main Benefit**
- For which **Beneficiary – Adopter – Customer**
- That in belongs in which **Market Sector**
- In what **Timeframe** of implementation
- What is the particular **Impact Factor** that the plan addresses
- What is the particular **Strategic Project Objective** that the plan is serving
- What are the **Needs** that the partner requires, for fruitful completion of their exploitation Plan and for achieving route-to-market.

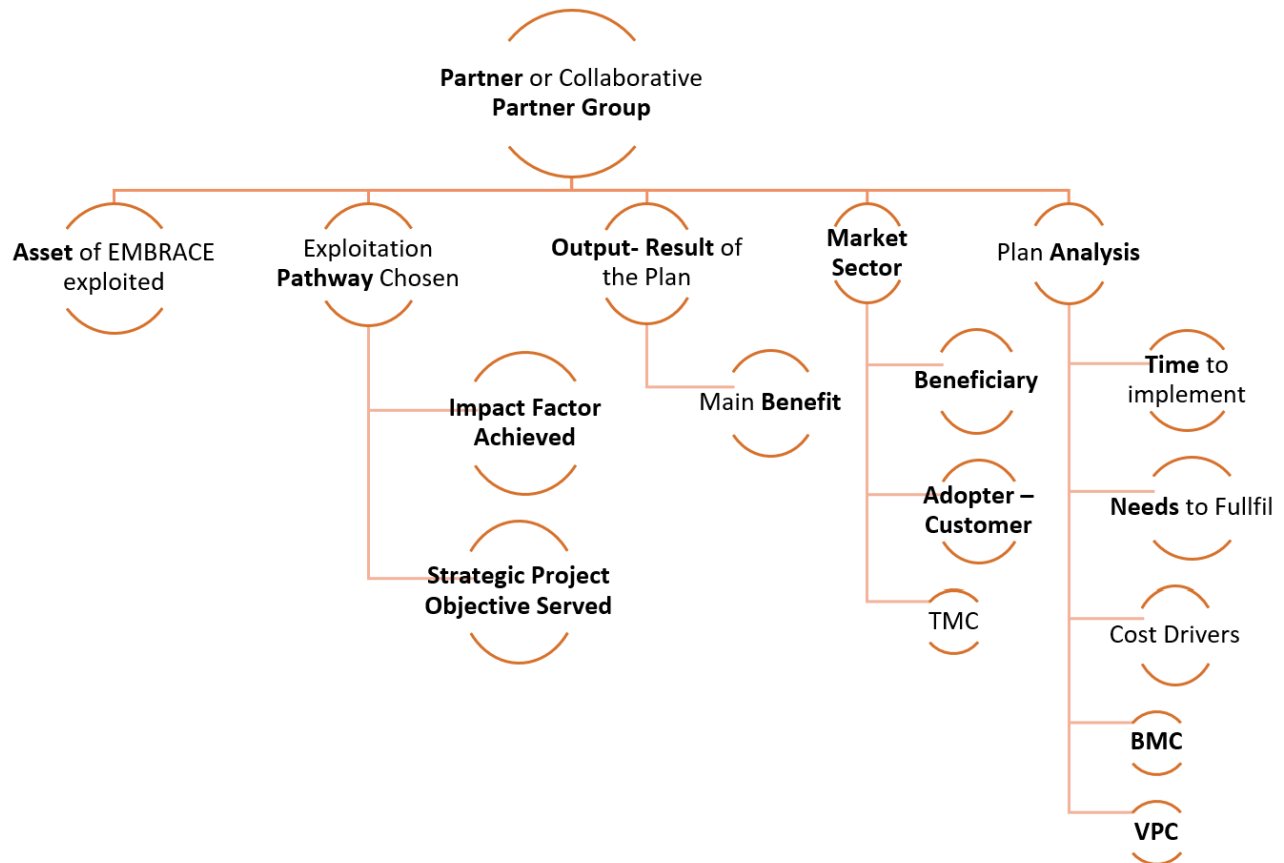
We already have this categorization (M12), as presented below. The cross-mapping will take place within the Exploitation Survey and the upcoming Exploitation Workshops of (M13–M24) and will be reported in the deliverable of M24.

### 10.2 Cross-Mapping to produce the framework of each of the Exploitation Plans

For each asset and for each partner both individually and collaboratively, we produce the cross-mapping as per the scheme below:

- **Partner** or Collaborative **Partner Group**
- **Asset of EMBRACE**
- **Exploitation Pathway**
- **Output- Result of the Exploitation Plan**
- **Main Benefit**
- **Beneficiary – Adopter – Customer**
- **Market Sector**
- **Timeframe** to implement
- **Impact Factor Achieved**
- **Strategic Project Objective Served**
- What are the **Needs to Fulfil**





**Figure 6. Exploitation cross-mapping schema**

The “skeleton” on which we are building is already here, we report it below in constituent parts and we will proceed with “joining” it, in the workshops. Notably, this individual mapping per partner will only be the first tabular Canvas out of the totally 5 Business Canvases to be employed in our workshops until M36 (see methodology in the relevant chapter for the full exploitation plans that we will produce).

**Note:** In the next chapter we analyze further what other parts and which canvases will be used further, after the framework formulation. We explain in the next chapter the entities to employ in our online surveys and workshops:

- Needs to Fulfil (as per Innovation Radar terms, but further expanded for our case)
- Business Model Canvas (BMC)
- Value Proposition Canvas (VPC)
- Target Market Canvas (TMC)
- Etc.

### 10.3 Types of Exploitation Pathways as per PEDR Guidelines and extensions

We have devised 14 alternative exploitation ideas–pathways to propose to partners for them to consider. These have been devised by expanding the initial pathways proposed by the official PEDR guidelines, in order to capture as many cases as possible.

