Enforce
Empowering Citizens for Environmental Action

D6.10 ENFORCE Exploitation and Activities Report

WP6 Impact Maximisation

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Deliverable Abstract
This document constitutes Deliverable D6.9, ENFORCE Exploitation and Activities Report, as part of the ENFORCE project. It is the second deliverable of the task 6.3, which is dedicated to Impact Maximisation. This version of the Deliverable refines the KERs according to observation following 18 months of project execution and describes activities carried out in that period to assist partners in defining sustainable results and the individual partners expectation for exploitation at the end of the project. It describes activities including an exploitation workshop in month 13 in Crete, Greece.

Keywords
Key Exploitable Results (KERs), Market Analysis, Stakeholder Engagement, Dissemination, Exploitation Framework, Strategic Planning, Tangible Benefits, Market Landscape, Project Outcomes.

Project Summary
Assuring environmental compliance requires a strong network of stakeholders, from citizens and researchers to governments and environmental organisations. Through creative toolkits and protocols, ENFORCE aims to tackle the frequent mismatch between the environmental data gathered by citizens and what authorities require for enforcement purposes. The project will address the challenges in data reporting coming from both the citizens side and the authorities' side, in order for the obtained data to be usable for environmental enforcement. In this line, ENFORCE introduces the concept of Data Readiness Level (DRL) to assess the maturity of data to be used as evidence in environmental compliance cases. In addition, the project will capitalize on the use of geo-spatial intelligence and AI-enhanced tools, strengthening their capacities, promoting good practices and preparing an inventory on geo-spatial intelligence and AI use. The proposed solution will ensure alignment with the Green Deal Data Space to ensure trustworthy data exchange among the relevant stakeholders. The project encompasses 8 case studies that involve all relevant actors including grassroots organizations, local and regional authorities and a diverse group of experienced researchers forming a scientifically robust interdisciplinary team. The lessons learnt and evaluation results from the case studies will feed the replication guidelines that will be promoted through the ENFORCE capacity building programme and associated policy recommendations to create a multiplier effect for the adoption of citizen science data to support environmental compliance.

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Table 1 List of Abbreviations

Abbreviation	Definition
AI	Artificial Intelligence
CA	Consortium Agreement
CINEA	European Climate, Infrastructure and Environment Executive Agency
CS	Case Study
DCAT-AP	Data Catalogue Vocabulary – Application Profile
DRL	Data Readiness Level
EC	European Commission
EC-DRL	Environmental Compliance Data Readiness Level
ECCI	Environmental Compliance through Citizens and Innovation
ESG	Environmental, Social and Governance
EU	European Union
FAIR	Findable, Accessible, Interoperable, Reusable (data principles)
GA	Grant Agreement
GDPR	General Data Protection Regulation
HE	Horizon Europe
IP	Intellectual Property
IPR	Intellectual Property Rights
KER	Key Exploitable Result
KPI	Key Performance Indicator
LL	Living Lab
PFAS	Per- and polyfluoroalkyl substances
PU	Public (Dissemination Level)
R&I	Research and Innovation
SDG	Sustainable Development Goals
TRL	Technology Readiness Level
WP	Work Package

Executive Summary

This document builds up on the **Deliverable D6.9, ENFORCE Exploitation and Activities Report, developed within the framework of the ENFORCE project** submitted in month 5 of the project. It is the second deliverable of Task 6.3 - Exploitation and builds upon 18 months of project work and activities.

The deliverable looks at the project's Key Exploitable Results (KERs) based on observations and insights gathered during the first phase of activities. It documents the exploitation-related activities carried out during this period to support project partners in shaping sustainable outcomes and clarifying their individual expectations for exploitation. These activities include, among others, an exploitation workshop held in month 13 in Crete, Greece.

The report provides an updated analysis of the market landscape and aligns exploitation strategies with stakeholder needs to ensure continued relevance and impact. It further elaborates on the exploitation pathways for the KERs, their business models and value propositions, as well as considerations related to intellectual property rights (IPR) management.

Finally, the deliverable outlines the foundational actions required to support future exploitation efforts, emphasising flexibility in response to evolving market conditions and stakeholder requirements. The document concludes with an overview of forthcoming plans, focusing on strategic refinement and the sustained alignment of exploitation activities with the objectives of Work Package 6 (WP6).

1 Introduction

1.1 Purpose and Scope

Exploitation is a continuous and iterative process in Horizon Europe (HE) research and innovation actions, evolving in parallel with the development and maturation of project results. As projects advance towards their objectives, exploitation opportunities become progressively more defined, enabling the consortium to identify sustainable pathways for impact, uptake, and long-term value creation beyond the project duration. Nevertheless, exploitation planning remains naturally dynamic and subject to further refinement as results, stakeholder engagement, and market conditions continue to evolve.

Within this framework, the present deliverable is the update of the first revision of the initial exploitation deliverable submitted earlier in the project. Building upon Deliverable D6.9, ENFORCE Exploitation and Activities Report, this document reflects the advancement of the project after 18 months of implementation. It incorporates updates covering the reporting period from Month 5 to Month 18 , capturing the main exploitation-related developments and insights gathered during this first phase.

As the ENFORCE project progresses towards its overall objectives, the exploitation potential of the identified KERs becomes clearer, while still requiring further consolidation and validation during the remaining project duration. The deliverable supports project partners in progressively clarifying their individual and collective exploitation strategies, taking into account both technical advancements, external market and stakeholder dynamics.

In addition, the document includes the description and outcomes of an exploitation workshop held with the project consortium during the covered period. This workshop served as a key participatory activity to foster a shared understanding of exploitation opportunities, align partner expectations, and collect structured input to inform the refinement of exploitation pathways.

Overall, this deliverable contributes to the systematic alignment of exploitation planning with project results, stakeholder needs, and market expectations, in line with the objectives of WP6. It represents an important milestone in ensuring that exploitation activities remain coherent, responsive, and oriented towards maximising the ENFORCE project's long-term impact in accordance with HE requirements.

1.2 Document Structure and Updates

The structure of the deliverable is as follows:

Chapter 1 – Introduction
This chapter outlines the purpose and scope of the deliverable, its role within WP6, and its contribution to impact maximisation. It also explains how the document updates and extends the initial exploitation deliverable.

Chapter 2 – Overview of Updates from Deliverable D6.9

This chapter summarises the main updates introduced since the submission of D6.9,

Chapter 3 - Exploitation Strategy
This chapter presents the updated exploitation strategy, including the methodology applied, the value proposition and business canvases.

Chapter 4 - Key Exploitable Results
This chapter provides an updated presentation of the project's KERs, focusing on their updates and outcomes from the workshop.

Chapter 5 - Individual Exploitation Plans
This chapter presents the updated individual exploitation plans of the consortium partners, structured by partner groups, and reflects their evolving roles and expectations regarding the exploitation of the KERs.

Chapter 6 - Market Research and Analysis
This chapter presents an updated market analysis, including key market trends and contextual factors that reinforce the relevance and impact potential of the ENFORCE project objectives.

Chapter 7 - Intellectual Property Rights Strategy
This chapter outlines the updated IPR strategy, covering relevant intellectual assets, the contractual and legal framework, with key takeaways for exploitation planning.

Chapter 8 - Conclusions and Next Steps
This chapter summarises the main findings of the deliverable and outlines the next steps foreseen to further strengthen exploitation activities and alignment with WP6 objectives.

Annex
The annex includes supporting material related to the exploitation workshop.

2 Overview of updates from Del D6.9

In this deliverable, we have included a series of updates that reflect the progress achieved during the first 18 months of the project and build upon the initial exploitation framework established in Deliverable D6.9. While D6.9 focused on defining the initial exploitation strategy, identifying the preliminary KERs, and outlining the methodological approach, this updated version consolidates practical insights, validates underlying assumptions, and refines the individual exploitation pathways based on the key achievements to date.

One of the main updates is the inclusion and integration of the outcomes of the **internal exploitation workshop** held in Month 13 during the General Assembly in Crete, Greece. The workshop enabled consortium partners to validate the project's value proposition, discuss regulatory and market barriers, and clarify the practical challenges faced by different stakeholder groups. The insights gathered have been used to refine exploitation pathways, better position ENFORCE within the European regulatory landscape, and strengthen alignment with user needs.

Another key update concerns the **refinement and categorisation of the KERs**. Compared to D6.9, the KERs are now more clearly structured according to their nature (technical, non-commercial, scientific, or mixed). The updated version introduces a clearer distinction between commercial exploitation routes and non-commercial pathways such as adoption, replication, institutional embedding, and policy integration. This strengthens the internal coherence of the exploitation framework and ensures systematic treatment of all result types.

This deliverable also introduces stronger conceptual ***clarification regarding commercial versus non-commercial exploitation pathways.*** Scientific outputs, methodologies, capacity-building activities, and policy-oriented results are now explicitly recognised as exploitable assets through mechanisms such as reuse, validation, regulatory uptake, and institutional embedding, rather than solely through monetisation.

Furthermore, the methodology originally described in D6.9 has been validated and operationalised through engagement activities. The updated document provides clarity on the validation of the exploitation methodology through stakeholder co-creation and workshop feedback. Exploitation planning is set in within a structured roadmap covering intermediate and final updates, ensuring continuity and traceability throughout the remaining project duration.

The **market analysis** has also been updated and expanded, incorporating evolving European regulatory, technological, and sustainability trends. The revised analysis strengthens the connection between ENFORCE outcomes and broader EU priorities, including developments in data governance, ESG considerations, and digital transformation dynamics.

Finally, the IPR framework has been updated. In this deliver we clarify the ownership, access rights, and licensing considerations, and links IPR management directly to specific KERs and their exploitation routes.

3 Exploitation Strategy Framework

Exploitation involves the practical application of the project results to develop, enhance, or market new products, processes, or services. Exploitation can take various forms, such as commercial, societal, or political applications, and can include improving public awareness or encouraging action. It also involves facilitating the use of results by others, for example, through open licensing or offering recommendations for policy development based on the project's findings[1].

The focus of exploitation is to transform research outcomes into tangible solutions that positively affect society. This can mean scaling innovative technologies, informing policy decisions, or creating tools that engage the public and address their needs. In the context of the ENFORCE project, exploitation goes beyond simply disseminating knowledge; **it aims to translate the project's outcomes into practical applications that enhance environmental governance, improve compliance, and empower citizens and stakeholders.** As outlined in Article 39 of the Horizon Europe regulation[2], both exploitation and dissemination are crucial obligations that ensure project results lead to meaningful societal benefits.

ENFORCE aims to address the critical issue of environmental compliance by establishing a pan-European **collaboration and knowledge hub** rooted in Living Lab principles[3]. This hub will serve as an open innovation framework that unites European actors to enhance environmental compliance assurance. The primary problem ENFORCE is tackling is the **gap in effective environmental monitoring, reporting, and enforcement** due to systemic barrier such as limited citizen engagement, fragmented data sources, and insufficient mechanisms to transform data into actionable outcomes. ENFORCE offers a solution by combining citizen science, advanced technology, and collaborative frameworks to empower stakeholders and drive measurable improvements in compliance.

The solution proposed by ENFORCE uses citizen science to co-create collaborative, citizen-collected evidence that empowers individuals to identify, monitor and report environmental non-compliance effectively.

ENFORCE integrates advanced tools like AI-driven citizen engagement strategies, geospatial intelligence, and FAIR data principles[4] to enhance data accessibility, interoperability, and human–machine usability. While FAIR principles support effective data sharing and availability, the framework ensures robust and legally valid evidence collection through dedicated validation protocols and data certification pathways. This framework not only enhances the accuracy and legitimacy of data used for enforcement but also bridges the gap between local communities, innovators, and enforcement agencies, creating a holistic ecosystem for environmental governance.

[1] https://research-and-innovation.ec.europa.eu/strategy/dissemination-and-exploitation-research-results_en
[2] Regulation - 2021/695 - EN - EUR-Lex
[3] Living Labs - ENoLL
[4] Findable, Accessible, Interoperable, Reusable, FAIR Principles - GO FAIR

The project's capacity-building initiatives, coupled with tools like the ENFORCE Plaza, provide an all- in-one platform for data collection, knowledge exchange, and stakeholder collaboration.

Expected outcomes include enhanced citizen engagement, scalable compliance methodologies, and tools that enable cross-sectoral collaboration, all tested through **eight pilots across seven countries**. By creating a replicable model and policy recommendations, ENFORCE ensures its solutions can extend beyond Europe, setting a new standard for environmental compliance worldwide.

To achieve its ambitious objectives, ENFORCE develops several KERs designed to enhance environmental compliance across Europe and beyond. Central to this effort is the development of the ENFORCE Plaza, a one-stop shop for Environmental Compliance through Citizens and Innovation (ECCI).

3.1 Methodology

The methodology used for the exploitation strategy is a dynamic and **collaborative** approach, incorporating **iterative planning**, **co-creation**, and **continuous refinement** to ensure the effective utilisation of ENFORCE's outcomes.

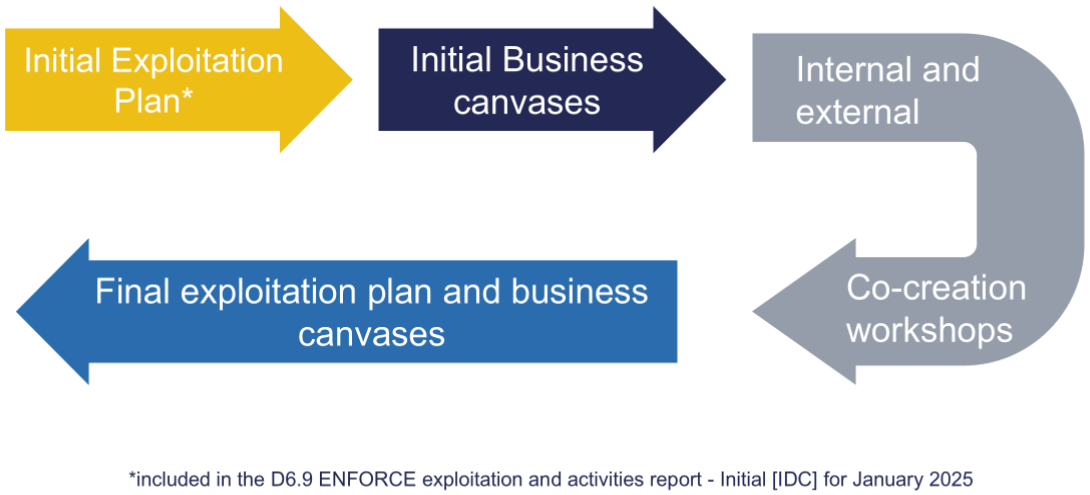

Figure 1 Preliminary Exploitation Process

- **Preliminary Exploitation Plan:** The process started with the development of an initial exploitation plan that outlined the foundational strategies for utilising the project's outcomes. This step established the groundwork for identifying KERs and framing preliminary exploitation pathways. Deliverable D6.9 covered the initial exploitation plan, which is continuously being developed throughout the duration of the project.

- **Initial Business Canvases:** Following the initial plan, business canvases for each KERs with potential commercial exploitation are created to explore and define specific business opportunities. These canvases (see below Chapter 3.2) serve as tools for detailing value propositions, target markets, revenue streams, and operational strategies for the exploitation of ENFORCE's outcomes (see below the Chapter 3.3 on Business Model Canvas).

- **Internal and External Co-Creation Workshops:** The strategy incorporates co-creation workshops, engaging both internal project partners and external stakeholders, in line with the project KPI of organising **three internal** and **two external** exploitation workshops. These workshops aim to refine the exploitation strategy through collaborative discussions, stakeholder feedback, and alignment with user needs, market conditions and policy context. The first internal co-creation workshops took place in October 2025 (M13), involving project partners (see the description in Chapter 3.4.)

- **Updated Exploitation Plans**: Intermediate updates of the exploitation plan are produced under D6.10 at M18 this deliverable and D6.11 at M36 to reflect the progressive refinement of exploitation strategies throughout the project. These updates consolidate key findings from exploitation workshops, stakeholder engagement activities, and ongoing project analysis. The current update focuses on validating and refining the initial exploitation strategy, incorporating insights from the first internal exploitation workshop. The M36 update will further advance sustainability planning, business modelling, and post-project uptake strategies, taking into account the increased maturity of the KERs. In particular, during (M24–M36), all technological components of the ENFORCE Plaza (delivered in M28) will be deployed across the case studies and evaluated within the Living Labs (LLs). The interim technical and operational evaluation of the case studies, along with performance data collection and stakeholder feedback, will directly inform the refinement of exploitation pathways and market readiness assessments. Together, these updates ensure a continuous and iterative approach to exploitation planning.

- **Final Exploitation Plan** Building on insights gathered from the exploitation workshops and ongoing project analysis, the final exploitation plan and business canvases will be presented by the end of the project in M48 under D6.12. It will include the final updated exploitation strategy, IPR considerations, agreed business models in case of commercial KERs. The final version will include also the individual exploitation plans per project partners. As the exploitation of KERs depends on the maturity of project outcomes, the final strategy will consolidate at the end of the project and all exploitation approaches into a single, coherent document..

- **Ongoing activities:** During the project, continuous updates and reporting will be carried out as part of the ongoing activities to monitor progress, document achievements, and ensure alignment with the exploitation strategy. This will include regular reporting on the evolution of the KERs, stakeholder engagement activities, and updates to the exploitation pathways.

This approach ensures that the exploitation strategy evolves dynamically, incorporates diverse perspectives, and aligns with market and stakeholder demands, ultimately maximizing the impact and sustainability of the ENFORCE project's outcomes.

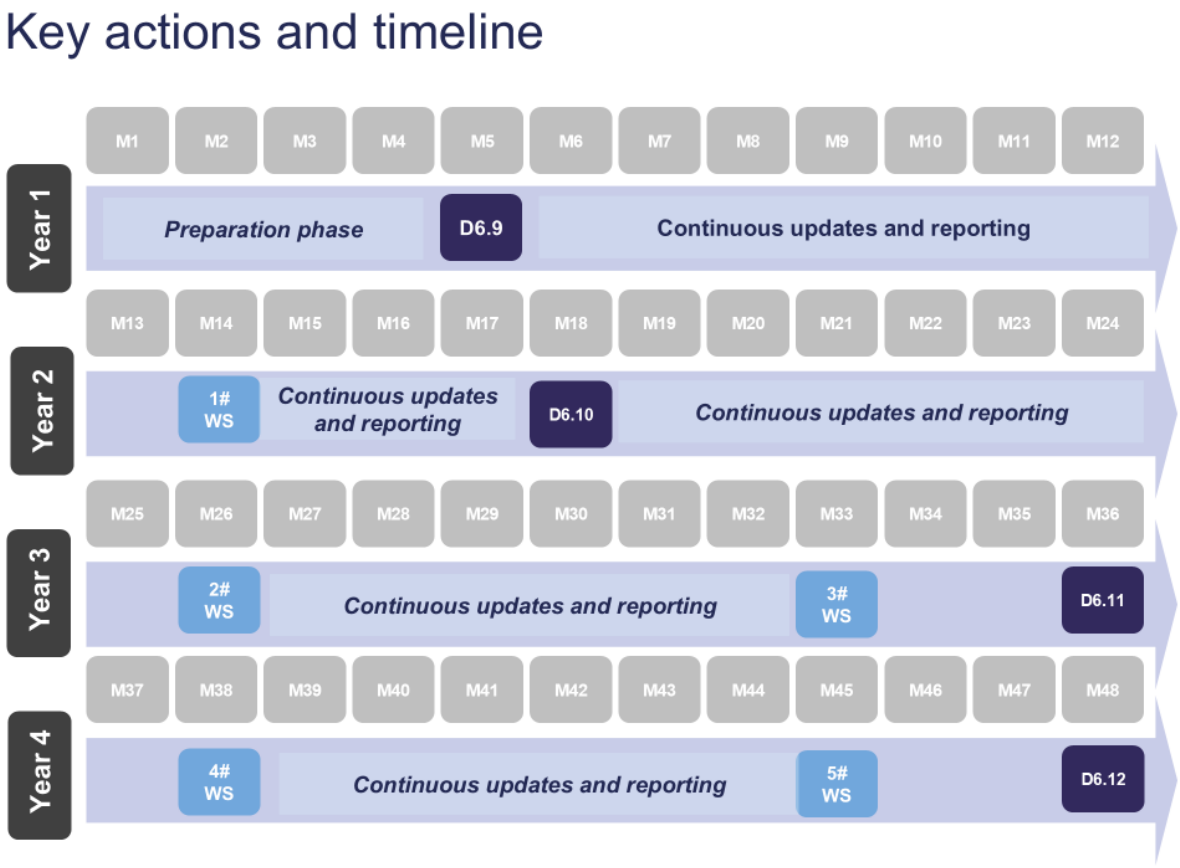

Figure 2 Exploitation Activities Timeline

3.2 Methodology Update M18

The exploitation and co-creation methodology adopted by ENFORCE and described in Deliverable D6.9 remains fully applicable at Month 18 of the project. No structural changes to the methodology have been introduced. Instead, the activities carried out during the reporting period, and in particular the exploitation workshop held in October 2025, served to apply, validate, and refine the existing approach based on practical feedback from consortium partners and stakeholders.