Note that numbers 8-14 are EMBRACE specific and have been devised for the project purposes. These have also been implemented in the confidential online exploitation survey that we are constructing. The theory, the reasoning and the list of pathways themselves follows:

#### 10.3.1 Expanding the typical exploitation pathways of the official EC guidelines

Exploitation is known to be “much more” than pure sales”.

As per official PEDR Horizon Europe guidelines and IPR Helpdesk recommendations, exploitation refers to “The utilization of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardization activities” but this has to become more concrete and focused as per the methodology below. Typical Exploitation pathways are briefly presented in the following figure. These are our initial reference. We tried to expand them with more tangible and more “fitting” to the project alternatives.

Further internal research	<ul style="list-style-type: none"> <li>• These research activities must be beyond the project.</li> <li>• Relevant for research organisations and research intensive companies.</li> </ul>
Collaborative Research	<ul style="list-style-type: none"> <li>• The results used as background of future collaborative research projects.</li> <li>• Relevant for research organisations and research intensive companies.</li> </ul>
Internal product development	<ul style="list-style-type: none"> <li>• Results used in developing, creating and marketing a product/process.</li> <li>• Relevant for companies.</li> </ul>
Internal service creation	<ul style="list-style-type: none"> <li>• Results used in creating and providing a service.</li> <li>• Relevant for companies.</li> </ul>
Licensing	<ul style="list-style-type: none"> <li>• Results exploited by other organisations through out-licensing.</li> <li>• Relevant for all participants, but care should be taken to comply with Horizon 2020 rules.</li> </ul>
Assignment	<ul style="list-style-type: none"> <li>• Results exploited by other organisations by the transfer of ownership.</li> <li>• Relevant for all participants, but care should be taken to comply with Horizon 2020 rules.</li> </ul>
Joint Venture	<ul style="list-style-type: none"> <li>• Results used as background of a joint venture.</li> <li>• Relevant for all participants, but care should be taken to comply with Horizon 2020 rules.</li> </ul>
Spin-off	<ul style="list-style-type: none"> <li>• A separate company established in order to bring to the market results from the project.</li> <li>• Relevant for all participants, but care should be taken to comply with Horizon 2020 rules.</li> </ul>
Standardisation activities	<ul style="list-style-type: none"> <li>• Results used either to develop new standardisation activities, or to contribute to on-going standardisation work.</li> <li>• Relevant for all participants, but care should be taken to comply with Horizon 2020 rules.</li> </ul>

Source: European IPR Helpdesk, The Plan for the Exploitation and Dissemination of Results in Horizon Fact Sheet

#### 10.3.2 The need for the Pathways in EMBRACE

Based on the official EC recommendation, we have expanded our proposed pathways in order to capture the “peculiarities” of each partner:

- Nature (commercial or not)
- Type (research, SME, Large Corporation, Governmental Authority, Use case Pilot provider, etc)
- Vision, Exploitation intentions, Business Strategy and interests
- Resources (or lack thereof)

And also, due to the nature of EMBRACE and its expected Outputs.

### 10.3.3 List of Exploitation Pathways Constructed

Partners will be asked to select among the following for their plans per Exploitable Asset that interest them (and are expected by their intrinsic nature to select more than one accordingly in their plans):

**01 M—Market** (i.e., Sell) the Asset: The partner wishes/offers the opportunity to Sell the asset by using their pre-existing sales channels to promote it to potential client networks. (Ownership of the asset is unnecessary; the partner may request permission to sell someone else's asset through a license agreement, etc.). This is a commercial intention of selling an asset.

**02 C—Technical Creation:** The partner wishes to produce the asset with their expertise (regardless of whether they will sell it later). This is a technical development intention.

**03 U- Use and upgrade this asset** (as a "part" towards something "bigger"). Towards the creation of a new product or service that will use parts of it, and then it will enter the partner's portfolio of offered solutions, and it will be sold or promoted for free, to stakeholders for beneficial impact (after the project's end).

**04 O- Open Solution:** Partner intends to publish/post the software/solution for free use. Either as open source with source code, as freeware (free to use but with no source code included), as "Freemium" (free to use with limited functionalities and a potential paid version with upgraded features later), or as other "similar" open type

**05 L - License:** Partner wishes to consider opportunities to License/Assign their asset or knowledge on the asset to 3rd parties that want to exploit it for an agreed fee (Typical for Universities and Non-profit organisations that do not have a Sales Force).

**06 I—Internal:** The partner foresees opportunities for Internal use and expansion or replication in the future. For example, more studies and trials (more profound, more comprehensive, etc.) are Typical for Pilots, Trials, Demonstrators, industries offering infrastructure, etc. Example: We might create new internal processes based on what we learned.

**07 R - Research Further:** Journal/Conference Publications/ other research initiatives/participation in new Horizon Europe projects, etc.

**08 P-Publish and promote** (other non-scientific, non-journal/conference Publications) Studies, Handbooks, Best Practices, Guidelines, Presentations, Multimedia/Videos, Books, Charts, etc. useful for beneficiaries, policy makers, social or scientific groups etc.

**09 D—Dataset:** Partner would like to exploit the datasets of a particular asset or pilot trial through online marketplaces for new experiments, further research, consulting services, etc.

**10 T—Training:** Due to their deep knowledge of the asset, the partner wishes to produce Training Material and offer related Training Services/ Methods (online test, webinar, printed, etc.).

**11 S—Services:** The partner is willing to provide Services and even get paid for their person-hours, if possible (complementing the asset), such as Consulting, Lectures, Participation in Expert Group, Technical or Scientific Integration, Support, Maintenance, or other Added-Value Services around the main asset.

**12 G—Governmental/Sectoral:** The partner has links and can promote the Asset to Governmental /EC Policy Recommendations or contribute to Standardization Bodies and Associations. This can also be in clusters and associations working around the project subject (for example Policy Makers, DIH digital innovation hubs, etc.).