The workshop provided an opportunity to operationalise the methodology defined in D6.9 by testing its assumptions against real-world expectations related to value creation, uptake pathways, institutional barriers, and partnership needs. In particular, the workshop inputs confirmed the relevance of a differentiated exploitation approach between technical and commercial KERs and non-commercial and non-

technical KERs, or the so called scientific KERs, including co-creation methodologies, user uptake mechanisms, policy-oriented outputs, and scientific knowledge results.

From a scientific perspective, non-commercial exploitation is understood not as market deployment but as the generation of impact through reuse, validation, replication, and institutional embedding of scientific knowledge, including methodologies, analytical frameworks, and evidence bases. Scientific results are exploited when they inform further research, support policy development, enable regulatory or enforcement processes, or contribute to standardisation and good practice.

Feedback collected during the workshop reinforced the importance of stakeholder-driven value definition, through co-creation,. Participants highlighted that, for non-commercial results, exploitation is primarily achieved through adoption, replication, and institutional embedding rather than direct monetisation.

In addition, the workshop helped to clarify barriers to uptake of non-commercial and scientific results, including legal, technical, cultural, and institutional challenges, as well as the role of intermediary networks and partnerships in supporting scaling and reuse. These insights were used to refine the exploitation pathways of the relevant KERs, including scientific outputs.

Overall, the exploitation workshop functioned as a validation and learning mechanism within the existing methodology, ensuring that ENFORCEs exploitation approach for non-commercial results—including scientific knowledge, methodologies, capacity-building activities, and policy-oriented outputs—remains grounded in stakeholder needs and implementation realities

To operationalise the exploitation and co-creation methodology described above, and to make explicit how non-commercial and non-technical results are exploited within ENFORCE, Table 2 provides a consolidated overview of the exploitation pathways for the project's KERs. The table translates the methodological principles defined in Deliverable D6.9 and validated through exploitation workshop into concrete, KER-specific exploitation approaches, highlighting mechanisms of adoption, replication, and institutional embedding rather than commercialisation.

Table 2 KERs Exploitation Pathways

KER	Partners	Nature of Result	Non-Commercial Exploitation Pathway	Commercial Exploitation Pathways	Workshop-Based Evidence (Oct 2025)	Expected Impact
KER #1 Co-creation Methodology for Future Uptake	ENoLL	Methodology	Adoption and replication through LLs and innovation ecosystems; reuse in participatory governance and compliance initiatives.	While primarily institutional in nature, elements of the methodology may be integrated into consultancy services, LL design services, and stakeholder engagement packages offered by partners such as ENoLL, AMRN and Waag.	Co-creation confirmed as essential to align solutions with real user and policy needs and reduce adoption risks	Long-term reuse of participatory approaches beyond ENFORCE and replication in other contexts.
KER #2Data Certification Pathway	CSIC	Maturity model (technical with non-commercial dimension)	Recognition and reuse as a methodological reference framework supporting trust, legality, and enforcement readiness	Primarily non-commercial; revenue opportunities may arise through advisory services supporting EC-DRL implementation and compliance assessment.	Trust, legal validity, and alignment with EU frameworks identified as key enablers for uptake	Progressive scale within a structured framework for evaluating the suitability of community-generated data for a particular purpose, such as environmental compliance
KER #3 Data Space Compliance Tools	52N SLG CSIC	Technical	Institutional integration within EU data governance frameworks, combined with potential commercial exploitation through	Customisation, integration and maintenance services for Data Space infrastructures	Legal and technical barriers discussed; alignment with EU data governance	Improved compliance with EU data space requirements and regulatory frameworks

			service-based deployment, customisation, maintenance contracts and integration into data space infrastructures. Commercial pathways will be further defined in upcoming exploitation workshops.		frameworks identified as critical	
KER #4 ENFORCE PLAZA	SLG UNEXE UNIBI, 52N, AMRN	Technical / mixed	Deployment as a compliance-enabling digital infrastructure for public authorities.	Potential commercialisation through service contracts, configuration, maintenance, data governance support and integration into municipal compliance workflows. Business models are being refined through pilot validation and stakeholder workshops.	Importance of usability, interoperability, and legal compliance confirmed as prerequisites for uptake	Increased operational use of data-driven tools for environmental compliance and enforcement
KER #5 Pilot Demonstrators	AMRN	Demonstrative / enabling	Validation, demonstration, and replication of solutions in real contexts; pilots as vehicles for adoption	Further to be explored in the upcoming phase of the project.	Pilots confirmed as key to reducing uncertainty and increasing stakeholder confidence	Accelerated uptake of ENFORCE results through demonstrated feasibility

KER #6 User Uptake, Capacity Building, and Policy Recommendations	EARSC ECSA	Non-commercial, non-technical	Training, guidance, policy dialogue and policy briefs, and institutional embedding; replication of users' guidelines via professional and policy networks	Commercial perspective to be further explored through the user uptake workshops, ensuring alignment with the exploitation activities and building on the modular components of the case study services.	Strong demand for capacity building and practical guidance validated; policy relevance confirmed	Strengthened institutional capacity and improved evidence-based policymaking. Accelerated uptake of ENFORCE services resulting from clear guidelines & capacity building transparently detailing steps for uptake of case study services for user communities Increased usage of CS services across community of users. Commercial pathways for modular components of the CS services

3.3 Value Proposition Canvas

As part of the methodology, we are employing a value proposition and business canvases approach to effectively structure and evaluate the exploitation pathways of each KER. In the framework of WP6 activities, as foreseen in the proposal templates have been provided to the consortium members, complemented by guiding questions to assist partners in systematically analysing and defining the exploitation potential of their respective KERs.

This Value Proposition Canvas serves as a framework to demonstrate how the project's KERs directly address user / stakeholder needs and provide solutions to their challenges. The structure ensures a user-centred approach by identifying how the products and services can enhance user experiences, relieve pain points, and create meaningful benefits.

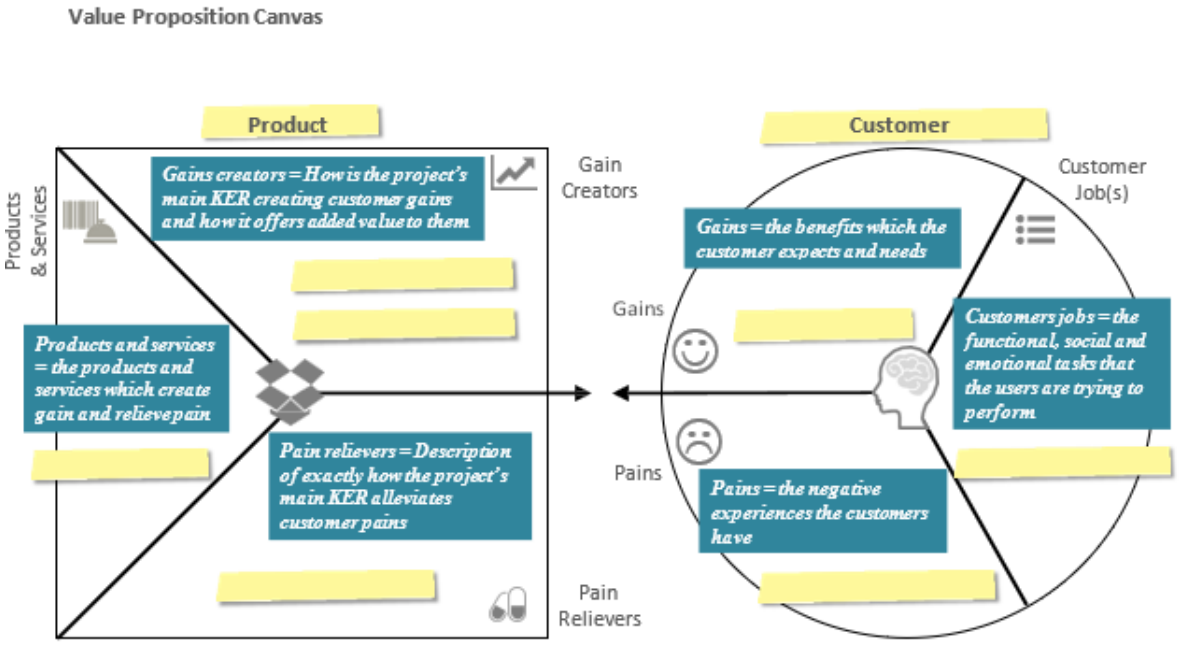

Figure 3 Value Proposition Canvas

The graphic above represents a **Value Proposition Canvas**, structured to align the **Value Proposition** provided by the project's KERs with the needs and challenges of the target

The Value Proposition Canvas consists of two interrelated components:

1. Value Map (KER Perspective)

This section defines how the KER responds to those needs through:

- **Products and Services** – the concrete outputs delivered by the project;

- **Pain Relievers** – the mechanisms through which the KER addresses identified challenges;
- **Gain Creators** – the ways in which the KER generates added value and positive outcomes.

2. Customer Profile (User Perspective)

This section captures the characteristics and needs of the target users by analysing:

- **Customer Jobs** – the functional, social and emotional tasks users aim to accomplish;
- **Pains** – the obstacles, risks or negative experiences they face;
- **Gains** – the expected benefits and desired improvements.

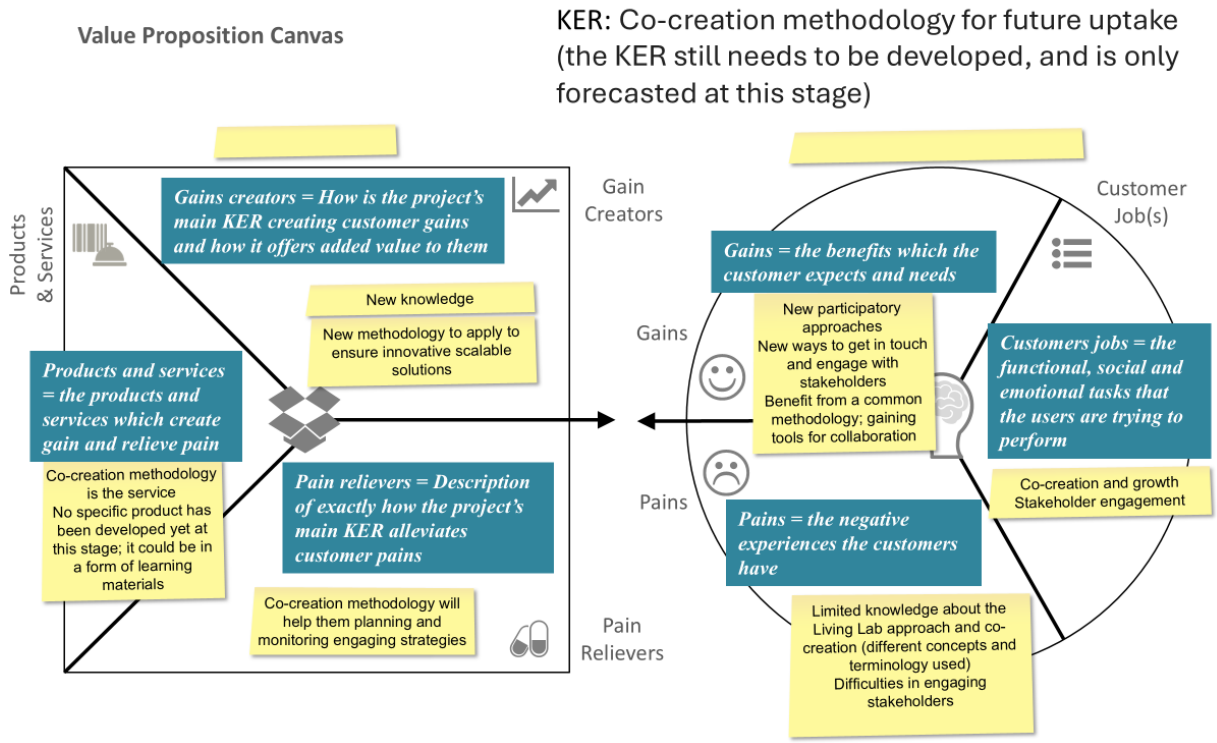

Figure 4 KER#1 Co-Creation Methodology for Future Uptake

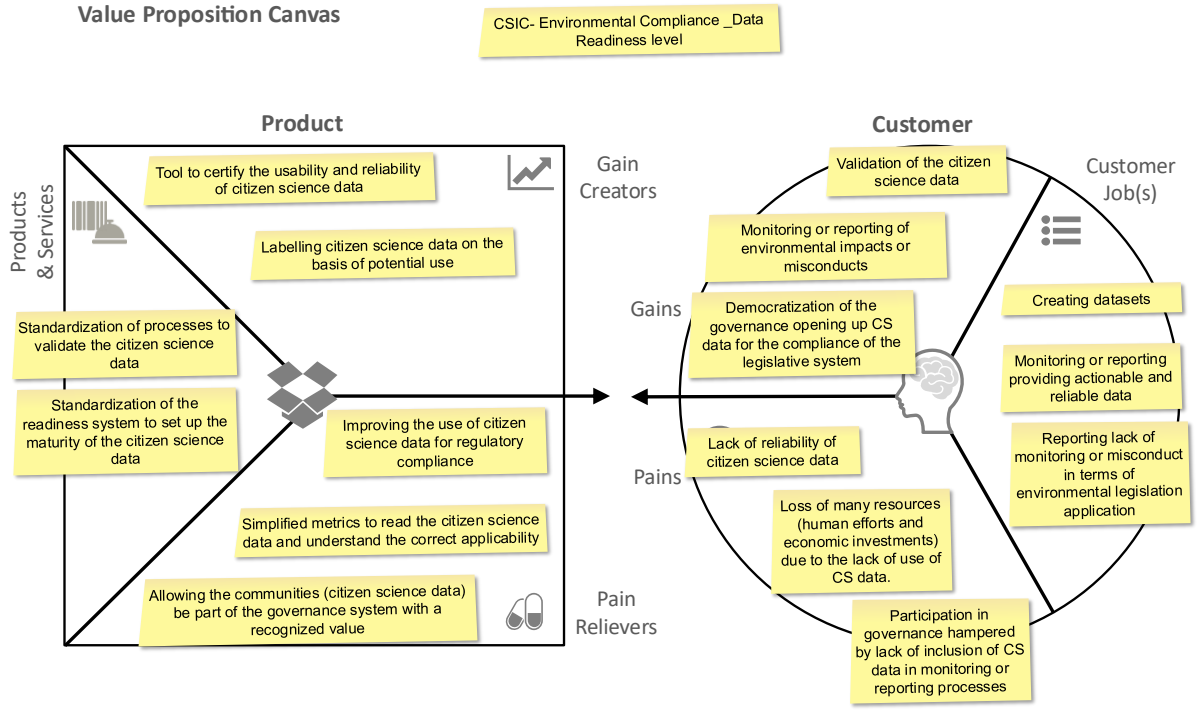

Figure 5 KER #2 Data Certification Pathway

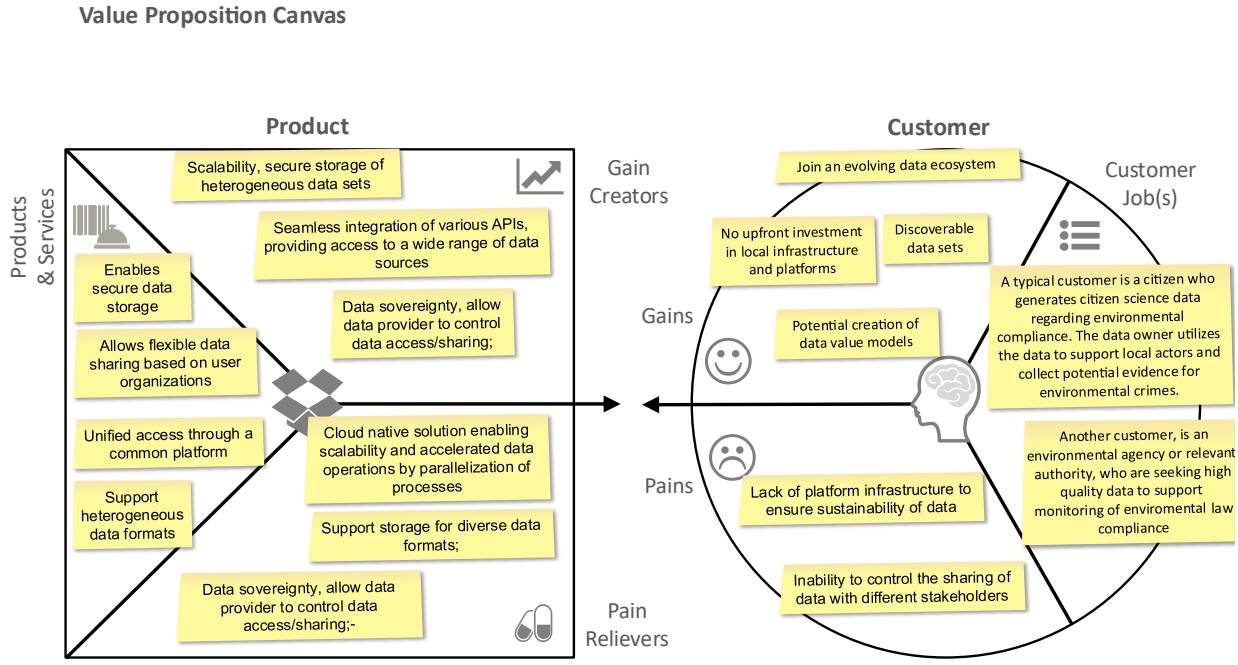

Figure 6 KER #3 Data Space Compliance Tool

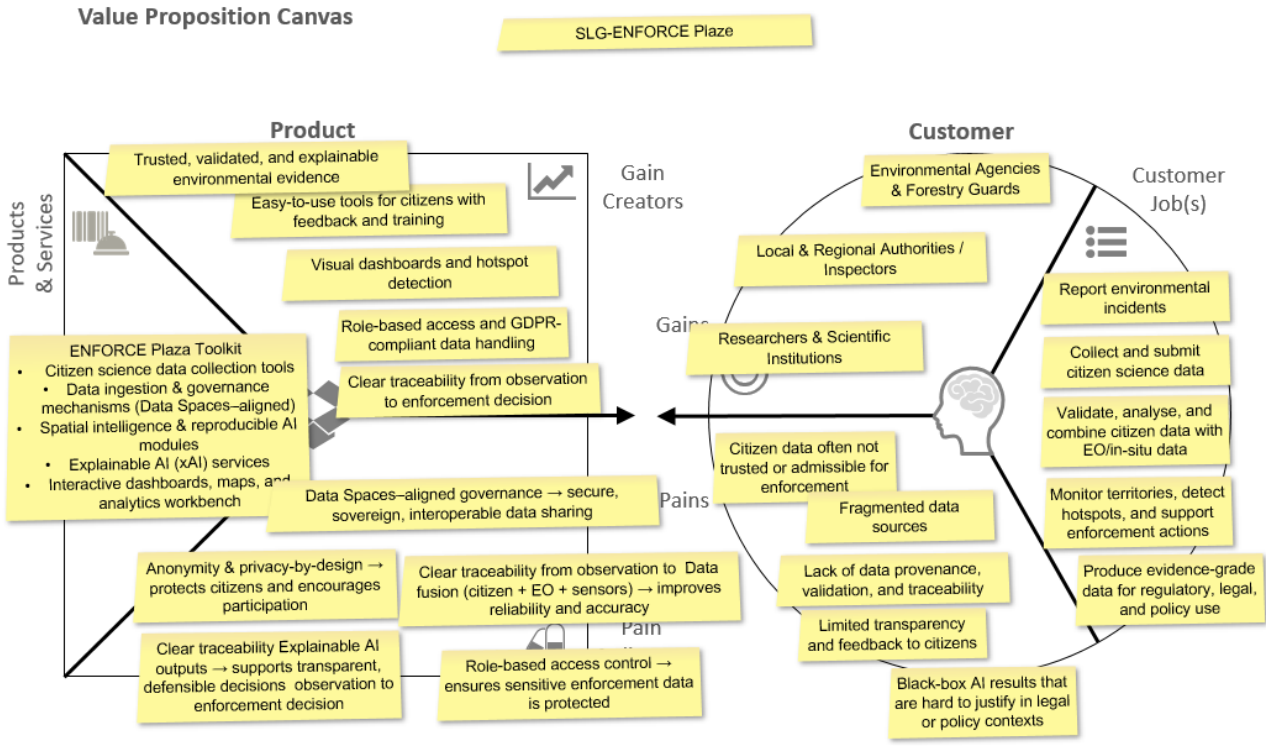

Figure 7 KER #4 ENFORCE Plaza

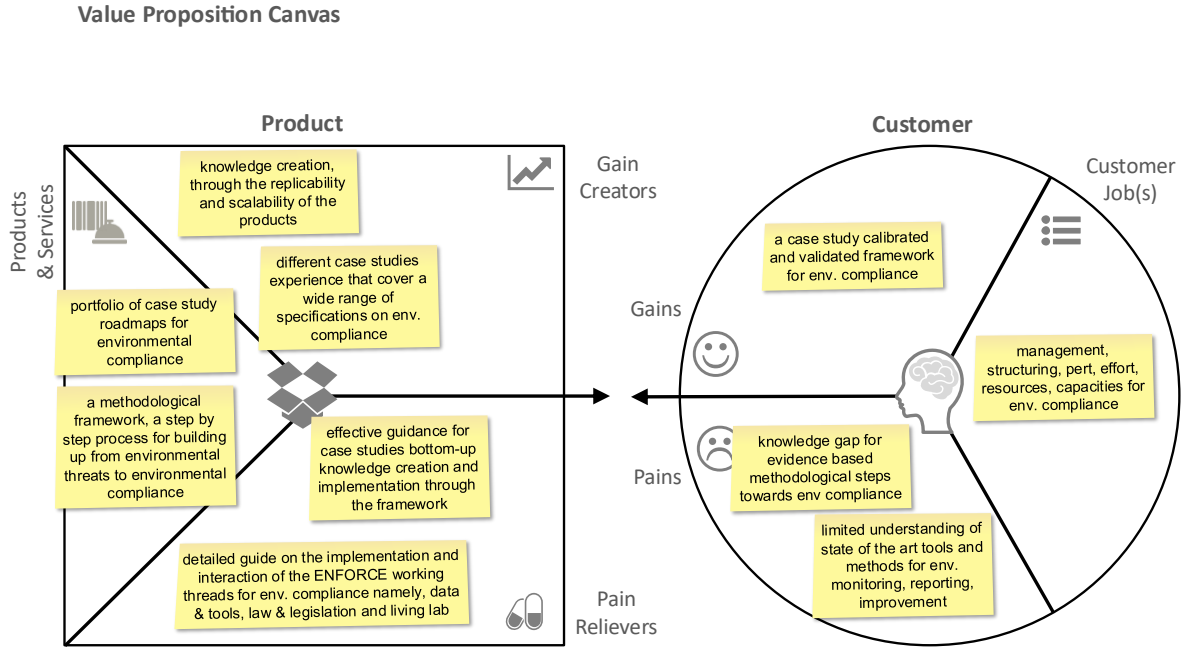

Figure 8 KER#5 Pilot Demonstration

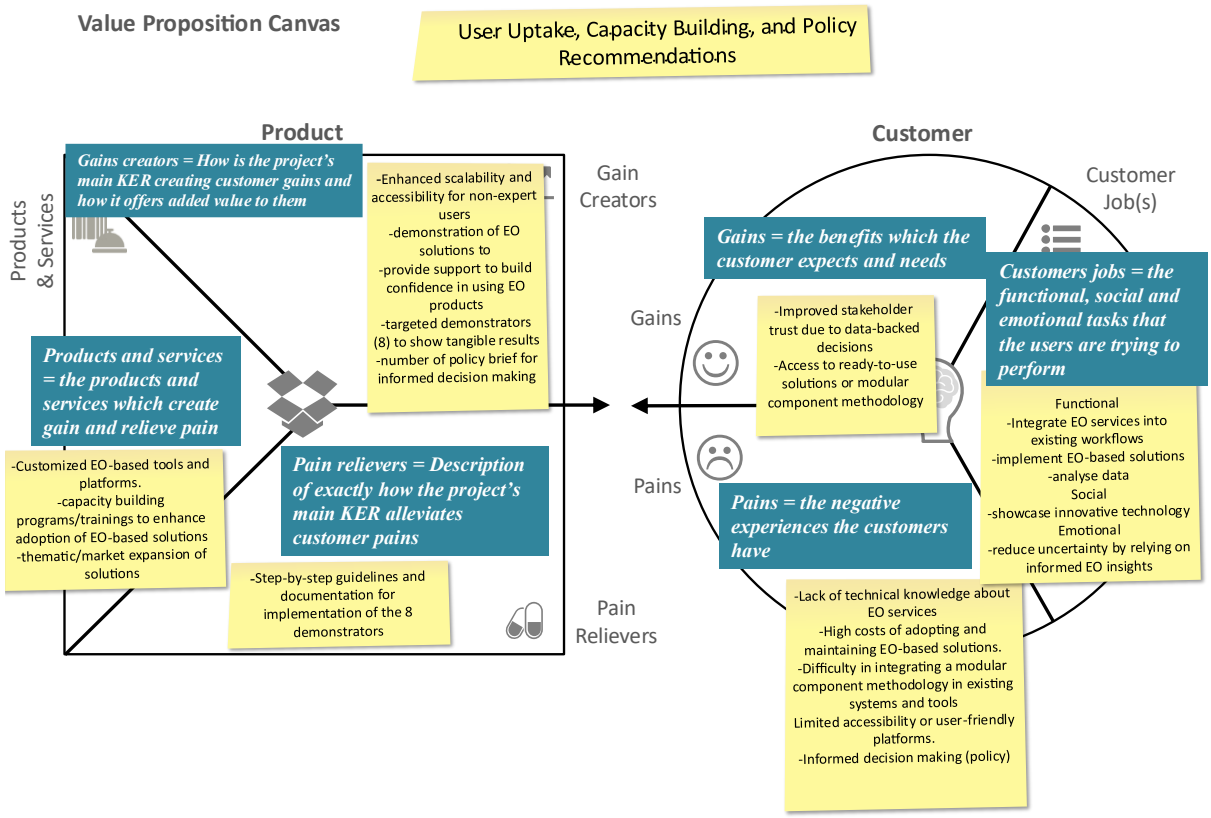

Figure 9 KER#6 User Uptake Capacity Building

3.4 Business Model Canvas

The graphic below represents the Business Model Canvas, a tool used to structure, analyse, and validate the exploitation pathways of the project's KERs. This framework supports partners in translating project outputs into sustainable and scalable solutions by systematically assessing their operational feasibility, stakeholder alignment, and long-term impact potential.

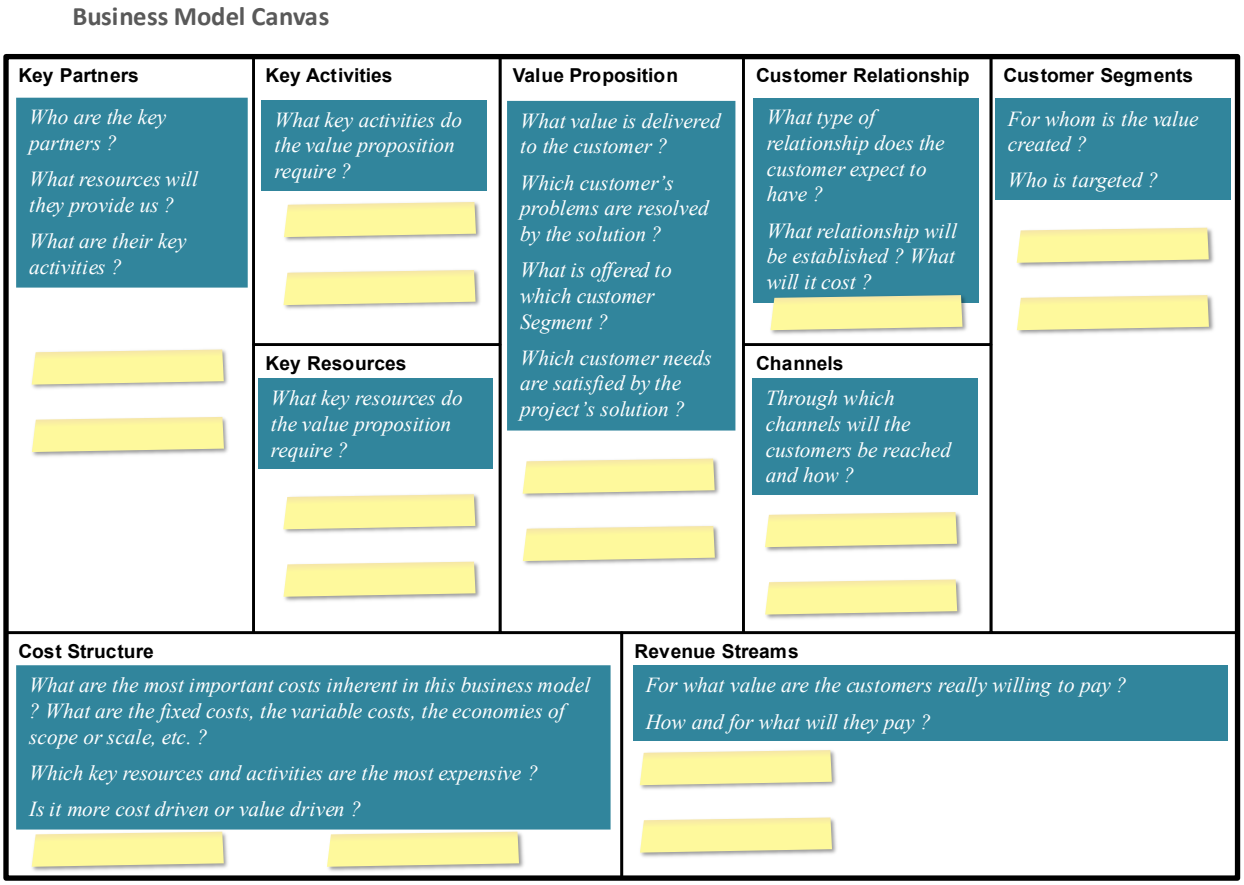

Figure 10 Business Model Canvas

The Business Model Canvas is structured into 9 interconnected components, which together provide a comprehensive view of how value will be created, delivered, and captured beyond the project's lifetime.

Infrastructure and Operational Components:

- **Key Partners**: Identifies the strategic stakeholders, networks, and organisations required to support the deployment, replication, and scaling of the KERs, including public authorities, research organisations, industry actors, and user communities.

- **Key Activities**: Describes the core activities necessary to operationalise the KERs, including technical development, validation, stakeholder engagement, capacity-building actions, and dissemination activities that facilitate uptake.

- **Key Resources**: Defines the essential assets required to sustain exploitation, such as technical infrastructure, data resources, intellectual property, human expertise, and organisational capabilities.

Value Creation and Delivery Components:

- **Value Proposition:** Explains the added value generated by each KER, highlighting how it responds to clearly identified stakeholder needs, policy priorities, and market opportunities.

- **Customer Relationships**: Describes the engagement strategies to ensure user adoption and long-term collaboration, including co-creation mechanisms, support services, training, and community-building activities.

- **Channels:** Identifies the communication and delivery pathways through which the KERs will reach target users, including digital platforms, stakeholder networks, policy channels, and dissemination actions.

- **Customer Segments:** Defines the primary and secondary user groups targeted by each KER, considering their roles, needs, and capacity to support replication and scalability.

Financial Sustainability Components:

- **Cost Structure**: Outlines the key cost drivers associated with the development, maintenance, and operationalisation of the KERs, supporting realistic planning for long-term sustainability.

- **Revenue Streams:** Identifies potential value-capture mechanisms, including service provision models, licensing opportunities, strategic partnerships, and funding schemes that can sustain the KERs beyond the project duration.

The Business Model Canvas serves as a practical exploitation planning instrument that enables partners to assess the feasibility, scalability, and sustainability of project results. By integrating market considerations, stakeholder needs, and operational requirements, this framework ensures that the ENFORCE KERs are positioned for effective uptake, replication, and long-term impact.

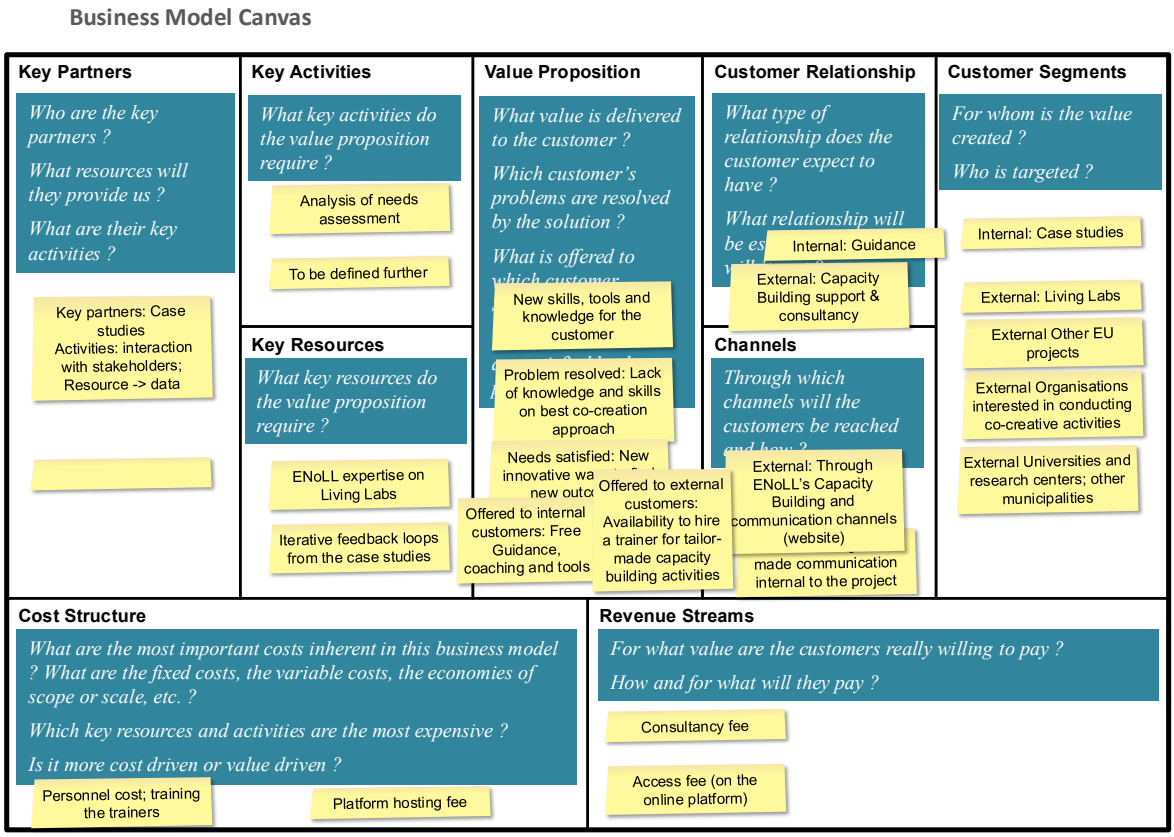

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Figure 11 KER#1 Co-Creation Methodology

[5] Potential consultancy fee is only relevant for the external stakeholders and not the project partners