**13 N- Network - Community:** Create a new Community- Network, or expand a pre-existing one, around the asset. Example: attract more users or data providers around it, or within a Marketplace, an Association, an Innovation Hub, an online community, a cluster, a task force, another network etc.

**14 F - Framework - Evaluation Study - Best Practice:** Develop a unified Framework, a Risk Assessment or a similar Study, an Evaluation and Testing of a currently used practice. Create and potentially publish

new methodologies, frameworks, best practices, guidelines, optimisations and improvements in methods that will be promoted and distributed accordingly to adopters and recipients who can benefit from them after the project.

#### 10.4 Types of Exploitation Output Expected as per innovation Radar categorisation (expanded)

We have borrowed and expanded the list of expected outputs from the official Innovation Radar questionnaire. Although the official questionnaire has 11 “categories of output for innovations” we have expanded them to **28 categories**, in order to accommodate the peculiarities of EMBRACE and to instigate as many parallel ideas, as possible for our partners to optimally exploit the project assets in a multitude of outputs for their exploitation plans. These have also been implemented in the confidential online exploitation survey that we are constructing.

Exploitation Output Types		
1. New Product	11. New Tool	21. New funded research project
2. New Service	12. New Hardware / Sensor / Device	22. New Research Papers
3. Expand existing Product	13. Standardisation Contribution	23. Other publication (example handbook or guide or multimedia)
4. Expand Existing Service	14. Governmental -Policy / Regulatory contribution	24. Publish Datasets from Pilots /Trials / Tests
5. New Pilot / Trial- Extension	15. Governmental -Assist operationally / make more efficient	25. Use Datasets from Pilots /Trials / Tests
6. New Software	16. Consulting Service	26. Enhance existing Networks and Knowledge Sharing (Clusters, Innovation Hubs, Associations, Marketplaces, Groups, Task Forces etc.)
7. New Framework	17. Integration Service	27. Create New Networks and Knowledge Sharing (Clusters, Innovation Hubs, Associations, Marketplaces, Groups, Task Forces etc.)
8. New Best Practice Publication	18. Training Service	28. Licence to other partner to exploit on our behalf (upon agreement)
9. New Methodology / Procedure	19. Training Material	
10. New Evaluation Study	20. Internal use in the organisation	

*Table 7. Types of exploitation output expected*

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<input type="checkbox"/> New Product	<input type="checkbox"/> New Tool	<input type="checkbox"/> New funded research project
<input type="checkbox"/> New Service	<input type="checkbox"/> New Hardware / Sensor / Device	<input type="checkbox"/> New Research Papers
<input type="checkbox"/> Expand Existing Product	<input type="checkbox"/> Standardisation Contribution	<input type="checkbox"/> Other publication (example handbook or guide or multimedia)
<input type="checkbox"/> Expand Existing Service	<input type="checkbox"/> Governmental -Policy / Regulatory contribution	<input type="checkbox"/> Publish Datasets from Pilots /Trials / Tests
<input type="checkbox"/> New Pilot / Trial- Extension	<input type="checkbox"/> Governmental -Assist operationally / make more efficient	<input type="checkbox"/> Use Datasets from Pilots /Trials / Tests
<input type="checkbox"/> New Software	<input type="checkbox"/> Consulting Service	<input type="checkbox"/> Enhance existing Networks and Knowledge Sharing (Clusters, Innovation Hubs, Associations, Marketplaces,Groups, Task Forces etc.)
<input type="checkbox"/> New Framework	<input type="checkbox"/> Integration Service	<input type="checkbox"/> Create New Networks and Knowledge Sharing (Clusters, Innovation Hubs, Associations, Marketplaces, Groups, Task Forces etc.)
<input type="checkbox"/> New Best Practice Publication	<input type="checkbox"/> Training Service	<input type="checkbox"/> Licence to other partner to exploit on our behalf (upon agreement)
<input type="checkbox"/> New Methodology / Procedure	<input type="checkbox"/> Training Material	
<input type="checkbox"/> New Evaluation Study	<input type="checkbox"/> Internal use in the organisation	

Other (please specify)

## 10.5 Initial Steps on Stakeholder Benefits and Value Proposition

A dedicated section of our methodology in the 2<sup>nd</sup> year of the project includes analytic (VPC) Value Proposition Canvases, identifying the Unique Selling Proposition (USP), the importance parameters that distinguish our project in innovation and in benefits, and furthermore the needs-fears-wants of customers, envisioned adopters, and beneficiaries, the initial stakeholder groups, market segmenting, market targeting and analysis. These are parts of our upcoming workshops and exploitation surveys. For that scope we have devised as of M12 an initial table as preliminary guideline. The progress so far includes the following table discussed and agreed with partners. Each exploitation plan devised (individual or collaborative), will be requested to align to at least one of these impactful benefits:

Impactful Benefit of EMBRACE	Adopter – Beneficiary Group
Improved European crisis management in case of an incident with biotoxins through development of a pan-European task force of security practitioners, taking into consideration existing intersectoral actions on bioterrorism.	Research Institutions and Universities; Decision Makers and Government Agencies; First Responders and Emergency Services; Law Enforcement and Security Agencies; Forensic Laboratories; Health Authorities and Organizations.