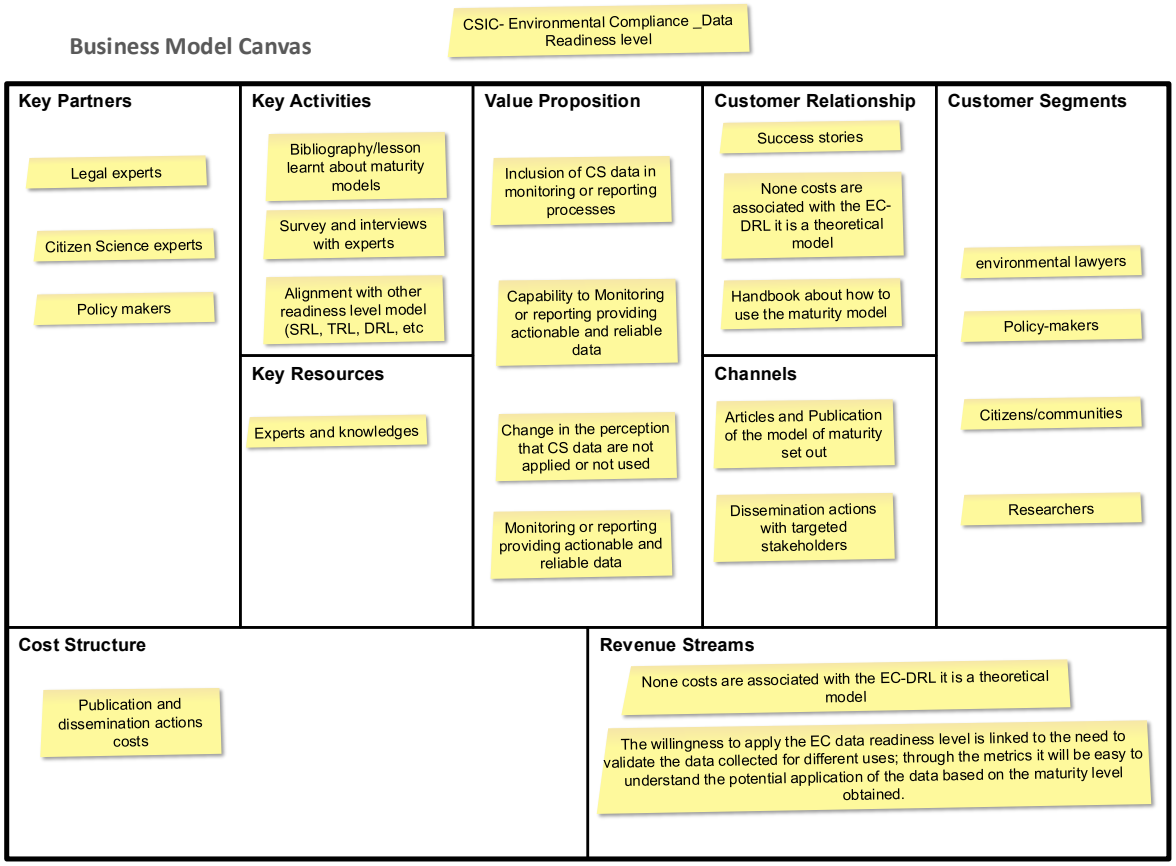


Figure 12 KER #2 Data Certification Pathway

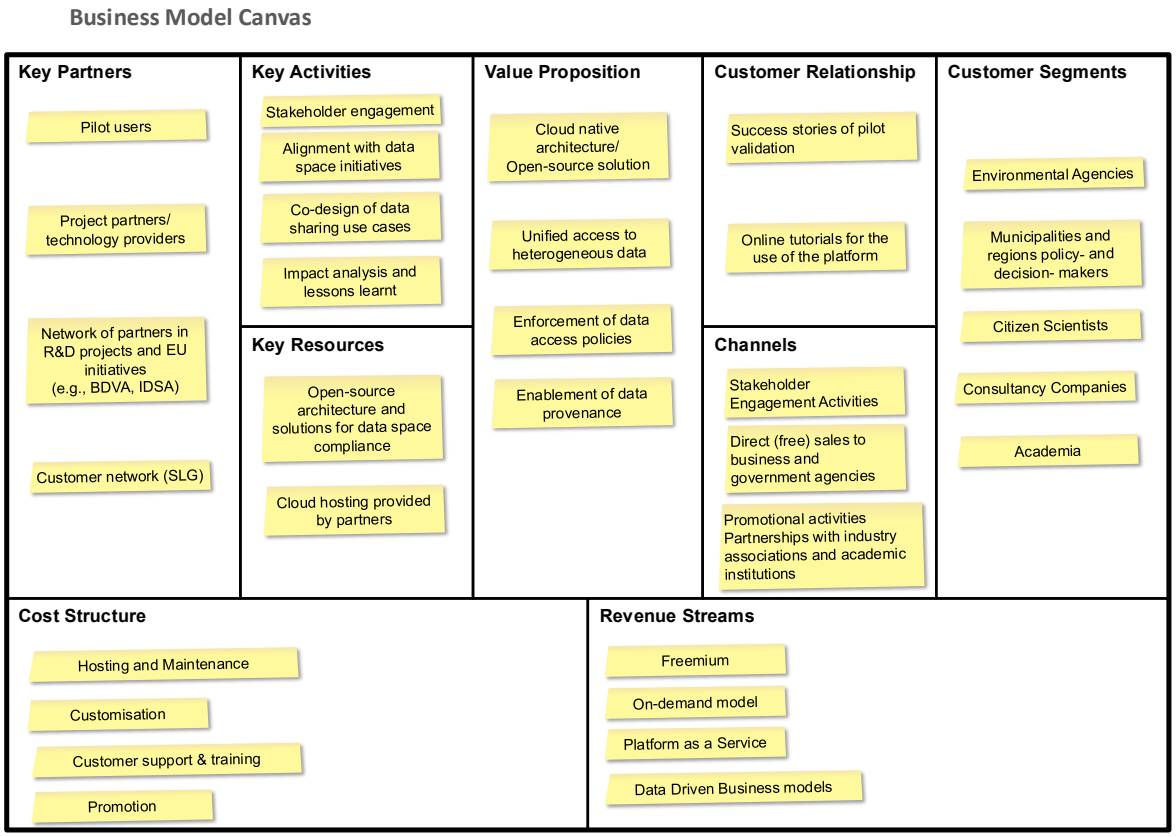


Figure 13 KER#3 Data Compliance Tool

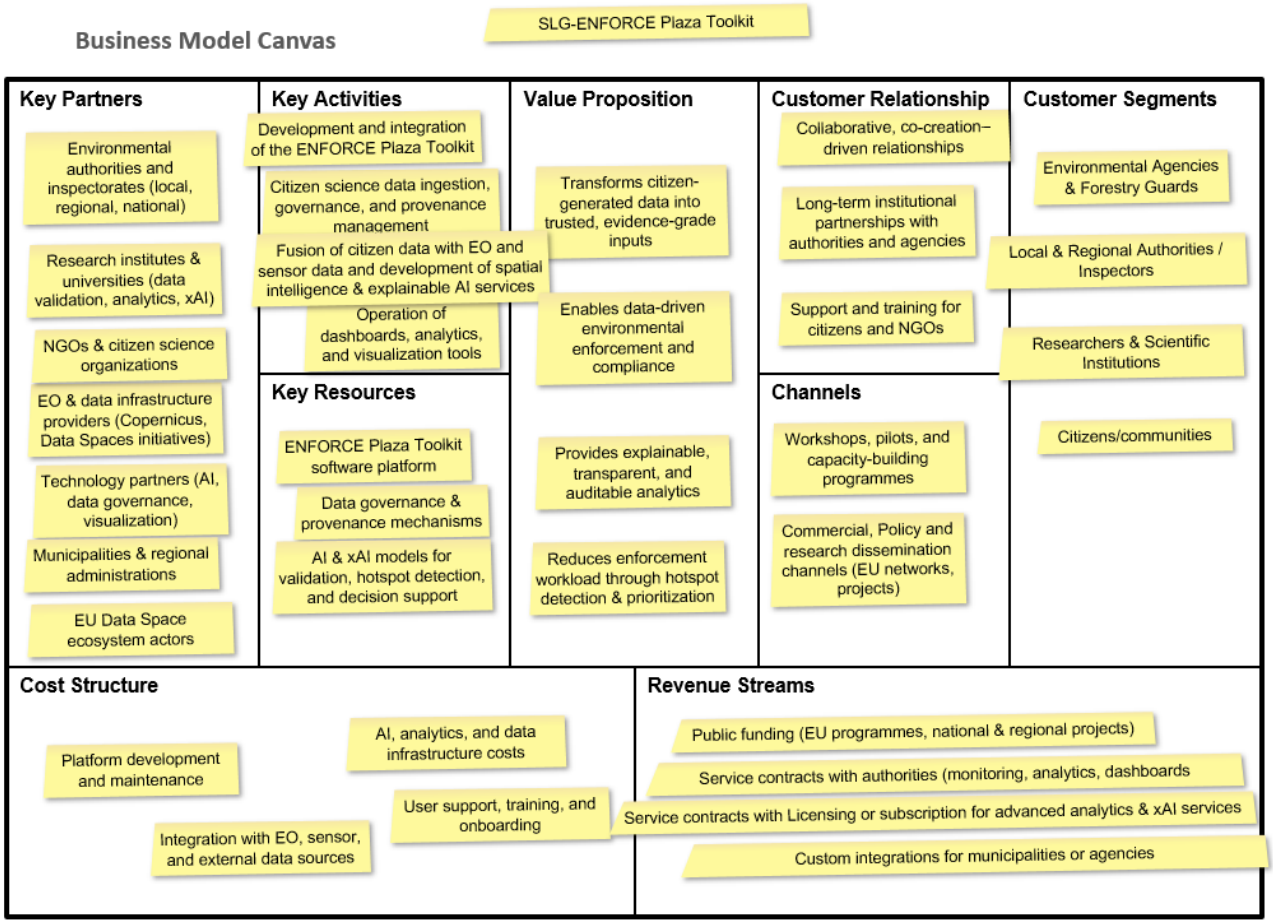


Figure 14 KER#4 ENFORCE Plaza Toolkit

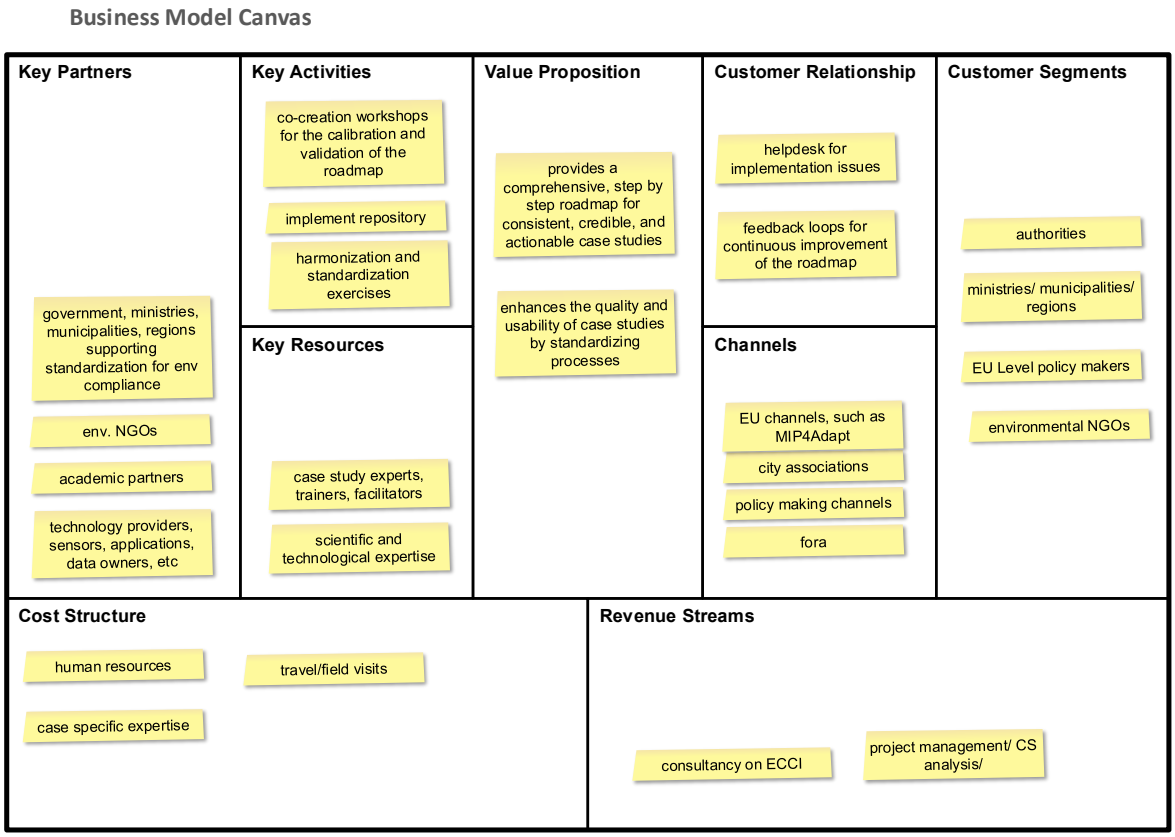


Figure 15 Ker #5 Pilot Demonstrators

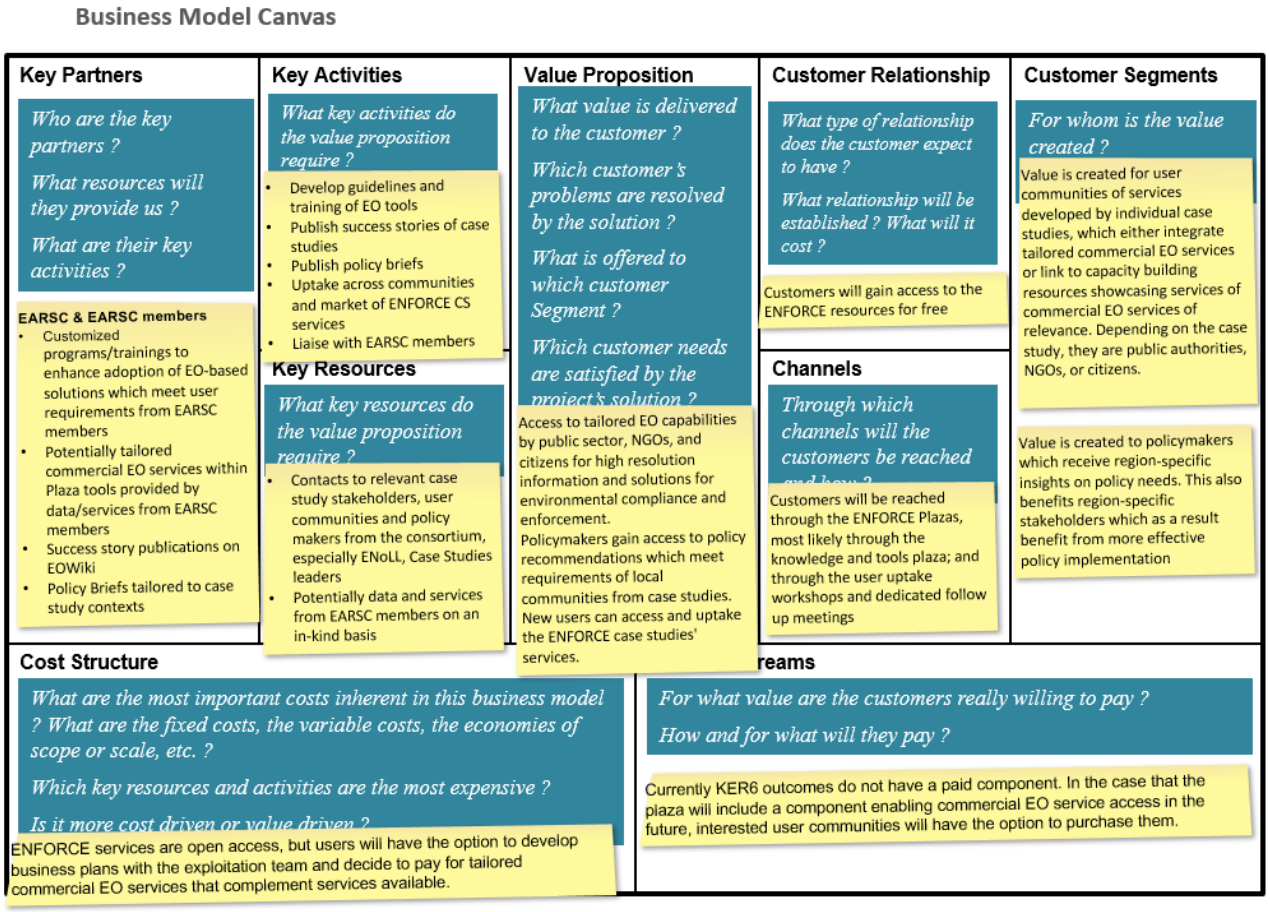


Figure 16 KER #6 User Uptake, Capacity Building, and Policy Recommendations

3.5 First Exploitation Workshop

The first Exploitation Workshop was organised to better understand end-user needs, validate assumptions, and align stakeholders around the practical challenges citizens face when engaging with EU regulations. The workshop aimed to create a shared understanding of key regulatory barriers, identify gaps in existing tools and approaches, and gather direct input from participants to inform the development and positioning of ENFORCE. It addressed several core questions related to end-user challenges, the main regulations impacting citizens, collaboration and partnerships with critical personas (such as public authorities), and the role of ENFORCE in integrating and aligning with existing EU frameworks and standards.

The ENFORCE workshop held in October in Heraklion followed a structured and interactive agenda designed to align participants, stimulate discussion, and define concrete next steps for the project. The session opened with a welcome and context-setting segment led by Richard Stevens and Filippo Vanara from International Data Corporation (IDC). This introduction clarified the objectives of the workshop, positioned the discussion within the broader ENFORCE framework, and outlined the expected outcomes of the meeting.

Following the opening remarks, a series of lightning presentations provided concise and focused insights on key topics relevant to environmental compliance, citizen engagement, and data readiness. These short interventions helped establish a common understanding among participants, highlight current challenges, and frame the strategic importance of ENFORCE's approach.

The workshop then had a two break out sessions, where partners focusing on either scientific results, or technical results moved into a guided discussion session, where the approach to establishing the the important considerations from the KER leading to exploitation was elicited from all attendees. This interactive segment allowed participants to share perspectives, identify barriers, explore collaboration opportunities, and reflect on how ENFORCE tools—such as the Environmental Compliance – Data Readiness Level (EC-DRL) framework and the ENFORCE Plaza—could respond to emerging needs. The discussion emphasized practical implementation considerations and alignment with regulatory and market trends.

The session concluded with a summary of key takeaways, capturing the main insights, priorities, and identified gaps. The wrap-up also defined next steps, ensuring continued engagement beyond the workshop and reinforcing the collaborative momentum within the ENFORCE community.

The workshop agenda presented in October was comprised of the following topics:

Table 3 1st Exploitation Workshop Agenda

Time	Topics
14:00 – 14:05	Welcome and content setting by Richard Stevens and Filippo Vanara
14:05 – 14:20	Lightening presentation
14:20 – 15:10	Guided discussion
15:10 – 15:25	Key takeaways from discussions
15:25 – 15:30	Wrap-up & next steps

To guide the discussion and assess the long-term viability of those KERs that could be commercially or inter-organisationally exploited in ENFORCE, a questionnaire (see Annex) was designed to explore each of the KERs strategic positioning, market relevance, and scalability potential. The questions focused on clarifying ENFORCE's core value proposition, identifying potential paying stakeholders, understanding how the project aligns with existing EU frameworks and standards, and examining pathways for replication and scaling. In addition, the questionnaire aims to surface potential legal, technical, and cultural barriers, while identifying the partnerships and networks necessary to ensure sustainable growth and broader adoption.

1. *Who are the potential users of the this Key Exploitable Result?*
2. *What is the core value and who would pay?*
3. *How can ENFORCE integrate with existing EU frameworks and standards?*
4. *What networks or authorities could help replicate it?*
5. *What barriers must be addressed (legal, technical, cultural)?*
6. *What partnerships are needed for scaling?*

Outcomes & Next Steps

EU regulations have an impact across all European countries and affect a wide range of personas, including local authorities, scientists, businesses, non-governmental organizations, and cities of all sizes. These regulations are designed to ensure consistency, fairness, and long-term societal benefits across the European Union. However, they continue to evolve rapidly in response to political priorities, technological innovation, climate objectives, and social challenges. In many cases, EU-level regulations overlap with, or are interpreted differently through, national and local directives. This layered regulatory environment often creates confusion, uncertainty, and operational disruption for citizens and organizations that are trying to remain compliant while continuing to innovate and grow.

As regulatory complexity increases, citizens are asking for clearer guidance, better communication, and more practical support. Many struggle to understand which regulations apply to their specific context, how to interpret technical language, and how to translate legal requirements into concrete actions. This challenge is particularly acute for smaller municipalities, researchers, startups, and community-led initiatives that lack the resources or expertise to continuously track regulatory changes across multiple jurisdictions.

Gathering reliable and comparable data is another major challenge. Citizens, researchers, and decision-makers frequently lack access to a shared, trusted tool that allows them to collect, validate, and analyse data in a consistent way. However, reliability and comparability are not solely questions of accessibility or availability. They depend on a complex, multifactorial process that begins at the point of data collection and extends across the entire data lifecycle. Standards applied at the outset—such as harmonized data collection protocols, clear methodological guidance, and quality assurance mechanisms—are critical to ensuring that data can be meaningfully compared and reused. Equally important are the different phases of data stewardship, including documentation, curation, storage, governance, validation, and traceability. Without

structured stewardship practices, even widely available datasets may lack the credibility required for regulatory or market use.

Additional challenges stem from potential biases in data collection, uneven territorial coverage, and socio-cultural barriers that influence who participates, how data is interpreted, and which issues are prioritized. These factors can affect representativeness and may inadvertently reinforce inequalities or distort conclusions if not properly addressed.

Without robust standards, governance mechanisms, and bias mitigation strategies, it becomes difficult to evaluate market opportunities, measure compliance, assess risks, or understand the broader economic, environmental, and social impacts of regulation. Fragmented data sources and inconsistent methodologies further reduce confidence and limit the ability to make informed, evidence-based decisions.

Stakeholders emphasize the need for coherent and simplified access to regulations, directives, and supporting data so that can be understood holistically. However, this does not necessarily imply a fully centralized repository or a single data lake. In practice, regulatory and environmental data ecosystems often operate through federated systems, where data remains distributed across institutions, jurisdictions, and platforms.

Rather than promoting centralization, ENFORCE addresses this need through the ENFORCE Plaza as a coordination and integration layer. The Plaza is designed to function as an interoperable interface that connects existing data sources, regulatory frameworks, and analytical tools without requiring full data consolidation. It enables structured navigation, cross-referencing, and contextual interpretation of distributed datasets while respecting data sovereignty, governance constraints, and institutional ownership.

Beyond improved access, stakeholders express a strong demand for interpretative guidance that explains how different regulations interact, clarifies practical implications, and outlines actionable next steps tailored to specific user profiles. In this context, the value of the Plaza lies not in acting as a data warehouse, but in providing a structured, federated, and user-centric framework that transforms fragmented regulatory information into coherent decision support.

The role of ENFORCE is to bridge the gap between public administrations and citizens by providing a reliable, user-centric platform that transforms complex legislation into understandable, actionable insights. ENFORCE aims to deliver granular, high-quality data combined with clear recommendations and tangible actions, helping users navigate evolving legislative frameworks with confidence. By increasing transparency, consistency, and usability, ENFORCE supports better decision-making, encourages compliance and innovation, and strengthens trust between institutions and citizens. Ultimately, ENFORCE contributes to improved wellbeing, greater participation, and more effective implementation of EU policies across Europe.

Based on the outcomes of the workshop held in Heraklion in October 2025, participants are still at an early stage in addressing key European challenges and translating high-level objectives into concrete, scalable actions. The discussions highlighted strong interest, commitment, and alignment on the relevance of these

challenges across different sectors and regions. However, they also revealed the need for additional coordination, shared frameworks, and clearer methodologies to support effective progress.

To address these needs, the project will continue implementing a structured and ongoing engagement model under its exploitation and stakeholder engagement activities, in close collaboration with WP5, which is responsible for policy liaison and user uptake. Feedback collected from users will continue to inform the exploitation routes of the case studies. These sessions will also provide a forum to share best practices and lessons learned. A second in-person workshop is foreseen during the upcoming General Assembly in-person meeting in October 2026, building on the initial outcomes with a stronger focus on practical implementation, stakeholder alignment, and the definition of measurable next steps and impact indicators.