New and existing portable devices, technologies, and methods for responders to perform on-site detection of biological toxins are brought to the market.	Research Institutions and Universities; Forensic Laboratories; Law Enforcement and Security Agencies; Health Authorities and Organizations; Decision Makers and Government Agencies; First Responders and Emergency Services.
Recommendations of effective decontamination measures for personnel, equipment and facilities exposed to biological toxins are provided based on solid experimental testing.	Research Institutions and Universities; Law Enforcement and Security Agencies; First Responders and Emergency Services.
Development of an operational European response network of specialised and forensic laboratories, taking into account existing initiatives (such as the HERA Laboratory Network) and harmonised procedures/guidelines for forensic analysis of biotoxins applicable to a range of technologies and toxins.	Research Institutions and Universities); Forensic Laboratories, Law Enforcement and Security Agencies; First Responders and Emergency Services
Addressing the risks for responders from exposure to biological toxins in the hot-zone. Assessment and recommendations of protective equipment for working with biological toxins in the hot-zone are developed.	Research Institutions and Universities); Forensic Laboratories, Law Enforcement and Security Agencies; First Responders and Emergency Services
Building on existing initiatives and networks, a consolidated platform is established providing support for standardisation efforts in the analysis of biological toxins	Research Institutions and Universities); Forensic Laboratories; Law Enforcement and Security Agencies; Health Authorities and Organizations; Decision Makers and Government Agencies; First Responders and Emergency Services.

**Table 8. Impactful Benefits for Adopters & Beneficiaries for each exploitation plan to align to**

## 10.6 Impact Factors for each Exploitation Plan

Among other details, each plan will be targeting one (or more) specific strategic impacts of the project which are associated relevant KPIs. We present them as a list below, and each plan (individual or collaborative) will obligatorily have to focus also on them, and each partner will also deliver an estimated “qualitative level” of impact through 5-point Likert scales.

ID	Impact Factors being Targeted
IMPF 01	Enhanced exploitation of the latest scientific results and technologies to enhance understanding of high-impact hazards and improve prevention, preparedness, mitigation, response, and recovery.
IMPF 02	Enhanced understanding and improved knowledge and situational awareness of disaster-related risks by citizens, empowered to act and consider innovative solutions, thus raising resilience of EU society.
IMPF 03	More efficient cross-sectoral, cross-disciplinary, cross-border coordination of disaster risk management

IMPF 04	Support harmonised and/or standardised interoperability guidelines / protocols / tools / technologies in the area of CBRN-E crisis management, and natural disasters.
IMPF 05	Strengthened capacities of first responders related to any kind of natural and human-made disasters so they can better prepare their operations, have access to enhanced situational awareness, and means to respond to events in a faster, safer, and more efficient way, and may more effectively proceed with victim identification, triage, and care.
IMPF 06	Further Contributions to the green deal and sustainable development goals.

**Table 9. Impact Factors that each Exploitation Plan will address**

### 10.7 Alignment of each Exploitation Plan with the EMBRACE Project Objectives

Likewise, within the upcoming exploitation questionnaires and the workshop, upon first draft completion of each partner's exploitation plan, we will try to map another aspect: How and to what level this particular proposed plan is aligned with the main project objectives.

ID	Alignment of Exploitation Plan with Project Objectives
01	<b>1 Enhance Europe's biotoxin incident response capacity</b> Improve Europe's ability to respond effectively to biotoxin incidents by identifying critical gaps in current response protocols and leveraging advanced scientific research and innovative technologies to tailor responses to the unique challenges posed by biotoxin threats.
02	<b>2 Develop Innovative Tools and Technologies</b> Create novel portable devices for rapid on-site field diagnostics and biotoxin detection, together with validated sampling and analytical methods, and evidence-based recommendations for personal PPE and novel decontaminants, to provide responders with cutting-edge resources for field operations and decision-making.
03	<b>3 Standardised and Integrated Solutions</b> Ensure cross-sectoral and cross-border interoperability of crisis response through a robust programme of standardisation and harmonisation protocols to strengthen collective resilience against biotoxin threats.
04	<b>4 Foster Knowledge Sharing and Collaboration</b> Establish a Biotoxin Task Force that unites stakeholders from diverse sectors, enabling the exchange of expertise, experiences and best practices to enhance preparedness and response capacities.
05	<b>5 Ensure Sustainability and Commercialisation</b> Implement a long-term strategy that supports the commercialisation of project innovations and maintain an active biotoxin stakeholder community, ensuring the project's impacts and benefits endure well beyond its funded duration.

**Table 10. Project Objectives that each Exploitation Plan (per Partner and per Asset) will address**



## 11 MAIN EXPLOITATION METHODOLOGY – TIME PLAN & ACTION PLAN– NEXT STEPS

### 11.1 Adherence to Official EC Guidelines on PEDR

Our Exploitation and Business Plan Creation methodology for successful Route-to-Maturity adheres to the guidelines:

- European IP Helpdesk Library, IPRHELPDESK.eu
- The (PEDR) Plan for the Exploitation and Dissemination of Results in Horizon Europe Fact Sheet
- Commission Recommendations (EU) 2023/498 on a Code of Practice on standardisation
- Commission Recommendation (EU) 2023/499 on a Code of Practice on the management of intellectual assets for knowledge valorisation
- Commission Recommendation (EU) 2024/774 on a Code of Practice on industry-academia co-creation for knowledge valorisation
- Commission Recommendation (EU) 2024/736 on a Code of Practice on citizen engagement for knowledge valorisation
- Horizon Europe 2023: Guide to Intellectual Property Management in Horizon Europe 2023
- IPR Helpdesk, Joint Ownership Fact Sheet
- Common Exploitation Booster (CEB)
- Horizon Results Booster (HRB)
- Horizon Standardisation Booster (HSB) HSBooster.eu
- Digital Single Market “Innovation Radar” (IR) (innoradar.eu)
- Horizon Results Platform (HRP)
- Horizon Common Support Centre/J5 “Dissemination and Exploitation in Horizon
- European Patent Academy, department of International Patent Law at EPO & European IP Helpdesk, “IP for Business Training Roadshow: From Idea to Commercialisation.”
- European Standards + Innovation initiative (standardsplusinnovation.eu)
- EN ISO 56002:2019 Innovation management – Innovation management system – Guidance, EN ISO 56005:2020 Innovation management – Tools and methods for intellectual property management – Guidance

### 11.2 Extensions on Exploitation with Business Plan Creation and Marketing Plan topics

**On top of the above**, in the next revisions of the exploitation deliverable (due in M24 & M36), given the partner exploitation intentions, and by also taking into account the innovation level and the probable market interest (free or commercial) for several Exploitable Results (ER), we intend to extend our exploitation methods much further beyond typical Research and Innovation levels and address a few more issues that are usually found in more advanced business planning stages such as:

- Analytic Business Plans
  - single per partner
  - joint for the whole consortium and,
  - collaborative among partner efficient groups
- A preliminary 7P Marketing Mix and a Strategic Plan for Route to Market
- A NPDL (New Product Development and Launch) Plan for commercial cases (priced or even opensource which still remain commercial paths).
- An analysis with specific “needs” and “resources” required, time plans for launch and for replication,
- a quantified cost projection of each plan, to make it more solid and credible.