The outcomes of the workshop were also used to validate and refine the exploitation methodology defined in Deliverable D6.9, particularly with regard to non-commercial and policy-oriented results.

4 Key Exploitable Results

ENFORCE has identified six KERs, each targeting specific challenges and delivering tangible solutions within the project's scope. These KERs constitute the projects core innovations and outputs, with strong potential for uptake, deployment, and exploitation by relevant stakeholders.

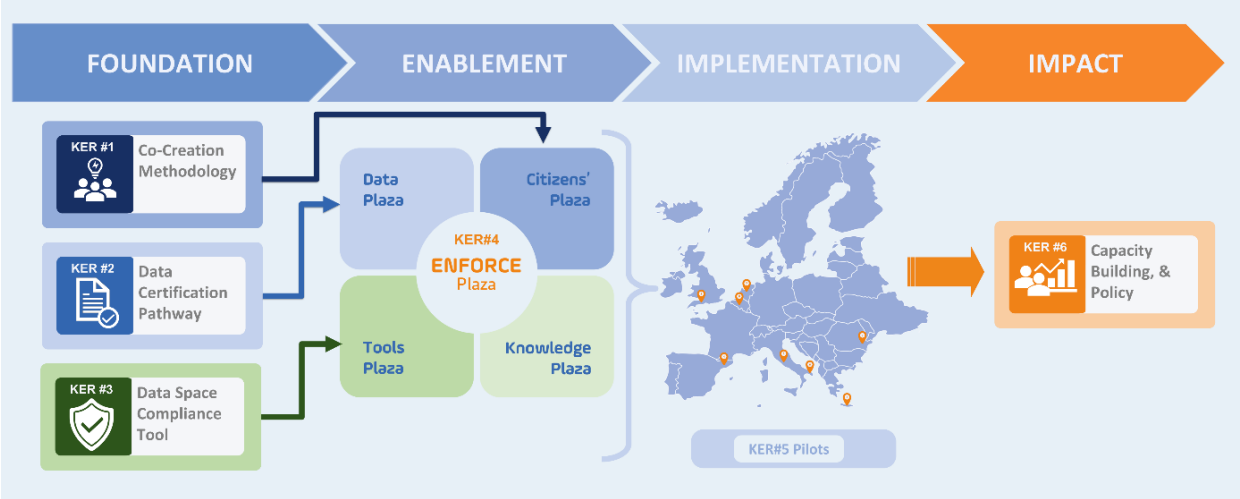


Figure 17 ENFORCE KERs Overview

The following section describes each of these KERs in detail. Please note that additional KERs might be identified at a later stage of the project, and this information will be updated in the subsequent version of the deliverable

The below tables are preliminary version, and throughout the project, as outcomes from the workshops and the general activities of the project evolve, these will be further refined.

KER #1 | CO CREATION METHODOLOGY FOR FUTURE UPTAKE

Title	Co-creation methodology for future uptake
Type:	Methodology, Training, Material;
Key Contributors:	ENoLL
Main Related needs:	The involvement and empowerment of citizens and other ECCI relevant stakeholders in the design of solutions for environmental compliance;
Potential Users:	Agencies of the Quintuple Helix (Academia, Government, Industry, Civil Society, Environment);
Potential Customers	Public authorities, Environmental agencies, Inspectorates and Law enforcement entities;
Key Exploitation Pathways	Reference methodological handbook for co-creation journey supporting the development of Living Labs, including tips, tools and practical experiences by ENFORCE;
Implementation Estimation:	ENFORCE will create 8 Living Labs in the Case Studies focusing on ECCI and will implement the co-creation methodology in them, which will be improved through an iteration process with the stakeholders, taking into account their feedback. This methodology will be used in future Living Labs focusing on Environmental Compliance.
Exploitation Update (Workshop-based):	The workshop validated the co-creation methodology as a core non-commercial result supporting future uptake of ENFORCE outcomes. Participants confirmed that early and continuous stakeholder engagement is essential to align solutions with real enforcement and policy needs and to reduce adoption risks. The relevance of Living Labs and participatory approaches for replication was reinforced, while time and resource constraints and differing stakeholder expectations were identified as key barriers. These insights were used to refine the exploitation pathway through improved guidance and facilitation, without altering the underlying co-creation methodology.

Table 4KER #1 | CO CREATION METHODOLOGY FOR FUTURE UPTAKE

KER #2 | DATA CERTIFICATION PATHWAY

Title	Data Certification Pathway
Type:	Methodology
Key Contributors:	CSIC
Main Related needs:	To develop the EC-DRL as a structured Data Readiness Level framework within ENFORCE, that assesses community-generated data maturity and evaluates their suitability for specific uses, including environmental compliance and judicial contexts
Potential Users	All the stakeholders interested in generating fit-to-purpose data
Potential Customers	Research, academia, private sector, municipalities, public sector;
Key Exploitation Pathways	Reference method to evaluate the potential specific use for the participatory data on the basis of specific criteria that assess the adequacy of the data to the purpose intended. The criteria are established on the basis of requirements or processes that the data must to fulfil to comply with data and the legal standards. ENFORCE plans to validate the concept of EC-DRL through its application in the different case studies proposed. The main ambition is that the EC-DRL will be recognised in the future as the reference for environmental compliance maturity as TRL has been accepted to evaluate the technological maturity;
Implementation Estimation:	ENFORCE plans to progressively apply the concept of EC-DRL to map levels of data maturity for environmental compliance, addressing the implications of uncertainties in collected data for use in regulatory and environmental directives. The project aims to validate the EC-DRL framework through its application in real- world case studies, targeting TRL 7 by the project's conclusion, where the system prototype is demonstrated in an operational environment. The ultimate ambition is to achieve recognition of the EC-DRL as a reference standard for assessing environmental compliance maturity, comparable to the established role of TRL in evaluating technological readiness. This recognition is expected to occur within 2- 3 years after project completion, following further refinement, stakeholder engagement, and regulatory endorsement.

Exploitation Update (Workshop-based):	Workshop discussions confirmed the relevance of the Data Certification Pathway as a mechanism to improve trust, reliability, and usability of data for environmental compliance. Participants emphasised the importance of GDPR compliance, as well as alignment with EU certification and regulatory frameworks. Regarding anonymisation, tensions may arise when balancing the protection of citizen science repositories with the need for clear evidence in judicial cases. Key barriers were identified as ethical and cultural concerns, as well as the legal acceptance of certified data as evidence. The workshop emphasised the importance of close collaboration with public authorities and judicial bodies to promote future recognition and adoption of the EC-DRL framework.

Table 5 KER #2 | DATA CERTIFICATION PATHWAY

KER #3 | DATA SPACE COMPLIANCE TOOLS

Title	Data Space Compliance Tools
Type:	Technology, Standards
Key Contributors:	SLG, IDC, 52N, CSIC;
Main Related needs:	Citizen science data needs to be integrated with other data coming from public or other authoritative sources;
Potential Users:	Data and Data Space stakeholders
Potential Customers	Data and Data Space stakeholders
Key Exploitation Pathways	Standard-compliant open-source data connector implementation for upscaling the integration of the platform with citizen science data and external data sources; Offer open-source tools and infrastructures supporting data stewardship for data-community generated (CSIC, 52N); Contribute to standards for citizen science data integration in the Green Deal Data Space (IDC); Enhance SLG Data Space compliant platform; Leveraged by 8 pilots;
Implementation Estimation:	ENFORCE will develop these tools and will contribute to a Use Case in the Green Deal Data Space, which will focus on Environmental Compliance.
Exploitation Update (Workshop-based):	The exploitation workshop confirmed the importance of Data Space Compliance Tools for integrating citizen science data with authoritative data sources in a compliant and interoperable manner. Participants highlighted alignment with EU Data Space governance models, DCAT-AP, and related standards as essential for uptake by data space operators and stakeholders. Key barriers identified include data availability across countries, licensing constraints, and GDPR compliance. The workshop reinforced the need for partnerships with system integrators and standardisation communities to support adoption and scaling within EU data spaces.

Table 6 KER #3 | DATA SPACE COMPLIANCE TOOLS

KER #4 | ENFORCE PLAZA

Title	ENFORCE Plaza Tools
Type:	Technology, AI models
Key Contributors:	SLG (Developed the ENFORCE Plaza along with user authentication and data collection mechanisms); UNEXE, UNIBI (Plan to integrate AI models to the platform); 52N: Provide the data space compliance platform to be integrated in ENFORCE plaza)
Main Related needs:	To have a single place for any stakeholder interested in environmental compliance;
Potential Users:	Citizens, start-ups and technology companies, public authorities, law enforcement agencies, data stakeholders;
Potential Customers	Citizens, start-ups and technology companies, public authorities, law enforcement agencies, data stakeholders;
Key Exploitation Pathways	Upscale of existing AI tools to support the target applications at TRL5; Open- source coding of AI models for reuse from other researchers and reproducibility; Leveraged by pilots and extensive evaluation; Potential commercialization of specific applications (SLG);
Implementation Estimation:	The ENFORCE Plaza tools will be developed with the Tools sub-plazas and will be tested and validated in the CSs.
Exploitation Update (Workshop-based):	The exploitation workshop confirmed the value of ENFORCE Plaza as an all-in-one access point for environmental compliance, supporting informed decision-making and investigations by public authorities and enforcement bodies. Participants highlighted the importance of alignment with EU Data Spaces, GDPR-aware design, and interoperability with existing standards as key enablers for uptake. Identified barriers relate primarily to legal constraints, data quality, and interoperability. The workshop reinforced the need for partnerships with public authorities, cloud providers, and legal/compliance experts to support adoption and scaling, without modifying the original exploitation strategy.

Table 7 KER #4 | ENFORCE PLAZA

KER #5 | PILOT DEMONSTRATORS

Title	Pilot Demonstrators.
Type:	Applications, Datasets, Methodologies, Governance frameworks
Key Contributors:	All pilots: Valle Galeria (IT), Brasov (RO), Crete (EL), Barcelona Urban Beaches (ES), East Devon Catchment (UK), Puglia Region (IT), Amsterdam (NL), Flanders Region (BE). Led under WP4 by AMRN with participation of all CS partners.
Main Related needs:	Demonstrate on ENFORCE solutions in a real-life environment, addressing real enforcement needs Validation of Environmental Compliance and Citizen Intelligence (ECCI) tools under operational conditions • Reduction of adoption risk for public authorities • Testing of legal robustness and prosecution-readiness of data • Strengthening trust between regulators, citizens, and enforcement bodies • Providing structured replication pathways for environmental compliance innovation
Potential Users:	Public authorities (e.g. municipalities, regions, national authorities), environmental protection agencies and other law enforcement entities (e.g. regulatory inspectorates, prosecutorial authorities, environmental law enforcement bodies) that will want to implement tools in their area will be able to see from the pilots how the tools were implemented and benefit from lessons learnt;
Potential Customers	Public authorities (e.g. municipalities, regions, national authorities), environmental protection agencies and other law enforcement entities (e.g. regulatory inspectorates, prosecutorial authorities, environmental law enforcement bodies)that will want to implement tools in their area will be able to see from the pilots how the tools were implemented and benefit from lessons learnt;
Key Exploitation Pathways	The demonstrators will be showcases of the innovations developed in ENFORCE, which includes technological and social innovations;
Implementation Estimation:	Eight pilot demonstrators will be showcased in all Case Studies in ENFORCE in 7 countries addressing biodiversity, illegal logging and pollution
Exploitation Update (Workshop-based):	Although primarily demonstrative, the pilots reduce uncertainty and serve as adoption accelerators and not as standalone commercial products in relation to validation, replication, policy integration, institutional adoption and upscaling pathways. Potential users will be able to (in collaboration with workflows in the rest of the KERs): • Observe real implementation workflows • Understand technical and governance requirements • Assess feasibility and cost implications

	• Replicate tested methodologies • Integrate ENFORCE tools into existing enforcement system The workshop confirmed the role of pilot demonstrators as key enablers for exploitation by demonstrating the feasibility and relevance of ENFORCE solutions in real-life enforcement contexts. Participants highlighted that pilots support trust-building, learning, and replication by showcasing practical implementation approaches and lessons learned in operational enforcement environments. The value of pilots lies primarily in validation and demonstration rather than direct commercialisation. They support scaling of both technological (AI, modelling, geospatial tools) and non-technological (governance models, citizen engagement protocols) innovations. In this view it was highlighted that public authorities are more likely to adopt ENFORCE solutions after observing practical implementation, documented lessons learned, and measurable compliance improvements. The workshop reinforced pilots' role as vehicles for adoption for institutional uptake and long-term sustainability of ENFORCE results.

Table 8 KER #5 | PILOT DEMONSTRATORS

KER #6 | USER UPTAKE, CAPACITY BUILDING AND POLICY RECOMMENDATIONS

Title	User Uptake, Capacity building and policy recommendations
Type:	Methodology;
Key Contributors:	EARSC, ECSA
Main Related needs:	Informing decisions and actions for the benefit of society and of the environment through coordinated, comprehensive EO, is the core vision of ENFORCE;
Potential Users:	Multipliers of the community of users pre-identified by the use cases and the consortium partners: research, academia, private sector, municipalities, public sector, association of category
Potential Customers	Multipliers of the community of users pre-identified by the use cases and the consortium partners: research, academia, private sector, municipalities, public sector, association of category
Key Exploitation Pathways	The case studies will be brought together with multipliers and a community of practices as part of the user uptake exercise. The project is not only committed to significantly contribute to capacity building among current and potential users; it will also strive to identify best practices in co-creation and capture them in appropriate guidelines that will help users beyond the immediately engaged community;
Implementation Estimation:	Number of spinoff products /services created through interactions with users as part of the project user uptake; number of policy briefs delivered (4, partners responsible: EARSC and ECSA); number of case studies applying for funding to deliver new services (8), training sessions delivered (3 per year on years 3 and 4 (6 total), T5.3.4).
Exploitation Update (Workshop-based):	Workshop participants confirmed that user uptake, capacity building, and policy-oriented outputs are important non-commercial exploitation pathways supporting evidence-based policymaking and enforcement. Strong demand was identified for practical guidance, training, and policy-relevant outputs, which can be used to inform EU policymakers on the existing and upcoming EU initiatives in various policy streams, including the efforts under the European Green Deal such as the Zero Pollution Action Plan. Barriers to uptake which were identified include institutional inertia and the need for legal clarity on the uptake of digital evidence. The workshop proved the importance of policy bodies, regulators, and professional networks for replication and long-term impact.

Table 9 KER #6 | USER UPTAKE, CAPACITY BUILDING AND POLICY RECOMMENDATIONS

5 Individual Exploitation Plans

This chapter presents the updated overview of the individual exploitation plans developed by the consortium members participating in the ENFORCE project. These plans reflect the current understanding of project results and partner objectives following the initial phases of implementation. They constitute a foundational framework that will be continuously refined and expanded as the project advances, ensuring sustained alignment with the evolving project outcomes and overall exploitation strategy.

Exploitation of Result

- Each beneficiary must use its best efforts to exploit the results it owns or have them exploited by another legal entity.
- Exploitation may be direct (by beneficiaries) or indirect (through transfer and licensing of results

5.1 G.A.C. Group

As project coordinator and leader of WP6 (Impact Maximisation), G.A.C. Group will exploit its participation in ENFORCE primarily through the consolidation and long-term valorisation of the network developed within the project. This includes the consortium partners, stakeholders engaged in the case studies, and the broader community reached through ENFORCE networking and capacity-building activities. The relationships established during the project will support future collaborations, joint initiatives and follow-up proposals building on the expertise and trust developed throughout ENFORCE.

Through its involvement in the project, G.A.C. Group will further strengthen and refine its capacities in project management, stakeholder engagement and impact maximisation, benefiting from practical experience across diverse European contexts. The experience gained in coordinating multi-actor collaboration and supporting networking activities will enhance G.A.C. Group's service offering in future European and international projects

5.2 EVI, AMRN, BDG

Similarly, three more SMEs are part of the consortium—**EVI**, **AMRN** and **BDG**—and are interested in growing their portfolios of solutions that they offer to their clients with the ENFORCE Plaza outcomes. They plan to strengthen their position in the innovative ecosystem of environmental compliance by reaching out to potential users beyond the community activated in the Case Studies, aiming for tools uptake by civil initiatives and policy makers in the specific national contexts. The SMEs exploitation strategies closely follow the development of ENFORCE tools, collaborating with the developers, contributing to the practical dimension of their value proposition for directly supporting their market upscale and the achievement of KER#6. Involving relevant stakeholders in the external co-creation exploitation workshops to test different exploitation pathways will directly contribute to the development of robust business models facilitating stronger market connection for tools uptake in environmental compliance actions. Supporting testing tools for the primary

scope of the use case as well as for optional capabilities of transversal relevance in the ENFORCE project will contribute to strengthening the ENFORCE Plaza increasing the potential for commercialization of specific applications to support finetuning their position on the market.

Individual Exploitation Plan – AMRN

AMRN leads WP4 and coordinates the implementation of the Pilot Demonstrators across the eight Case Studies. In this role, AMRN is responsible for the development of the action plans and monitoring framework (Task 4.1) and for coordinating the implementation of the Living Labs and modelling activities in collaboration with the technical partners (Task 4.2). Task 4.3 on monitoring, review and upscaling is led by ENoLL, with AMRN contributing to the validation, synthesis of lessons learned, and replicability assessment. AMRN role is to ensure coherence across cases and support the structured testing of ECCI framework in real enforcement contexts.

The main exploitable outcomes for AMRN concern the methodological and governance frameworks developed and validated during WP4. These include: (i) the structured action planning methodology linking citizen-generated & earth observation data data to enforcement procedures; (ii) the monitoring and KPI framework aligned with SDG indicators; (iii) modelling integration protocols; and (iv) the practical experience gained in coordinating cross-cases synthesis of the dimensions indicated above. These outputs form a transferable compliance governance approach that can be adapted to different environmental sectors and regulatory settings.

AMRN intends to exploit these results primarily through service-based and strategic pathways. First, the developed frameworks will be offered as consultancy and advisory services to public authorities, environmental agencies, and regulatory bodies seeking to strengthen their compliance assurance systems. This includes support in designing action plans, integrating citizen-generated data into enforcement workflows, establishing monitoring indicators, and structuring multi-stakeholder governance models. Second, AMRN will capitalise on the validated methodology in future European and international projects, positioning itself as a leading partner for work packages related to compliance governance, Living Labs, and environmental intelligence integration. Third, the project results will support capacity-building activities, including targeted workshops and training sessions for enforcement authorities and policymakers.

Beyond direct service provision, exploitation will also occur through scientific dissemination and policy engagement. The methodological advances and lessons learned from cross-case implementation will be consolidated into guidance materials and academic publications, reinforcing AMRN's profile as a reference actor in environmental compliance innovation. The sustainability of exploitation is ensured through continued collaboration with pilot authorities, incorporation of results into new project proposals, and the institutional consolidation of the developed compliance governance framework.

In addition, AMRN will exploit the structured compliance-tier architecture developed under D4.1 and operationalised in D4.4 by packaging it as a transferable "Compliance-by-Design" service framework. This framework enables public authorities and regional agencies to align environmental monitoring systems with clearly defined Environmental Compliance Objectives (ECOs), ensuring that data collection, modelling choices, and validation procedures are proportionate to the intended enforcement tier (promotion, monitoring, administrative assurance, judicial assurance, evaluation). By offering structured guidance on reverse-engineering compliance needs into modelling specifications, AMRN can support administrations in avoiding fragmented monitoring approaches and instead build coherent, legally aware compliance intelligence systems.

Furthermore, AMRN can capitalise on the practical implementation experience gained through coordinating the eight Living Labs by developing a replicable methodological package for integrating citizen science, Earth Observation, and institutional datasets into enforcement-ready workflows. This includes advisory services on Data Readiness Level (DRL) progression, proxy validation strategies, uncertainty management, and traceability requirements necessary for administrative or judicial use. Such a package responds directly to the increasing demand from authorities for structured pathways to transform citizen-generated or heterogeneous environmental data into credible, documented, and decision-supportive evidence streams.