### 11.3 Exploitation Plan – Phases

Phase	Action Group	Delivery	ACTIVITIES - OUTPUTS - TOOLS
1	Innovation IML & Asset Taxonomy	M12	Innovation Management Log (IML) & full taxonomy of Exploitable Assets/ KERs. Asset use in Pilots, Added Value & Innovation, tech. descriptions, initialize IAM Knowledge Registry for IPR. Exploitation of intangibles: Datasets, Frameworks, Pilot-Study derived knowledge
2	Prelim. Plan Formulation – Exploitation Pathways	Prep. M12 Deliv M24	Exploitation Plan Frames: (All partners–All Assets–All Pathways). Cross-map partner exploitation interest per asset, exploitation pathway chosen, specific output expected (new service / product / methodology etc). Time & Resources to Implement. Collaborative Plan expansions – Partner grouping in value chains
3	IPR Strategy & ROL V1	M12	Knowledge Registry, IAM Intellectual Asset Management, Background Foreground IPR Matrix, Contribution Claims– ownership status, Maturity levels TRL, Preliminary ROL
4	Prelim. Market Analysis	M24	(MET) Market Engagement Tracker V1, Tools: SWOT, PESTLE, Porter 5–Forces, Strategic Positioning vs Alternative Projects
5	Workshop Plans–Canvases	M24	Dual Online Survey, Exploitation Workshop, Value Proposition Canvas (VPC), Business Model Canvas (BMC), Lean Canvas, Curated Marketing Tables.
6	Market Analysis V2	M36	Market size, maturity, reachability, trends, barriers, segments, competition, alternatives, readiness analysis. Clear path – promotional & sales channels to reach customers and adopters. Market Engagement Tracker: potential customers – adopters from real market.
7	Visibility, Valorisation, EC platforms	M24 & M36	Evaluate opportunities for valorisation, standardisation potential and Industry–Academia co–creation (EU 2024/774). EC Platforms Submission: Innovation Radar, Horizon Results Platform (HRP), Horizon Standardisation Booster (HSB), Standards Innovation Initiative (standardsplusinnovation.eu), Horizon Results Booster (HRB)
8	Granular Plan Details – Marketing Plan Entries	M36	Rigorous and Credible plan details: cost structure, time to implement, needs for maturity, pricing schemas, revenue streams, marketing aspects, and promotional channels, outlining clear pathways to reach customers and adopters. Dual Online Survey, Exploitation Workshop
9	IPR V2 Protection, License, Valorisation	M24 & M36	Protection instruments (patents, trademarks etc.), restriction measures, Asset availability and licensing schema. Final ROL, Final Background Foreground IPR Matrix, Final Contribution Claims– joint co–ownership. IAM for Knowledge Valorisation (EU 2023/498)
10	Final Business Plans & Go–to–Market Uptake	M36	Analytic Plans (4 Types): (A) Individual Plans – All partners (B) Collaborative Plans among partner groups – common strategy, (C) Joint Plan: entire consortium Sustainability Roles – Responsibilities. 5 YR Expansion Roadmap. Asset Availability after Contractual End. (D)