AMRN's exploitation strategy can explicitly incorporate responsible AI and environmental intelligence governance principles, ensuring that modelling and analytics remain transparent, proportionate, and aligned with legal and ethical standards. Building on the project's experience with AI-assisted analysis, modelling integration protocols, and uncertainty documentation, AMRN can position itself as a specialised provider of compliance-oriented environmental intelligence frameworks that balance technological innovation with institutional robustness. This strengthens its market positioning not only as a consultancy actor, but as a methodological leader in operationalising Environmental Compliance and Compliance Intelligence (ECCI) systems in diverse regulatory contexts.

AMRN aligns its post-project exploitation primarily with KER #5 (Pilot Demonstrators), building on its role as WP4 leader. The validated pilot architecture will be packaged into a structured "Compliance Pilot Deployment Service", including: (i) Living Lab setup guidance, (ii) ECO-aligned action planning templates, (iii) proxy validation workflows, and (iv) integration of EC-DRL assessment into enforcement processes. This package will be deployed through follow-up project proposals (Horizon Europe, LIFE, Interreg) and targeted consultancy assignments with public authorities seeking to operationalise compliance intelligence systems.

Through these pathways, AMRN's exploitation strategy focuses on replication, institutional embedding, and service-based deployment of the validated compliance governance framework.

Individual Exploitation Plan – EVI

EVI main activity is in WP4, working with WAAG in the implementation of the Pilot Demonstrator in the Netherlands - Case Study 7. In this role, EVI is co-creating a TRUST methodology between citizen science networks and living labs in policy making, focusing on understanding sandboxing as a framework for making living labs attractive to policy makers, and knowledge brokerage between institutions in the quadruple helix. The aim in developing the TRUST methodology is to transform how environmental professionals, citizen scientists and public authorities approach evidence synthesis. The acronym **TRUST** represents the process of **T**racing the problem landscape, **R**ealising the authority of different players, **U**nderstanding the complexity of the evidence, **S**ensing (embodied knowing), and the power to create **T**ransformation.

It transforms how they engage with evidence - from isolated analysis to collaborative intelligence. learning how to synthesise scientific data with community wisdom through embodied practice, creating environmental solutions (policy and practical) that work in the real world.

EVI intends to co-create the TRUST framework in the ENFORCE project and use resulting toolkit primarily through service-based and strategic pathways, including a 5 module course to deploy, the developed frameworks and offering consultancy and advisory services to citizen science networks and public authorities, environmental agencies, and regulatory bodies seeking to strengthen their use of evidence primarily through service-based and digital product development, including a 5 module course to deploy, the developed frameworks and offering consultancy and advisory services to citizen science networks and public authorities, environmental agencies, and regulatory bodies seeking to strengthen their use of evidence based policy making in compliance assurance systems. EVI will use the validated TRUST methodology in future European and international projects, positioning itself as a leading partner for work packages related to evidence informed policy making for environmental compliance, contribute to the Living Labs and Citizen Science community.

5.3 UTH, CSIC, UNEXE, UNIBI, UoC, HU, IIASA, 52N and NIRDF

ENFORCE RTD partners (Universities and Research Centres), namely **UTH, CSIC**, **UNEXE**, **UNIBI**, **UoC**, **HU**, **IIASA**, **52N** and **NIRDF** will further exploit the results by organising and linking the exposure of postgraduate students and PhD to ENFORCE with the aim of furthering the related research through the allocation of new PhDs in the field of Environmental Compliance, in relation with international industrial partners. It will also organise special sessions in International Conferences (e.g. HIC, WDSA, CCWI, IAHR, CEMEPE, EWRA, GNEST, ACM principles of Advanced and Distributed Simulation (PADS) conference, IWA specialised conferences, ECSA2026 European Citizen Science Association) and articles and special issues in academic journals.

Individual Exploitation Plan – UTH

UTH contributes to ENFORCE in two distinct but complementary capacities. First, Professor Chrysi Laspidou serves as Scientific Coordinator of the overall project, ensuring scientific coherence, quality control and integration across all work packages. Further to this, under Task 2.1, the UTH team produced a structured environmental compliance review and contributed to shaping the ECCI conceptual approach. These outputs constitute the main exploitable results for UTH. They provide a systematic analysis of compliance assurance systems, identify regulatory gaps and challenges, and articulate a conceptual model linking citizen science, geospatial intelligence and enforcement mechanisms.

UTH's exploitation pathway builds on both its scientific coordination role and its research contribution.

- Academic exploitation: the compliance review and conceptual framework will be further developed into peer-reviewed publications, conference papers and collaborative research outputs. These will strengthen UTH's academic profile in environmental governance, compliance assurance and sustainability transitions.
- Policy engagement: the analytical findings can be translated into policy briefs and advisory inputs for public authorities and regulatory agencies. UTH can provide expertise on the design and reform of compliance systems, the governance implications of integrating citizen-generated data, and the institutional dimensions of environmental intelligence.
- Future research development: the conceptual and analytical advances achieved through ENFORCE position UTH as a strong partner or coordinator in future European and international research proposals addressing environmental compliance, digital governance and integrated monitoring systems.
- Educational integration: the knowledge generated through the compliance review and scientific coordination will be incorporated into postgraduate courses, seminars and professional training activities, ensuring long-term dissemination and capacity building.

Individual Exploitation Plan – CSIC

CSIC contributes to ENFORCE mainly in the conceptualization and implementation of the Environmental Compliance - Data Readiness Level (EC-DRL)

Through this key research contribution CSIC plans to design the exploitation pathway in the following domain:

- Academic: The conceptualization of the EC-DRL will be developed into peer-reviewed publications and conference papers, providing also the framework to develop future academic collaborations.
- Policy: one of the main objectives of the project is to offer the EC-DRL as a tool to certificate the data to be used in the context of environmental compliance and regulations.

- Stakeholder engagement: the EC-DRL will empower non-academic stakeholders to be used as a tool for their own purposes (land stewardship, conservation actions, among others, ...)
- Future research: the EC-DSRL and its potential use in many disciplines position CSIC as a strong partner in future national and international proposals.

Individual Exploitation Plan – UNEXE

UNEXE will contribute to ENFORCE exploitation via its vast academic and stakeholder networking, including:

- The academic exploitation will include high-quality scientific publications in peer-reviewed journals and the international conference presentations abouth the methodology and modelling outcomes from ENFORCE research.
- The education exploitation will embed knowledge and tools created in ENFORCE in the teaching modules and activities for undergraduate and postgraduate courses, postgraduate and PhD research projects, seminars and hand-on workshops, capacity building and skill training events.
- The stakeholder engagement will invite business, government departments, local authorities, NGOs and local communities to share the knowledge and findings from ENFORCE to raise the awareness of ENFORCE research, promote the adoption of ENFORCE approach and tools, as well as gather their feedback to enhance the work.

Individual Exploitation Plan – UNIBI

The academic exploitation will focus on scientific publications in conferences and journals centring on AI methods which are relevant for the Plaza Tools. For example, work on how to manipulate images, which is relevant for the envisioned creation of plausible images as explanations within ENFORCE, has been published at the BMVC'25 (https://bmvc2025.bmva.org/proceedings/732/). Moreover, dissemination and engagement of stakeholders from academia takes place by dedicated scientific events which target the topics relevant to ENFORCE. For example, UNIBI is involved in the organization of a special session 'Reliable counterfactuals for machine learning models´ at ESANN'26 which is exploiting methods to make explainable AI more adapted to specific applications, and in the organization of a workshop `Graphs Across AI: From Structural Reasoning to Foundation Models' at IJCNN'26 which targets the integration of structure and prior knowledge for more reliable and trustworthy AI methods. Results from ENFORCE are integrated into lectures within the international Master programs at UNIBI such as our Data Science Master and Intelligent Interactive Systems Master. For example, the findings are used as an example about the use of explanation models incorporating large language models, and its acceptance, risks and benefits for specific stakeholders within the lecture 'Deep Learning'.

Individual Exploitation Plan – UoC

UoC's contribution to ENFORCE encompasses the input of actively engaged citizens, scientists, public authorities with the aim of reinforcing environmental compliance through interconnection, structured

networking, and improved interoperability. Specific non-commercial KERs (#1, #2, #3, #4) have been playing crucial role in:

- Designing and implementing Living Labs (KER #1: Co-creation methodology for future uptake),
- Evaluating and refining the display of the digital tool we use for CS3, and the type/form of data citizen scientists are asked to fill in order to verge on the Data Readiness Level standards as much as possible (KER #2: Data Certification Pathway),
- Exchanging information with WP3 leaders and shaping the technically reconstructed digital tool of CS 3; LIFE THEMIS app this way that integration of CS3 data to Plaza Toolkit may be feasible, fruitful and easy (KER #4: Data Space Compliance Tools & KER #5: ENFORCE Plaza Tools).

Exploitation forms of KERs would rather be classified as societal and political, as the main impact concerns the protection of the natural environment and the enhancement of citizens' quality of life.

Individual Exploitation Plan - HU

HU, as leader of the Flanders case study (CS #8), contributes to ENFORCE work packages, ensuring the integration of scientific and legal results and ENFORCE tools into environmental compliance at scientific, legal/policy, and academic levels. HU contributes to ENFORCE primarily within the framework of the CS and more specifically through stakeholder engagement, knowledge exchange, and dissemination activities linked to PFAS phytoremediation and soil remediation practices in Flanders and beyond. The case study will be actively positioned within scientific, policy, and citizen science communities, such as:

- international symposia,
- scientific presentations at conferences,
- contributions to expert meetings addressing food safety, crop science, and PFAS uptake in plants,
- policy-oriented workshops for government representatives and public waste agencies,
- citizen science gatherings across Flanders (Belgium),
- and public lectures aimed at general audiences, including lectures in academic setting.

The main type of exploitation will be dissemination and engagement. Additional workshops, talks, and stakeholder engagements are foreseen. Results from these activities will be documented through presentations shared within relevant stakeholder networks, and, where appropriate, linked to analytical and scientific outputs (scientific papers). Communication efforts will aim to strengthen community knowledge and foster public trust in the data and actions emerging from citizen science initiatives in PFAS pollution remediation.

Individual Exploitation Plan – IIASA

IIASA contributes to ENFORCE in three main ways. The first is by contributing to the task related to the review of environmental compliance (WP Task 2.1 and D2.1. IIASA disseminated the survey to participants in Austria and undertook interviews with Austrian stakeholders. IIASA also contributed to a review of the literature on citizen science and environmental compliance. The second contribution is as task lead of 3.1 on citizen science data collection tools. This involves supporting each study in any development needs related to the citizen science data collection tools that they will use in the project. The third way is through discussions with WP4 case study leads and WP5 regarding the use of Earth Observation in the case studies. The relevance of the latter is related to how the Earth Observation services will be integrated into the citizen science data collection tools and/or the Plaza Tools being developed by SLG.

The main type of exploitation is academic. IIASA will contribute to the two planned scientific publications that will be generated from D2.1 by WP2 leads. Relevant EO/citizen science solutions could also be written up as potential scientific publications. Exploitation will also be through presentations at relevant conferences and workshops in the future. Stakeholder exploitation will also take place as IIASA is a partner in the Horizon Europe funded RIECS project (research infrastructure for citizen science) and has a role to reach out to policy stakeholders, informing them about ENFORCE as one aspect of the engagement process.

Individual Exploitation Plan NIRDF

NIRDF as leaders of the Brasov case study will contribute to all work packages, ensuring the integration of scientific results and ENFORCE tools into environmental compliance, at different levels:
- academic exploitation: presentation at international conferences and scientific papers in peer-reviewed journals to disseminate the ENFORCE outputs; Moreover, NIRDF, as convenors, is actively involved in the organization of a roundtable at ECSA 2026 European Citizen Science Association, where case study representatives will deliver a presentation on how citizen science can contribute to sustainable forest management and environmental compliance;

- **Brasov Living Lab**: will encompass local authorities, forest managers, local stakeholders, and citizens who will be informed about tools created within the project to encourage the citizens' involvement, enhance communication between interested parties and raise awareness on the EFNORCE project ambitions;
- educational exploitation: will include knowledge sharing and collaborative learning, train -the-trainer sessions and tailored guidelines on the ENFORCE Forests Geo-Quest module participatory digital tool that enables users to document forest-related disturbances; moreover, this will actively support the upscaling of the ENFORCE tools beyond the local level.

Individual Exploitation Plan 52N

Prototypes of the data collection tools for Case Study 1,3,4,5,7 and 8, as well as the Provenance capturing mechanism are available as open source (https://github.com/enforceproject-eu). Contributions and re-use of the tools are encouraged.
52n will also make use of its partner framework, including (1) universities, with whom we will have scientific discussions and promote ideas for theses and (2) industry with whom we will discuss market opportunities. At a later stage, the Data Space Compliant Tools framework will be described in peer-reviewed publications.

ENFORCE RTD partners are members in the scientific committees of all of these and can (as they have done in the past for other projects) ensure the success of such dissemination schemes. Also, they will act as links with the EU clusters (ICT4Water Cluster—many partners are members and lead Action Groups, while UNEXE (Prof. Albert Chen) is coordinating the cluster), Water Europe for furthering the exploitation of ENFORCE (Prof. Laspidou is the Vice-President of Collaboration), Climate Adaptation Community of Practice, etc. Partners are engaged in editorial activities of several journals (including leading special issues on modelling methodology) and routinely serve as Chairs in conference committees and will continue to do so for ENFORCE.

5.4 SLG and IDC

Industrial partners **SLG** and **IDC** will be important in exploitation activities.

Individual Exploitation Plan Singular Logic

SLG's exploitation plan is reframed around environmental compliance services, positioning the ENFORCE Plaza as a compliance-enabling digital infrastructure. SLG will support municipalities in meeting regulatory obligations related to climate, and environmental reporting—such as climate-adaptation planning, and emerging EU requirements on urban resilience—by operationalising services that translate complex environmental data into auditable indicators, maps, and reports. Through the ENFORCE plaza, cities can systematically integrate Copernicus data, local environmental datasets, and tools to demonstrate compliance, track progress against targets, and document evidence for national and EU authorities, while ensuring transparency and consistency across departments.

In exploitation terms, SLG adopts a service-oriented compliance model tailored to public authorities' regulatory cycles. Municipalities engage SLG for platform deployment and configuration aligned with specific compliance needs, followed by recurring support contracts covering updates, data governance, and reporting continuity. This model allows local authorities to reduce dependence on fragmented studies and ad-hoc consultants, replacing them with a persistent compliance platform that evolves alongside regulations. By embedding ENFORCE services into routine compliance workflows and linking them to follow-up EU and national projects, SLG enables cities to maintain regulatory readiness over time while progressively expanding from minimum compliance to more strategic, evidence-based environmental governance. The company is one of the leading software integrators in Greece, undertaking large scale projects for the private

and public sector, providing integrated solutions for local and national authorities across the country. The ENFORCE Plaza will be presented through the well-established communication channels of the company (newsletters, events, etc.) to interested stakeholders to explore potential exploitation in commercial projects. https://www.space.gr/en/solutions/category/lawhttps://cordis.europa.eu/project/id/786993

Individual Exploitation Plan- IDC

The second industrial partner, **IDC,** is a market intelligence company, and will use the data gathered by the project to enrich their market views and go deeper into the topic of environmental compliance, which will impact many companies in the short-to-medium term. IDC will link the activities in ENFORCE with their business line on sustainability. In addition, as coordinators of the Green Deal Data Space, they expect this project to provide sound input on how citizen-generated data can be integrated as certified and trusted data source for the upcoming implementation of the data space. Connections are also expected with other data-space related activities run by IDC (e.g. manufacturing data space, tourism data space).

5.5 ENoLL, EARSC, ECSA, ASUD, HBA, EG and D4P

A large group of associations are partner in ENFORCE, namely **ENoLL**, **EARSC**, **ECSA**, **ASUD** and **HBA, EG** and **D4P**. They all have a strong interest in setting up methodologies that will be exploited through their partners.

Individual Exploitation Plan -ECSA

ECSA finds the work of ENFORCE central to the activities and interests of their members and for promoting citizen science overall. Through the introduction of ENFORCE methodologies and outputs, ECSA's wider network of institutional actors and citizen science practitioners can enhance CS data validation. Furthermore, the emerging approach of using CS data for enforcement purposes can create increased impact of CS data beyond monitoring. This will be supported through capacity-building trainings and other activities to bring ENFORCE contributions to ECSA's network.

Individual Exploitation Plan -ENOLL

ENoLL is committed to advancing knowledge on Living Lab methodologies among its global members. The association will share the insights and results gathered through the project with its members and the broader Living Lab community. In particular, it will highlight new Living Lab methodologies and lessons learned, key considerations on compliance and ethics, and the evolving relationship between Living Labs and citizen science.

Individual Exploitation Plan -EARSC

EARSC is committed to advancing the use of Earth Observation technologies, driving progress in Earth System Science modelling, downstream product development, and service validation. These

efforts aim to build robust, credible solutions that support future business opportunities for EARSC members. User uptake and capacity-building activities will empower user communities to address environmental compliance and enforcement needs, while creating stronger connections between EARSC members and these communities. In parallel, targeted policy recommendations will demonstrate the value of Earth Observation data and services in meeting case-study requirements, helping to grow the Earth Observation market and strengthening the position of EARSC members within it.

Individual Exploitation Plan -D4P

D4P supports the exploitation activities by translating key outcomes (e.g., co-creation methodologies, capacity-building materials, and policy recommendations) into accessible communication assets and campaigns for the network of ENFORCE as well as D4P's broader network. Through its dissemination activities in ENFORCE, D4P will act as a multiplier, promoting the adoption of citizen-generated environmental data and digital tools to support environmental compliance and systemic change.
EG will exploit ENFORCE results by establishing a dedicated ENFORCE Community of Practice on the ENRICH GLOBAL Community Platform (EGCP), positioned as a thematic sub-community within the broader Resilient Futures Community of Practice. The Resilient Futures e-CoP is an established cross-project ecosystem bringing together stakeholders working on climate resilience, environmental governance, innovation uptake and sustainability transitions (https://egcp.enrich-global.eu/communities/resilientfutures). During the project, the ENFORCE e-CoP will support dissemination, stakeholder engagement, knowledge exchange and clustering with related EU initiatives. After project completion, it will remain active within the Resilient Futures ecosystem and EGCP's permanent infrastructure, ensuring continued accessibility of results, ongoing interaction among stakeholders and long-term institutional embedding of ENFORCE outcomes. By integrating ENFORCE into an existing multi-project community rather than creating a standalone space, ENRICH GLOBAL maximises reuse, replication and long-term policy relevance of project outputs.

Individual Exploitation Plan -ASUD

ASUD is a grass-roots environmental justice organization based in Italy, with extensive experience in citizen science, community-based monitoring and advocacy for environmental compliance. Through ENFORCE, ASUD aims to strengthen its capacity to integrate structured data collection methodologies, the Data Readiness Level (DRL) framework and the ENFORCE Plaza tools into its ongoing and future initiatives. In particular, ASUD will use the KERS results and ENFORCE methodologies to enhance the evidentiary robustness of citizen-generated data in environmental conflicts, litigation support and policy advocacy processes. The organization plans to transfer the ENFORCE approach to its territorial projects (e.g. community monitoring campaigns, living labs and local environmental compliance cases), improving the alignment between grassroots data collection and institutional/legal requirements. In the medium term, ASUD intends to embed these tools into its training programmes for NGOs and communities, contributing to

a wider uptake of citizen science data for environmental governance and compliance assurance in Italy and beyond.

Individual Exploitation Plan -HBA

The **Heraklion Bar Association (HBA)** intends to continue exploiting the KERs and ENFORCE methodologies of the ENFORCE project by integrating them into legal practice, professional training and institutional dialogue at regional and national level. HBA will promote the use of ENFORCE tools and approaches among its members. Planned follow-up activities include the organisation of specialised seminars and continuous legal education initiatives for lawyers and legal advisors of public authorities, as well as policy-oriented discussions with competent authorities to support the improvement of environmental enforcement mechanisms. Furthermore, HBA intends to contribute its legal expertise to future European or national project proposals building on ENFORCE results and to support the long-term uptake of these methodologies within the Greek legal community. Through these actions, the Association seeks to ensure the sustained institutional embedding and practical application of ENFORCE outcomes in environmental governance and compliance practice.