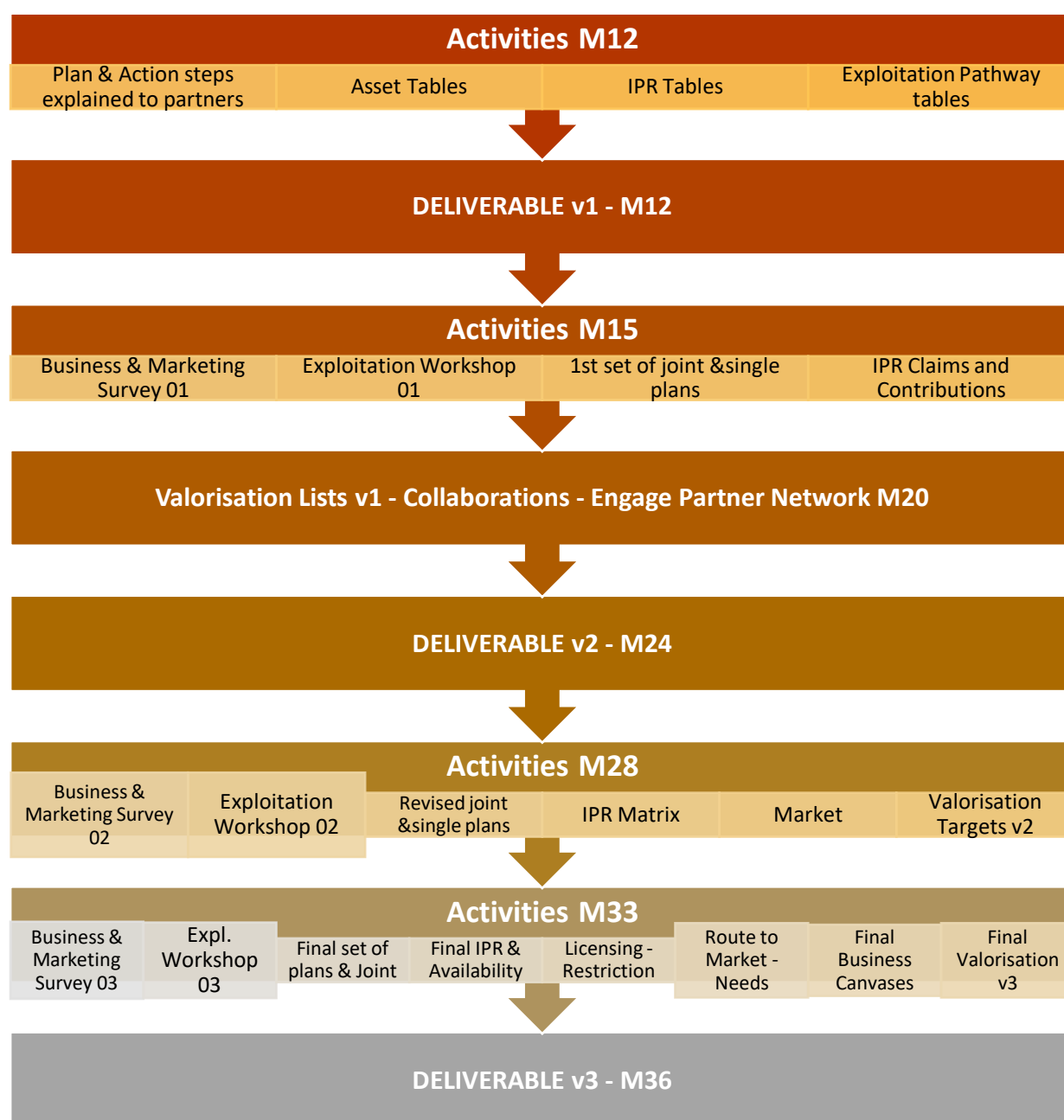
		Deeper analysis for high potential KERs. Go-to-Market and Route-to-Maturity.
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## 11.4 Exploitation Action Points

For each of our phases we will consult the following **44 point action list**, which we collaboratively derived based on experience from previous similar exploitation plans and also Marketing plans and business plans from the private market and new product development projects. We will try to ensure that most of them (or even better all of them if possible) are covered during the phases of our plan (when and if applicable of course)

ACTION POINT CHECKLIST		ACTION POINT CHECKLIST	
1) Asset Definition + Taxonomy		2) Asset Key Description / Characterisation/Mapping per Pilot	
3) IPR Claims (Background/Foreground/Contribution)		4) IPR Claims (Intention to Exploit/License/Open Potential)	
5) IPR Restriction- Protection		6) IPR Availability	
7) Background / CA / Knowledge Registry/ CB Matrix		8) Ground Identification / Market Intentions / Pathways	
9) Output Types of Exploitation		10) Time to Implement	
11) Time to replicate		12) Target Markets / Sector Focus	
13) Market Segmentation / Sectors vs Segments		14) Market Maturity and Growth	
15) Market Accessibility & Profitability		16) Market Expansion / Product Diversification	
17) Scalability / Replicability		18) Competition Comparison / Evaluation / Maturity & Strength	
19) Types of customers – adopters-beneficiaries		20) Engagement of pre-existing Networks	
21) Asset Market Potential (maturity/strength)		22) Service Market Potential (maturity/strength)	
23) B2B / B2C / B2G		24) Value Proposition Definition/Statement	
25) VPC Value Proposition Canvas (Needs – Fears – Wants)		26) Value Chain / Joint Exploitation in Sub Value Chains	
27) Product Features and Benefits		28) Solution Positioning	
29) Bundling, Portfolio, COTS vs MOTS		30) BMC Mini Business Model Canvas	
31) Cost Breakdown and Projection		32) Distribution Channels	
33) Pricing Models		34) Alternative-Main Revenue Streams	
35) Partnerships - Key Relations		36) Expand to Collaborative Plan	
37) Role in Joint Plan / Leadership		38) Innovation Radar Submission	
39) Take-up Implementation Roadmap and Needs		40) KER & Booster Tables / Webforms	
41) PESTLE		42) SWOT	
43) Web Questionnaires		44) Exploitation workshops	

## 11.5 Time Plan – Mapping Activities per Deliverable



## 11.6 Types of Exploitation Plans to be derived

We have planned, and we have already implemented the preparatory stages, forms, surveys and canvases, for 3 types of partner exploitation plans and business models to be produced:

- (A) **Individual** plan per single partner,
- (B) **Collaborative** exploitation plan in small efficient groups of partners that collaborate and complement each other in expertise, for team exploitation, and
- (C) **Joint** exploitation plan and **Long-Term Sustainability** plan for the whole consortium and for the entire set of produced assets of the project.

The first round of plans (basic framework) is planned to be completed by M18 after our workshops and surveys, and then refined and delivered in M24 with the next deliverable, while the second round of complete final plans, is scheduled for M36

## 12 UTILISING RELEVANT OFFICIAL EC PLATFORMS AND TOOLS – EXPLOITING THE BENEFITS WHILE OPTIMISING PROMOTION

The EMBRACE project intends to make maximum and optimal use of all the tools and platforms that the relevant EC Mechanisms provide, and at the same time optimise promotion of our exploitable results in tandem. Namely:

### 12.1 KER selection, approval and submission to Innovation Radar

As previously mentioned, following the partner vote (M18), the 3 most prominent KERs, among the 7 “flagship” results of EMBRACE mentioned in the assets chapter, the most prominent being the Biotoxin Task Force, will be candidates (upon PO approval of course) to be submitted in the well-known:

- Digital Single Market “**Innovation Radar**” (IR) ([innoradar.eu](http://innoradar.eu))

### 12.2 Horizon Results Platform & Horizon Booster

Both the **Horizon Results Platform** and **Horizon Results Booster** are official key tools within Horizon Europe designed to help beneficiaries commercialize and disseminate their results, connecting them with potential stakeholders. We aspire:

- to submit our KERs in the **HRP** platform and
- To consider acquiring the maximum potential help by applying to the **HR-Booster** after M15 and having the relevant experts that will be appointed to our project, to assist us further.