5.6 Waag Futurelab, CIHEAM and WRT

In a similar way, **Waag Futurelab** will exploit the outcomes of ENFORCE to the citizen collectives, scientific, public and industry partners. Additionally, all interested parties can find outcomes on the Waag's website, waag.org, and places such as the co-creation navigator, where Waag publishes and collects methods and tools openly for all to use. Waag also plans to exploit the plaza tools and Living Lab methodology further at a national and EU level through collaborating with new project consortia, where Waag will share the outcomes and build further on the results and case study 7 of ENFORCE.

The international organization **CIHEAM** will exploit the ENFORCE results by disseminating the outputs among its global network and specifically through its thematic Communities of Practice. CIHEAM will integrate the methodologies and approach developed through ENFORCE in its global knowledge and capacity building strategy.

The NGO partner **WRT** will work to ensure that the outputs are fully integrated with and support local plans, strategies, and delivery mechanisms. They will disseminate the ENFORCE outputs throughout the Catchment Based Approach Community in England (104 local partnerships), the Rivers Trust Movement (56 organisations), South West Water, the Defra family organisations (nationally and locally), the academic/technical community (especially those interested in co-creation of ECCI) and with Devon County Council, other local councils and the various Climate Emergency/Action Groups now active in Devon. ENFORCE will help WRT integrate this expertise into an effective approach with high innovation and impact potential in environmental compliance

5.7 BCASA

Public authority **BCASA** will exploit the ENFORCE results by continuing the implementation and operational use of the solutions, protocols, and tools developed and tested during the project to support environmental compliance monitoring at local level. In collaboration with CSIC, BCASA is developing and validating monitoring protocols for key environmental parameters, which will be integrated into the local council's regular practices to support regulatory obligations and evidence-based decision-making.

In particular, the collected data and methodologies will be used to strengthen and further implement local legislation. This includes the continued development of the marine biodiversity atlas to support monitoring and protection measures, the systematic collection of data on cigarette butts and smoking-related waste to inform updates of local beach smoking regulations (including consideration of vaping waste), and the generation of new evidence on the environmental impact of wet wipes to support policy actions and engagement with producers under the extended producer responsibility framework at EU level.

Through these actions, BCASA will ensure the long-term uptake of ENFORCE solutions by embedding them into municipal monitoring systems, regulatory processes, and policy development, while also supporting their replication by other local and regional authorities.

6 Market Research and Analysis

ENFORCE is well positioned to address the growing challenges of sustainability and environmental compliance through its innovative approach. By leveraging citizen science, co-created methodologies, and advanced tools for environmental compliance, ENFORCE aims to provide scalable and cost-effective solutions that align with current market demands.

The ENFORCE Plaza represents the operational and collaborative core of the ENFORCE ecosystem. It is designed as a digital and methodological hub where citizens, public authorities, researchers, and industry stakeholders converge to co-create, validate, and operationalize environmental compliance solutions. More than a platform, the Plaza functions as a structured environment that transforms fragmented data, regulatory complexity, and community engagement into coordinated, actionable outcomes.

The project introduces Environmental Compliance Data Readiness Levels (EC-DRL) as a progressive Framework, a maturity model, for assessing the maturity and readiness of community-generated data for a specific use, such as environmental compliance.

ENFORCE's Living Lab approach promotes collaboration among stakeholders, enabling co-creation of evidence and solutions that empower citizens while supporting authorities in monitoring, detecting, and enforcing compliance. This focus on citizen engagement and innovation responds directly to the need for more efficient and transparent compliance mechanisms in both public and private sectors.

The project aligns with three key market demands:

1. **Sustainability Compliance and Reporting**: With increased regulatory pressure and consumer demand for transparency, tools like EC-DRL can help organizations ensure adherence to environmental laws and improve reporting.

2. **Citizen Science as a Scalable Framework**: By utilizing citizen-collected data, ENFORCE offers a cost-effective and inclusive solution for environmental monitoring, appealing to a wide range of stakeholders.

3. **Integration with IT and AI Solutions**: ENFORCE outputs are designed to integrate seamlessly with IT and AI strategies, addressing challenges such as data quality, scalability, and carbon efficiency.

6.1 Market Trends

Sustainability is reshaping organizations' mindsets and strategies. In Europe, particularly, sustainability is driven by two main factors:

European regulations and directives. This is cited as the number one driver for European organizations' ESG initiatives with 66.6% of respondents, according to *IDC's EMEA Sustainable Strategies and Technologies survey, 2025* (n=500). This is not a surprise as the EC and several European countries have put multiple

sustainability regulations in place to achieve the EC's goal to become the first carbon neutral continent by 2050.

From an industry perspective, European regulations cover sectors like:

Energy. Generation and management of renewable energies (solar, wind, green hydrogen). Studies confirm that the power sector continues to lead the decarbonisation race, with clean power generating 72% of EU electricity year-to-date, and fossil fuels falling to record lows. Crucially, the EU industrial sector is showing some very first signs of recovery. While energy-intensive industries in Germany and Italy remain fragile, industrial output in Spain, Sweden, and Finland is starting to rebound. Data centres are also driving new and concentrated demand across the continent. As a result, the EU revised the Energy Efficiency Directive, together with other energy and climate rules, to ensure that the its 2030 target of reducing greenhouse gas emissions (GHGs) by at least 55% (compared to 1990) can be met. Under the updated rules, EU countries have agreed to help achieve the EU target by setting indicative national contributions using a combination of objective criteria which reflect national circumstances (energy intensity, GDP per capita, energy savings potential and earlier efforts for energy efficiency by EU countries).

Sustainable mobility. Electric vehicles (EV), charging infrastructure, sustainable public transport. A successful European shift to decarbonised and electrified transport depends on strong cross-sector collaboration. Grid operators, original equipment manufacturers (OEMs), charge point operators (CPOs), developers and advisors must align on operational challenges, share best practices, and jointly develop scalable solutions. Therefore, vendors are promoting intelligent EV charging orchestration solutions to optimize load balancing and grid flexibility, enabling real-time coordination of charging demand with renewable generation and grid conditions.

Agriculture and food. Regenerative agriculture, fertilization efficiency, sustainable food production. Agriculture has always had a data problem. Like farmers of today, even a goddess of grain had to tackle the problem of on-farm data. Increasing data collection and data sharing will benefit every stage of the supply chain. It will increase efficiency, lower costs, and reduce waste. In less vertically integrated supply chains, the challenge with data is to incentivise the primary producer to take the effort to gather the information in the first place. To increase data collection at scale, data must be shown to have intrinsic, real world, economic value. For data to have value it must be shared, processed, packaged, and have a market. Consequently, to have a robust market an industry ecosystem approach is key.

The carbon offset market may be a tipping point for data in agriculture. While there is much debate around what data should be collected, how it should be collected and even if carbon offsets should exist, this market is building a framework which decouples farm data from crops and gives it intrinsic value. While much of this market is still in flux, the basics of harvesting and processing data, regulating its quality, validating, and marketing are being set in place.

Biodiversity. Nature must be preserved and integrated into urban and rural planning. EU policies protect and restore habitats and their ecosystems and promotes the development of green spaces. It applies to

agriculture, forestry and city planning. Policies include EU Biodiversity Strategy for 2030, the Habitats Directive, and the Strategic Environmental Assessment (SEA) Directive.

Construction and building. Green infrastructure, sustainable buildings, use of recycled materials. According to IDC Energy Transition Survey, 2024 (n=129), building/facility retrofitting is currently the number one process improvements in organizations' investments to support their energy transition. The investment strategies of process manufacturers vary, though building and facility retrofitting is a common focus for many. IDC is already seeing carbon footprint regularly included in supplier RFIs (new or replacement supplier assessment) and in service level agreements.

Waste management and circular economy. Advanced recycling, reuse, and composting systems, especially in the ICT space. Circularity in IT asset management means maximizing the life-cycle value of hardware through reuse/cascading, refurbishment, redeployment, or responsible recycling rather than defaulting to disposal. This shift is expected to drive significant cost savings and foster stronger, more strategic relationships between enterprises and their IT vendors, including OEMs and IT asset disposition (ITAD) vendors. In fact, IDC predicted that by 2028, 75% of enterprises will set IT asset circularity goals, with 90% of assets returned to the circular economy and 20% sources as renewed, driving cost savings and stronger vendor ties, according to *IDC FutureScape: Worldwide Sustainability/ESG 2026 Predictions*[6] (IDC #US53860525, November 2025). Circularity also delivers direct financial benefits by recovering residual value from end-of-life assets, offsetting the costs of new IT investments, and reducing total cost of ownership. The use of refurbished assets can extend asset life cycles, free up capital for innovation (including AI initiatives), and reduce operational expenses.

Water management. The European water management market encompasses several key areas, including desalination, water efficiency, and wastewater treatment. Within this context, IDC predicted that in 2029, 65% of water utilities will invest in digital twins, smart metering/submetering, geographic information systems (GIS), and AI-powered meter data management (MDM), cutting response and restoration times by 40% even under infrastructure and climate stress, according *to IDC FutureScape: Worldwide Utilities 2026 Predictions*[7] (IDC #US53857825, October 2025).

Driven by AI-enabled modernization, water utilities are accelerating investments in the core building blocks of digital twins to address aging assets, climate pressures, and rising service demands. According to IDC Energy Insights "2024 *Worldwide Utilities and Oil and Gas Survey*[8]," digital twins for asset life-cycle management" rank as the top asset management innovation for water utilities (49%), supported by 86% investing or planning near-term investments in smartened user metering and submetering, and over 60% investing in meter data management (MDM), distribution management systems (DMS), outage management systems (OMS), GIS, and SCADA. Advances in smart metering/submetering, AI-powered GIS, and robust

[6] IDC FutureScape: Worldwide Sustainability/ESG 2026 Predictions
[7] IDC FutureScape: Worldwide Utilities 2026 Predictions
[8] Implications for EMEA Utilities: IT Investment Directions — Insights from IDC Energy Insights' Global Utilities and Oil & Gas Survey, 2024

MDM are converging to deliver the high-resolution, real-time intelligence essential for predictive and adaptive operations. When integrated, GIS provides spatial context – asset location, network topology, and field conditions – while MDM delivers high-frequency consumption and event data. This fusion unifies system visibility, breaks operational silos, and enables impact-based prioritization.

Technology and digitalization. From an IT perspective, the future of sustainability is inevitably linked to cloud computing. Due to cloud's capability to store huge amounts of data, simplicity, and scalability, adoption has spiked over the last decade. However, cloud's impact on the environment will depend on tailored optimization practices.

As cloud adoption and the number of datacenters continue to rise, so does cloud waste and related European regulations. Several of the most important are listed below.

EU Corporate Sustainability Reporting Directive (CSRD). The CSRD includes stringent and explicit criteria (like financial reporting) on the form and processes of sustainability and environmental, social and governance (ESG) reporting in the EU. The CSRD came into force in January 2023 and mandates a phased implementation, with a first set of large, listed organizations required to report according to the 12 European Sustainability Reporting Standards (ESRS) as early as 2025 for their FY 2024.

Originally, CSRD was to be followed in June 2024 by sector-specific standards and standards for third-country companies having at least one subsidiary or branch in the EU. The implementation of industry-specific standards was delayed to June 2026 to reduce reporting burdens for companies and focus on implementing the current ESRS. The date of application for third-country companies remains FY 2028.

a. **European Sustainability Reporting Standards (ESRS)**. It requires companies to report on sustainability-related impacts, opportunities, and risks under the EU CSRD. It provides information for investors to understand the sustainability impact of the companies in which they invest. The ESRS takes into account the International Sustainability Standards Board (ISSB) and the Global Reporting Initiative (GRI) to ensure reliability and unnecessary double reporting by companies.

b. **EU Sustainable Finance Disclosure Regulation (SFDR).** Entered into force on March 10, 2021, it imposes mandatory environmental, social, and governance (ESG) disclosure obligations for asset managers and other financial markets. It aims to bring transparency for financial market participants and financial advisers in relation to sustainability risks, sustainability impacts in their investment processes, and the provision of sustainability-related information with respect to financial products.

c. **EU Corporate Sustainability Due Diligence Directive (CSDDD)**. The CSDDD sets out corporate due diligence obligations. It requires relevant companies to identify, prevent, and mitigate potential or actual adverse human rights and environmental impacts connected with their operations, including both upstream and certain downstream impacts. It also seeks to provide access to

grievance mechanisms and legal remedies for those affected by violations of CSDDD provisions. The CSDDD entered into force on July 25, 2024.

d. **U.K. Sustainability Disclosure Requirements (SDR).** Is a set of regulations to improve trust and transparency in the sustainability investment fund market. It includes an anti-greenwashing rule and additional rules regarding sustainable investing for the U.K. The current U.K. SDR is only applicable to U.K.-domiciled funds. However, guidance on overseas funds, such as undertaking for collective investment in transferable securities (UCITS) funds domiciled in the European Union, is expected in 2024. Other elements of the U.K. SDR related to firms and products will come into effect over the course of 2024 and the next couple of years.

e. **Other regulations**. To learn more about existing or upcoming regulations and policies in EMEA, please refer to Figure # and *EMEA Digital Regulations and Policies Radar — 2025 Update*[9] (IDC #EUR152175425, August 2025).

Figure 18 ESG Regulations in Europe

End users demand. European organizations also see sustainability as a key driver to reduce costs (62%). From this perspective, cloud computing plays a key role in reducing both costs (FinOps) and carbon footprint (GreenOps). This section is essential to ensure that ENFORCE is grounded in real-world needs rather than purely regulatory or technological assumptions. By systematically capturing the challenges, expectations, and operational constraints of citizens, authorities, and industry stakeholders, this chapter ensures that ENFORCE

[9] EMEA Digital Regulations and Policies Radar — 2025 Update

solutions—particularly the ENFORCE Plaza and the EC-DRL framework—are demand-driven, user-centric, and aligned with practical compliance realities.

FinOps is an operational framework and cultural practice which maximizes the business value of cloud and technology, enables timely data-driven decision making, and creates financial accountability through collaboration between engineering, finance, and business teams.

GreenOps, on the other side, is also an operational framework that brings together a set of practices aimed at minimizing the environmental impact of cloud operations while maximizing efficiency and optimizing resource utilization. It promotes a culture of environmental responsibility while enhancing collaboration with lines of business (LOBs) to establish business needs, improve software development and DevOps processes, and adhere to operational principles. Its goal is to reduce energy consumption, minimize waste, lower carbon footprints, and promote the use of renewable resources and environmentally friendly technologies. While often associated with cloud computing, GreenOps applies to the entire IT infrastructure, including datacenters, software, hardware, and end-user devices.

GreenOps is closely related to FinOps, but while GreenOps uses the environmental impact of greenhouse gas (GHG) emissions, water consumption, and waste as a driver for efficiency, FinOps analyzes costs and usage of resources and applications.

Like FinOps, GreenOps should be characterized as an efficiency play. By optimizing resource usage, reducing energy consumption, and minimizing waste, GreenOps can cut organizations' spend and waste. In fact, by integrating sustainability into financial practices, organizations can achieve both environmental and financial benefits. Their synergy can also be seen by the various common practices FinOps and GreenOps practitioners use such as rightsizing, shutting down unused resources, autoscaling, storage tiering, and data compression. Figure # shows the FinOps and GreenOps synergy as well as their culture of accountability. By merging both approaches organizations can increasingly enhance their business value, reduce frictions, eliminate silos, and deliver an innovative organizational culture.

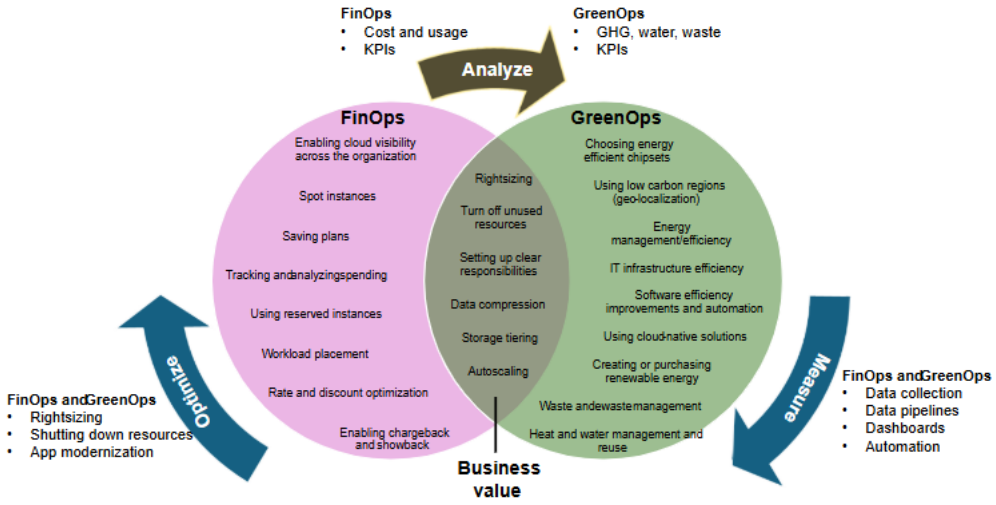


Figure 19 FinOps and GreenOps Synergy and Culture of Accountability

Consequently, both approaches go hand in hand and complement one another in a very effective way, pushing forward innovation and delivering on sustainability commitments. As a result, companies can achieve business advantages beyond cost savings and help them to attract customers, employees, and investors, who are increasingly concerned by ESG considerations and aim to reduce their environmental impact.

This synergy is also highlighted in *IDC's EMEA Multicloud Survey, 2025* (n = 1,155) where cost optimization (FinOps) is ranked as the number one factor (39.6%) driving European organizations' focus on cloud services' sustainability credentials, suggesting organizations see sustainability as a way to reduce expenses (e.g., through energy efficiency, resource optimization). Nearly as important as cost optimization, IT sustainability strategy and goals (37.5%) is also critical for European organizations and indicates many have established sustainability roadmaps where cloud services play a key role. Not surprisingly, regulatory compliance (25.8%) is also a key driver as compliance pressures such as laws, standards, and ESG reporting are becoming mandatory or a "must have" for end users. Linked to this last one, it has also become critical to consistently measure GHG emissions of digital technology, especially for Scope 3 emissions, which usually represent 80-85% of total energy emissions. While measuring GHG emission of digital technology is a major challenge, consumption from compute, memory, and storage is generally easier to measure and represents a good proxy for emissions. Cost is also a proxy for emissions, but it is not as efficient as consumption. Therefore, it is important to understand how emissions are measured and which metrics are included and excluded. The two primary methods are:

Location-Based Emissions: Refers to the GHG emissions directly associated with the average energy mix of the grid where the electricity consumption occurs. This method considers the physical location and the energy grid's average emission factor, representing the mix of energy sources used to generate electricity (e.g., coal, natural gas, renewables) in a specific geographic area.

Market-Based Emissions: Refers to direct and indirect emissions from consuming products and services. They are calculated based on the specific contracts or instruments that a company uses to procure electricity, such as Renewable Energy Certificates (RECs), Guarantees of Origin (GOs), or Power Purchase Agreements (PPAs). This method reflects the choices made by a company to support renewable energy or low-carbon power sources, regardless of the average grid emissions.

Applying a location-based emission approach is suitable for companies with high renewable energy penetration in the grid or where specific energy procurement strategies are not in place. On the other side, market-based emissions is ideal for companies actively engaging in renewable energy procurement, aiming to demonstrate leadership in sustainability. The Greenhouse Gas Protocol requires organizations to report both methods for Scope 2 (indirect emissions from electricity consumption). This dual reporting approach provides a comprehensive view of an organization's energy use and its efforts to reduce emissions. However, different regions and industries may have different requirements for reporting GHG emissions. For example, the EU Emissions Trading System (EU ETS) encourages the use of market-based mechanisms to reduce emissions and supports the purchase of RECs and GOs.

Scope 3 emissions are not directly affected by these two methodologies, unless a supplier has chosen to use market-based emissions in their calculations for usage.

To calculate Scope 3 emissions, organizations should first collect primary data from their value chain partners (e.g., suppliers, distributors) as these data are specific to organizations' operations and provide the most accurate representation of emissions. Working closely with suppliers will be critical to gather data. When primary data are not available, organizations should use secondary data derived from industry averages, emissions factors, or data from life cycle assessments (LCAs). These data can provide reasonable estimates for emissions but may be less accurate.Calculating Scope 3 emissions is a complex but essential part of a comprehensive GHG inventory. By understanding your value chain, gathering accurate data, and using the right tools, organizations can effectively measure and manage their emissions.