### 12.3 Knowledge Valorisation Platform and HSBooster.eu

Although the Valorisation process as per the adherence to recommendation 498/2023 and relevant links is explained in the dedicated chapter, we stress the importance of tools such as

- The **Knowledge Valorization Platform** of the European Commission which has a **repository of best practice examples** available, to facilitate peer learning
- The **Horizon Standardisation Boster** ([www.hsbooster.eu](http://www.hsbooster.eu)) and especially its dedicated “Training Academy”

Which our EMBRACE Exploitation, IPR, Valorisation and Standardisation team of experts are following closely for posts and webinars every month, and we will also try to seize every similar opportunity for learning and participation if possible.

### 12.4 CCTT Competence Centre on Technology Transfer and Horizon IP Scan

We will also evaluate options to use the resources of the **CCTT Competence Centre on Technology** which offers expertise and services in technology transfer at the European Commission in the areas of capacity building, financing and innovation ecosystems

Indirectly related to our scope, it might also prove useful to consider the possibilities from the **EC Horizon IP Scan** which is helping SMEs manage and valorise Intellectual Property (IP) in R&I collaborations.

### 12.5 Other opportunities

Our exploitation team will try to constantly follow relevant developments EC-wide, and to grasp all similar opportunities for wider impact and adoption, taking advantage not only of the official EC tools provided but any other liaison from our partner’s pre-existing network (for example the engagement tracker from the real market liaisons that we are planning and is described in the relevant subsection of the document).

## 13 CONCLUSIONS – ACTIONS COMPLETED

At the close of this first iteration of the EMBRACE exploitation and impact evaluation process (M12), the consortium has established a solid foundation for systematically transforming project results into long-term impact. We have successfully identified, mapped, and categorised more than 25 exploitable results (ERs), including technical prototypes, intangible knowledge frameworks, trial datasets, and methodological contributions. These have been consolidated into the master asset table and complemented by the development of an asset taxonomy and mind-map, providing clarity across the consortium.

Our work has also advanced IPR management practices through the introduction of a structured six-phase roadmap, claims tables, and a preliminary Results Ownership List (ROL). These ensure that both foreground and background knowledge are properly documented, respected, and aligned with EU codes of practice on intellectual assets, valorisation, and standardisation. Likewise, the valorisation methodology has been anchored in European Commission policy, linking exploitation planning with the Horizon platforms, Innovation Radar, Horizon Results Booster, HSBooster.eu, and other EC support mechanisms.

Partners have been provided with tailored guidance, workshops, and preliminary canvases for exploitation and sustainability planning. This first cycle has laid the groundwork for the cross-mapping of exploitation plans per partner and per asset, prepared the framework of pathways and expected outputs, and initiated network building through the Engagement Tracker. Achievements to date ensure alignment with major project objectives such as improved biotoxin response capacity, novel technology development, standardisation, and multi-stakeholder knowledge exchange.

Looking ahead, the next reporting cycles (M18–M36) will focus on refining individual, collaborative, and consortium-wide exploitation plans, testing business and marketing strategies, and operationalising adoption pathways. Emphasis will be placed on quantifying impacts, strengthening ties with standardisation and policy communities, targeting end-users through structured market analysis, and ensuring long-term sustainability beyond project closure. This will guarantee that EMBRACE results reach maturity, credibility, and societal uptake, thereby maximising the project's scientific, societal, and commercial impact.

### 13.1 Key Outputs at M12

#### Exploitable Asset Framework Established:

- Identified, defined, and catalogued over **25 distinct Exploitable Results (ERs)** in a Master Asset Table. We have also reserved a place in the table to append the datasets and intangible knowledge derived from the Pilots, as also very important exploitable knowledge derived from the project.
- We **cross-mapped each of the assets**: If they are used in Trial-Pilots (and which ones), a specific Link to DoA (WP and Task) for their development, leading partner, category/ type of asset etc.
- Developed a clear asset **taxonomy**, distinguishing between general "Project Results," "Exploitable Results (ERs)," and high potential "Key Exploitable Results (KERs)". KERs being showcase flagships of the project will be submitted in all relevant EC Platforms.
- Created an Asset Mind-Map for clear visualisation and dissemination purposes.

#### Comprehensive Exploitation Strategy Devised:

- Formulated a detailed framework for building exploitation plans. We will gradually create through our workshops and online surveys **three (3) distinct types of exploitation plans**: (A) **Individual** per partner (for all partners without exception), (B) **Collaborative** among partner groups, and (C) a **Joint** plan for the entire consortium:

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- For this purpose we defined **14 distinct Exploitation Pathways**, expanding beyond restricted commercial only exploitation (not necessarily feasible for all partner due to nature and structure), in order to include options like further research, internal use for training and best practice creation, dataset exploitation, consulting, training and integration services around the asset due to expertise of a partner, regulatory, policy, valorisation, standardisation contributions etc., to cater to the diverse nature of consortium partners.
- We also created an expanded catalogue of **28 specific Exploitation Output types**, that we can **expect partners to produce within their exploitation plans**. We achieved this by broadening the 11 official Innovation Radar categories to better fit the project's potential results.
- The frame of the individual plans to be derive in the next workshop is now clear. Cross-mapping **11 constituent parts of each exploitation plan**, including the asset (what), partner (who), pathway (how), output (for what), beneficiary (for whom), impact factor and project objective (why). Also in what timeframe, and with what resources. This should be a very clear “skeleton of an exploitation plan for each partner and each collaborative partner group.
- At the next step (2<sup>nd</sup> workshop), we will start to complete with full analytics and full canvases for each plan, including cost drivers, revenue streams, pricing, promotional and sales channels, key partnerships and many business and marketing plan specifics
- Prepared a suite of tools to be employed in upcoming workshops, including the Business Model Canvas (BMC) and Value Proposition Canvas (VPC), to facilitate the development of detailed business plans.

### Systematic Plan, Action List, Partner Guidance and Tooling:

- Devised a clear time plan and action plan. It consists of **10 Phases** and **44 Action Items**.
- Established a structured process of partner guidance through recurring workshops, online surveys, and telcos to co-create all exploitation, IPR, and valorisation strategies.

### Robust IPR Management:

- Established a full IPR methodology adhering to official EC and IPRHelpdesk.eu guidelines.
- Designed a **six-phase IPR time-plan**, mapping out activities from M6 through to the project's conclusion at M36.
- **Produced IPR Claims Tables for all 25 assets**, with clear letter coding, capturing partner claims on Background, Foreground, Contribution, and intentions for Exploitation, Protection, and Open Licensing.
- Created the **foundation for a Results Ownership List (ROL)** based on the IPR claims, in line with Horizon Europe guidelines.
- Developed clear templates and forms for advanced IPR topics, including predefined lists of **Protection Instruments** (e.g., Patent, Copyright, Trademark) and **Restriction Measures** (e.g., GDPR, NDA, Corporate Confidentiality).
- Took into account the **availability for assets and their documentation, licensing schemas** and responsible partners within the joint sustainability plan , after the contractual end of the project (to be refined after M24 when the project is mature enough).
- Designed a comprehensive **IPR Knowledge Registry** with templates for recording Foreground and Background knowledge.

### Structured Valorisation and Engagement Plan:

#### D8.5 Exploitation and impact evaluation – 1st Iteration

- Developed a clear Valorisation Methodology fully aligned with the latest EC Council Recommendations and Codes of Practice on knowledge valorisation, standardisation, and IP management.
- Created concise reference materials and definitions to guide partners on valorisation principles through workshops and telcos.
- Initiated an "**Engagement Tracker**" to build a list of potential **market adopters and customers from the real market**, by leveraging partners' pre-existing networks.
- Outlined a clear strategy to utilize all relevant **official EC platforms** to maximize impact, including the Innovation Radar, Horizon Results Platform, Horizon Results Booster, and Knowledge Valorisation Platform.

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## ANNEXES

### Annex A. IPR Knowledge Registry Templates

#### Foreground List of applications for patents, trademarks, registered designs, other IP rights

IPR Protection Instrument	Asset on the application	YES/NO	dd/mm/yyyy
Patents			
Trademark			
Utility Model			
Copyright			
Trade Secret			
Registered design			
Other IPR Protection Instrument			

#### Types of Exploitable Foreground

Type of Exploitable Foreground (options):	<input type="checkbox"/> General advancement of knowledge <input type="checkbox"/> Commercial exploitation of R&D results <input type="checkbox"/> Exploitation of R&D results via standards <input type="checkbox"/> Exploitation of results through EU policies <input type="checkbox"/> Exploitation of results through (social) innovation
Description of exploitable foreground	
Patents or other IPR exploitation (licenses)	
Owner & Other Beneficiary(s) involved	
Confidential	YES/NO
Expected embargo date	dd/mm/yyyy
Exploitable product(s) or measure(s)	
Sector(s)* of application (NACE)	
Timetable, commercial or any other use	

#### Additional Background Knowledge Registration per WP/Task

Background Knowledge Registration	
Title / Name	Title/Name of organization in charge of handling the IPRs attached to the Background
Owner(s)	Partner Name(s) third party rights, if applicable
Joint	third party rights, if applicable
Type	Patent, design, software, methodology etc.
Registration Protection	/ Patent number or patent application number, copyright (year, etc.), version N° (for s/w), etc.

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<b>WP/Task required</b>	<b>where</b>	Identify the task or WP/Task where the background has been used and reasoning
<b>Description</b>		Description of the Background and short history
<b>Dependencies</b>		(If any) with other Background
<b>Foreground Envisioned</b>		Foreground envisioned to be augmented based on the background
<b>Access conditions / Limitations for the project</b>		Description of the access conditions, in particular, if a request in writing is needed and if access is conditional upon a specific license agreement
<b>LICENSEES for research in project</b>		Names of Licensees
		Date and Period of Allocation
		Type of License
<b>LICENSEES for use and exploitation</b>		Names of Licensees
		Date and Period of Allocation
		Type of License

### Potential Foreground Knowledge Registration per WP/Task

Foreground Knowledge Registration		
<b>Title / Name</b>		Title/Name of organization in charge of handling the IPRs attached to the Foreground
<b>Owner(s)</b>		Partner Name(s)
<b>Joint</b>		if the Foreground is co-owned by several participants
<b>Type</b>		Patent, design, software, methodology etc.
<b>Registration Protection</b>	<b>/</b>	Patent number, copyright, etc.
<b>WP/Task produced</b>	<b>where</b>	Identify the task or WP/Task where the Foreground has been produced
<b>Description</b>		Description of the Foreground and reasoning
<b>Dependencies</b>		Technical / License (If any)
<b>Background required</b>		Background required to use the Foreground if Background needed
<b>Access conditions / Limitations for the project</b>		Description of the access conditions and if access is conditional to a specific license agreement, agreement of co-owners, etc.
<b>LICENSEES for research in project</b>		Names of Licensees
		Date and Period of Allocation
		Type of License
<b>LICENSEES for use and exploitation</b>		Names of Licensees
		Date and Period of Allocation
		Type of License
<b>Dissemination Activities Undertaken</b>		outside licensing (publications, technology transfer, etc.)