As companies look for concrete ways to control cloud costs, deliver innovation, and contribute to ambitious sustainability-related goals, IDC believes that FinOps and GreenOps will become increasingly important in 2026 and beyond.

Finally, AI is also posing multiple challenges to the European IT market. In fact, the IT infrastructure vendor ecosystem is moving rapidly to infuse AI, agentic AI models, agents, and protocols across products and services with an expectation that customers will demand intelligent analytics, monitoring and orchestration as part of core infrastructure capabilities in the coming years.

IT buyers are still in the early stages of evaluating and testing these capabilities. The early adopters are highly enthusiastic about expected benefits of agentic AI and intelligent infrastructure. IDC Worldwide Digital Infrastructure Sentiment Survey 2025 (n=600) shows that fully 51% of digital infrastructure buyers are actively evaluating these solutions.

IDC believes agentic AI will transform IT infrastructure by standardizing and accelerating policy-based automation and control over configurations, security, scaling and integration activities across a hybrid mix of public cloud and dedicated infrastructure assets, while optimizing for workload-specific profiles and data classifications. The evolution of human-led operations will shift from process-centric to policy-driven as robust agentic workflows and reasoning transform the landscape.

Specifically, the scope of the tools and solutions being developed within the ENFORCE project (Plaza, apps, etc.) aligns with current market trends. Specifically, in the described technologies (cloud, IoT, and AI), the market in Europe for the 2025-2029 period is projected to reach:

- **Cloud**. €555.4 billion by 2029, growing at a four-year CAGR of 13.7% during that period.
- **IoT**. €247.5 billion by 2029, growing at a four-year CAGR of 10.4% during that period.
- **AI and GenAI**. €230.7 billion by 2029, growing at a four-year CAGR of 36.2% during that period.

A detailed Figure better highlights the European market size for these technologies.

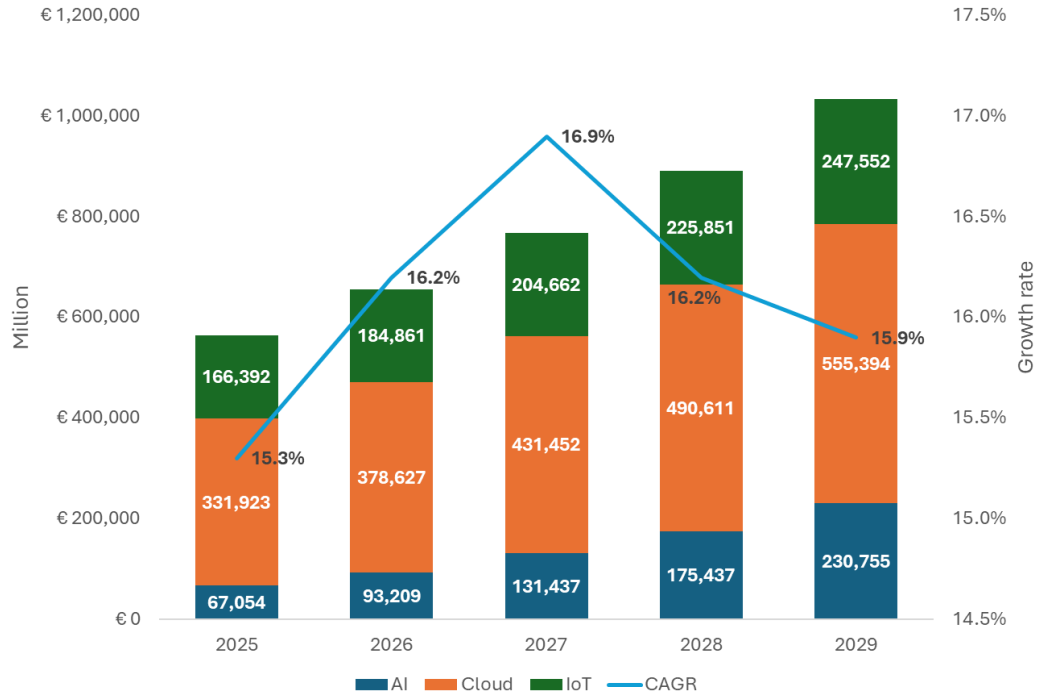


Figure 20 European market size for AI, cloud, and IoT

In conclusion, a preliminary analysis of market trends and key figures highlights how the various outcomes of the project (tools, solutions, applications, as well as the ENFORCE Plaza) align with market dynamics and present opportunities for subsequent exploitation and development.

6.2 The Market Context Underscores the Importance of ENFORCE's Objectives

- **Data Pathway Certification.** The EC-DRL framework for assessing the maturity and readiness of community-generated data for a specific use, such as environmental compliance, which proposes a scale for the suitability of data for its purpose. By introducing a structured scale to assess the maturity and fitness-for-purpose of community-generated data, ENFORCE addresses one of the most critical market gaps: the lack of trusted, standardized mechanisms for validating non-traditional data sources. The market analysis highlights increasing demand for cost-effective compliance tools and cloud that ensure auditability and credibility—needs that EC-DRL is specifically designed to meet.
- **Citizen Science as a Market Enabler**. ENFORCES's use of citizen science reduces costs and increases community involvement, offering organizations a scalable and inclusive way to meet compliance requirements. Market trends also indicate a growing recognition of participatory governance and ESG-driven accountability, positioning citizen-generated data not only as a cost-reduction mechanism but also as a strategic enabler of transparency and stakeholder engagement.
- **Integration with Broader IT Trends**. ENFORCE's outputs can integrate with cloud and AI-driven sustainability strategies, contributing to reduced carbon emissions and improved data efficiency. In fact, the market analysis confirms that compliance solutions must align with cloud adoption, AI integration, and carbon-efficiency objectives. ENFORCE's design allows its outputs to integrate into existing IT infrastructures and AI-driven sustainability platforms, addressing demands for interoperability, automation, and performance optimization. This ensures that ENFORCE is not a standalone initiative, but part of a broader digital transformation ecosystem.

By addressing these challenges, ENFORCES not only meets regulatory demands but also positions itself as a key player in a growing market for innovative sustainability solutions. This unique approach enables public authorities, environmental agencies, and private organizations to optimize their operations while achieving environmental goals.

7 Intellectual Property Rights Strategy

Intellectual property ("IP") management plays an essential part in the entire lifecycle of research and innovation projects funded by the European Commission's Horizon Programme, and Regulation (EU) 2021/695 establishing Horizon Europe – the Framework Programme for Research and Innovation[10] encourage ENFORCE participants to make use of the relevant existing applicable legal instruments in both protecting and exploiting their Intellectual Property Rights (IPR).

Article 39 of the Regulation requires EU-funded projects to disseminate results and to grant open access to the research outputs in compliance with the applicable EU IP laws. Therefore, it is appropriate to consider the protection generally available to various intellectual property assets within the context of ENFORCE.

The ENFORCE IPR strategy is aligned with the EC's and national policies regarding IP ownership and exploitation, carefully considering confidentiality and other relevant aspects. All consortium partners contribute background IP and know-how without additional costs, retaining ownership of their respective contributions.

ENFORCE manages IPR as a continuous, project-wide process that begins with early identification of potential results and evolves into concrete protection and licensing decisions as those results mature ENFORCE manages IPR as a continuous, project-wide process that begins with early identification of potential results and evolves into concrete protection and licensing decisions as those results mature.

7.1 IPR Management Approach in ENFORCE

IPR management in ENFORCE follows a structured governance framework combining project **management oversight**, **contractual arrangements**, and **exploitation-driven processes**.
The overall objective is to ensure that project results are adequately protected, accessible for project implementation, and effectively exploited in line with HE requirements.

At consortium level, IPR management is embedded within WP1 – Project Management, with defined responsibilities including the Innovation and IPR Officer, Legal Officer, and Data Protection Officer. Research outputs are continuously monitored, screened for IP relevance, and handled in compliance with GDPR, ethics requirements, and the Consortium Agreement (CA).

The day-to-day management of IPR is carried out under **Work Package 1 – Project Management**, where it is overseen by the Project Coordinators with the support of the Innovation and IPR Officer and the Legal Officer. This includes monitoring compliance with the Grant Agreement (GA) and CA, advising partners on IP-related matters, and ensuring alignment with EU open science and dissemination obligations.

[10] Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations (EU) No 1291/2013, OJ L 170/1.

As described in the Project Quality Plan (Deliverable D1.1, Section 5.2), IPR management is embedded within the project's knowledge management framework, which ensures that project outputs are properly classified, stored, and shared according to their confidentiality level and exploitation potential

From an exploitation perspective, IPR management is closely linked to the activities implemented under WP6. Partners are responsible for identifying their exploitable results, assessing protection needs, and defining appropriate ownership and access conditions.

The management of IPR within ENFORCE is governed by the GA and the CA, which establish the legal framework for ownership, access rights, and use of background and results. These agreements define:

- Ownership of results by generating partners
- Joint ownership arrangements where applicable
- Access rights for project implementation and exploitation
- Obligations related to dissemination and open access

Together, these instruments ensure a balanced approach between protecting partners' intellectual assets and enabling effective collaboration and impact generation.

7.2 IPR Methodology

The ENFORCE IPR methodology is iterative and evidence-based, following five core steps:

7. Results scoping and logging
8. Ownership and access-rights checks
9. Selection of protection route
10. Definition of licensing/exploitation pathway
11. Periodic validation and update

Each work package identifies candidate results (e.g., data assets, tools, software, methodologies), which are assessed in terms of novelty, background dependencies, expected users, and exploitation timeframe.

Contractual screening ensures compliance with the GA and CA framework, clarifies ownership (single or joint), and identifies necessary access rights for implementation and exploitation.

ENFORCE applies a protection-by-design approach aligned with FAIR principles, ethics, and data governance. Depending on the nature and maturity of results, protection routes may include open publication, copyright, database rights, trade secrets, trademarks, or — where justified — patent protection.
Licensing mechanisms are selected only once the protection route and expected "route to impact" are clear. Licensing may include open-source models, Creative Commons, proprietary licences, service-based models, or controlled data-sharing agreements. This approach ensures flexibility while safeguarding partners' legitimate interests.

7.3 Contractual Framework, Ownership and Access Rights

The management of IPR within ENFORCE is governed by the GA and the CA, which establish the legal framework for ownership, access rights, and use of background and results. These agreements define:

- Ownership of results by generating partners
- Joint ownership arrangements where applicable
- Access rights for project implementation and exploitation
- Obligations related to dissemination and open access

Together, these instruments ensure a balanced approach between protecting partners' intellectual assets and enabling effective collaboration and impact generation.

7.4 Ownership of Results

In accordance with the CA, results generated within ENFORCE are **owned by the partner that produces them**. Where results are jointly generated and contributions cannot be clearly separated, joint ownership applies.

Joint owners are entitled to use jointly owned results for **non-commercial research** and teaching purposes on a royalty-free basis. They may also exploit such results and grant non-exclusive licences to third parties, subject to prior notification and fair compensation arrangements between the co-owners.

Ownership rights may be transferred to third parties, provided that the rights and legitimate interests of other partners are safeguarded.

7.5 Access Rights and Background IPR

Partners retain ownership of their pre-existing intellectual property ("background"), which is formally identified in the CA. Access rights to background and project results are granted only when necessary for project implementation or for the exploitation of results.
Access rights needed for project implementation are granted on a royalty-free basis. Access rights required for exploitation purposes are provided under fair and reasonable conditions, ensuring both collaboration and protection of partners' interests.

All access rights are non-exclusive and limited to the purposes for which they are granted.

7.6 Protection and Licensing Matrix

Given the digital and collaborative nature of ENFORCE, data and software represent the most relevant intellectual property assets.

The consortium promotes a balanced approach combining open science principles, responsible data sharing, and protection of sensitive or commercially relevant information. Software components developed within the project may be shared under appropriate licensing models,

including open-source frameworks, where this supports collaboration, transparency, and reuse while remaining compatible with exploitation objectives.

Confidential information exchanged within the project is protected under strict non-disclosure obligations, which remain in force beyond the project duration.

The following table provides a structured overview of potential protection and licensing mechanisms associated with each KER.

Table 10 KER x Licensing

Key Exploitable Result (KER)	Open-source (permissive)	Open-source (copyleft)	Creative Commons (CC)	Public domain dedication	Proprietary / commercial license (EULA/SaaS)	Patent license	Trademark license	Data license / data sharing agreement	Know-how / trade secret (NDA)
KER#1 Co-creation Methodology for Future Uptake	N/A	N/A	Applicable	Possible	Possible	N/A	Possible	N/A	Possible
KER#2 Data Certification Pathway	N/A	N/A	Applicable	Possible	Possible	Unlikely	Possible	Possible	Possible
KER#3 Data Space Compliance Tools	Possible	Possible	Possible	Unlikely	Possible	Possible	Possible	Applicable	Possible
KER #4 ENFORCE Plaza	Possible	Possible	Possible	Unlikely	Possible	Unlikely	Possible	Applicable	Possible
KER#5 Pilot Demonstrators	Possible	Possible	Possible	Unlikely	Possible	Unlikely	Unlikely	Applicable	Possible
KER#5 User Uptake, Capacity Building, and Policy Recommendations	N/A	N/A	Applicable	Possible	Possible	N/A	Possible	N/A	Possible

The KER × IPR/licensing mechanisms table should be read as a methodological "decision support matrix" rather than a fixed legal classification: it maps each KER to plausible protection and licensing options at the current point in time, enabling consistent discussion across partners and WPs. As results mature, are validated in case studies, and move closer to uptake, the preferred protection route may change (e.g., from open publication to licensed software release, or from know-how to formal IP registration) and the table will be updated accordingly.

As ENFORCE progresses, the IPR strategy will be further refined in the upcoming reporting cycles (M36 and M48), consolidating ownership clarifications and licensing decisions in line with KER maturity and stakeholder validation.

In the interim, partners will continue updating the KER inventory, confirming joint ownership where required, and aligning protection and licensing choices with evolving technical maturity and long-term sustainability objectives.

8 Conclusions and Next Steps

This deliverable presented the progress achieved in refining the ENFORCE exploitation strategy after 18 months of project implementation, consolidating the KERs, partner exploitation perspectives, and alignment with evolving market and stakeholder conditions.

Advancing exploitation pathways.
In the upcoming period, exploitation efforts will focus on analysing in greater detail the exploitation options of all KERs, in line with their technical and operational advancements. Particular attention will be given to defining concrete uptake routes, identifying potential adopters, and refining sustainability approaches.

Organising co-creation exploitation workshops.
Four additional co-creation exploitation workshops will be organised. Two internal workshops will support partners in jointly discussing and agreeing on consolidated exploitation plans for all KERs, while two external workshops will engage stakeholders to validate exploitation pathways and test potential business models and adoption conditions.

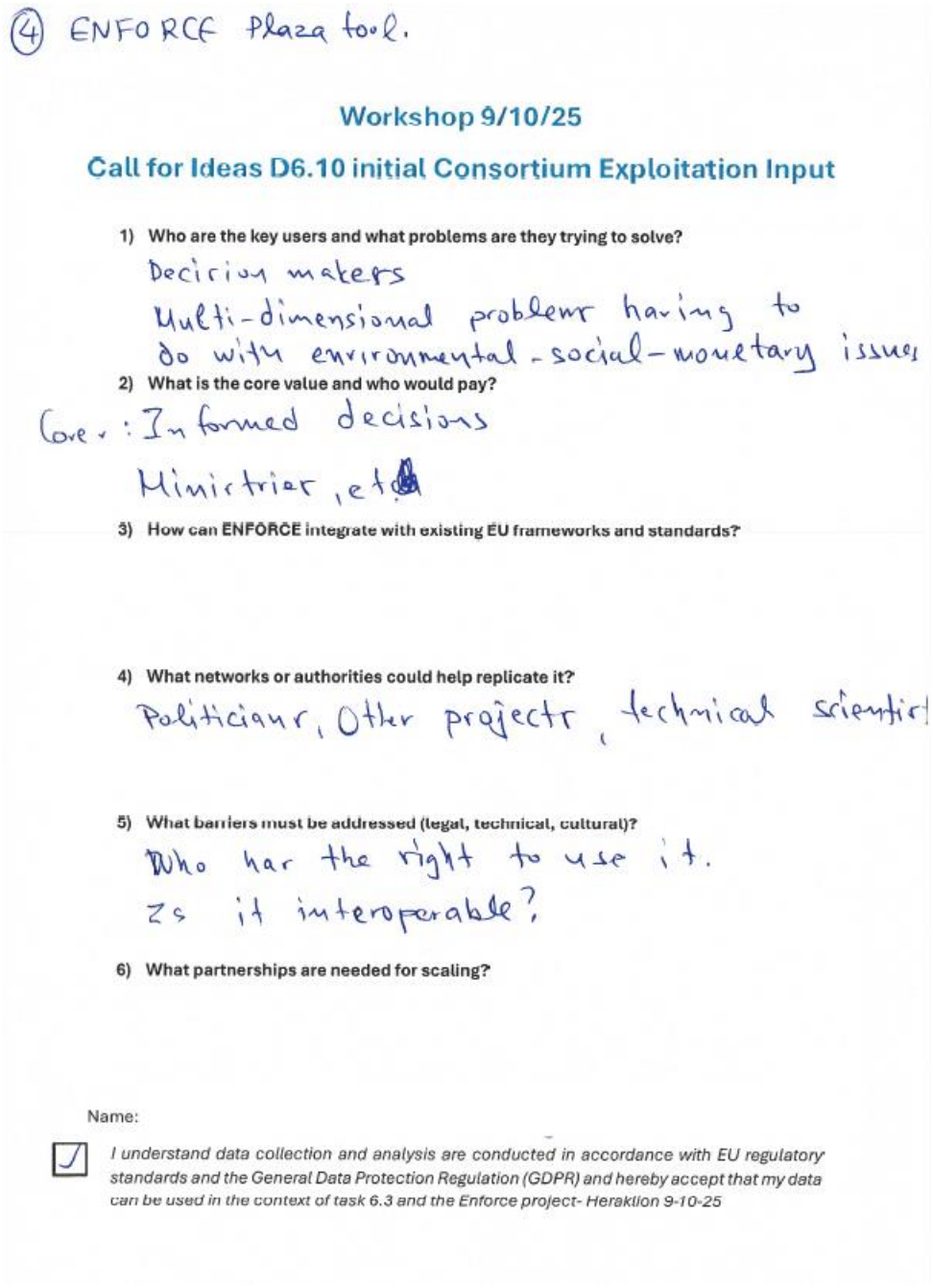
Keeping individual exploitation plans up to date.
Individual partner exploitation plans will continue to be regularly updated to reflect the evolving maturity of project results, changing organisational priorities, and new opportunities for uptake and collaboration.

Continuing market research activities.
Market research will continue to be updated throughout the project to ensure that exploitation planning remains aligned with regulatory developments, emerging market trends, and stakeholder needs.

Strengthening exploitation readiness.
The consortium will explore the possibility of applying to the Horizon Europe Booster programme in order to benefit from specialised coaching and advisory support aimed at enhancing exploitation capacity and market readiness.

Focusing on long-term uptake and impact.
The next phase of the project will prioritise the refinement of exploitation plans, stakeholder validation, and the positioning of ENFORCE results for sustainable uptake, replication, and long-term impact beyond the project lifetime.

Annex :



④ ENFORCE Plaza tool.

Workshop 9/10/25

Call for Ideas D6.10 initial Consortium Exploitation Input

1) **Who are the key users and what problems are they trying to solve?**
Decision makers
Multi-dimensional problems having to do with environmental - social - monetary issues

2) **What is the core value and who would pay?**
Core : Informed decisions
Ministries, etc

3) **How can ENFORCE integrate with existing EU frameworks and standards?**

4) **What networks or authorities could help replicate it?**
Politicians, Other projects, technical scientist

5) **What barriers must be addressed (legal, technical, cultural)?**
Who has the right to use it.
Is it interoperable?

6) **What partnerships are needed for scaling?**

Name:

☑ *I understand data collection and analysis are conducted in accordance with EU regulatory standards and the General Data Protection Regulation (GDPR) and hereby accept that my data can be used in the context of task 6.3 and the Enforce project- Heraklion 9-10-25*

Enforce

Empowering Citizens for Environmental Action

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Confederaziun svizra

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