



Optimisation of digital catch monitoring and reporting in European Fisheries

D6.2: First Business Models and Go-To-Market Strategy

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12	JUSTERVESENET	JV	NO
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Executive Summary

The OptiFish project develops innovative digital and technological solutions to support sustainable fisheries management. Among its outputs, several results have clear commercial potential. Deliverable 6.2, *First Business Models and Go-To-Market Strategy*, marks the first structured step in exploring how these results can be transformed into viable business opportunities.

This deliverable focuses **exclusively on commercial Key Exploitable Results (KERs)**. While other project outcomes (scientific, policy-related, educational) are critical to OptiFish's impact, they fall outside the scope of D6.2 and will be addressed through different tasks and deliverables linked to exploitation and sustainability.

D6.2 provides a **methodological framework** and the first set of **preliminary business models**, laying the foundation for more detailed and validated business and commercialisation plans in subsequent deliverables (D6.6, D6.7). At this stage of implementation (M19), technologies are still under development, and pilot validation is ongoing. Therefore, this deliverable represents an **early mapping exercise**, designed to:

- Examine each commercial KER based on defined ownership and partner contributions.
- Introduce business model concepts and establish a common methodology for their development.
- Provide initial market and ecosystem analyses to frame potential opportunities.
- Present preliminary business models as first hypotheses, to be validated and refined in later project stages.

The approach taken in D6.2 is aligned with best practices for innovation exploitation and follows a structured 10-step process. Steps covered here include **defining project scope and innovations (Step 1)**, **introducing business model tools (Step 2)**, **framing preliminary business models based on initial market insights (Steps 3–4)**, and identifying early adoption pathways. Later steps—validation workshops, refined analyses, and integration of sustainability and scalability—will be developed in Deliverables **D6.6 (M34)** and **D6.7 (M44)**.

By structuring the work in this way, OptiFish ensures that commercial KERs are systematically prepared for exploitation, with business models that are evidence-based, scalable, and sustainable.

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List of Abbreviations

AI	Artificial Intelligence	ICES	International Council for the Exploration of the Sea
ARS	Authorities Reporting System	IUU	Illegal, Unreported, and Unregulated
BMs	Business Models	KER	Key Exploitable Result
BMC	Business Model Canvas	LSC	Lean Startup Canvas
BMT	Business Model Tools	MAA	Multi-Actor Approach
CFP	Common Fisheries Policy	POs	Producer Organisations
DG MARE	Directorate-General for Maritime Affairs and Fisheries	RP	Reporting Period

DSS	Decision-Support System	SBMC	Sustainable Business Model Canvas
EC	European Commission	SC	Scientific Committee
ECA	EU Commission Audit	SDBM/R	Service-Dominant Business Model Radar
EFCA	EU Fisheries Control Agency	SWOT	Strengths, Weaknesses, Opportunities, Threats
EM	Electronic Monitoring	TLBMC	Triple Layered Business Model Canvas
EMS	Electronic Monitoring System	UVP	Unique Value Proposition
EU	European Union	VPC	Value Proposition Canvas
GTM	Go-To-Market		

Glossary

Business Model (BM)	A framework that describes how an organisation or innovation creates, delivers, and captures value. In the context of OptiFish, business models define how commercial Key Exploitable Results (KERs) could be sustained and monetised after the project.
Business Model Canvas (BMC)	A strategic tool that visually maps the nine core elements of a BM: value proposition, customer segments, customer relationships, channels, revenue streams, cost structure, key resources, key activities, and key partnerships. Used to develop and test preliminary BMs for OptiFish KERs.
Key Exploitable Result (KER)	Any significant output (knowledge, technology, tool, service, or methodology) that has the potential for uptake and impact beyond the project. KERs can be commercial (market-oriented) or non-commercial (scientific, educational, societal, or policy-related).
Unique Value Proposition (UVP)	A clear statement that explains what makes a product, service, or result unique and valuable to its target audience. For OptiFish, each KER's UVP is designed to be concise, accessible, and tailored to technical and non-technical stakeholders.
SWOT Analysis	A strategic planning tool used to assess Strengths, Weaknesses, Opportunities, and Threats associated with a BM, innovation, or organisation. Within OptiFish, SWOT analysis helps evaluate the market readiness and risks related to commercial KERs.
TAM / SAM / SOM	<p>Total Addressable Market (TAM): The total demand for a product or service, assuming 100% market share.</p> <p>Serviceable Available Market (SAM): The portion of TAM targeted based on product features, geography, or regulatory fit.</p> <p>Serviceable Obtainable Market (SOM): The realistic market share that can be captured within SAM.</p>

Go-to-Market (GTM) Strategy	A roadmap describing how a product or innovation will be introduced to its target market. It includes the approach to customer acquisition, distribution, partnerships, and revenue generation.
Governance Model	A structure that defines decision-making, responsibilities, and rules for managing a joint exploitable result or collaborative business opportunity. Relevant in cases where KERs involve multiple partners.
PESTELE Analysis	A framework used to analyse external factors influencing a business environment: Political, Economic, Social, Technological, Environmental, Legal, and Ethical. Applied to assess risks and opportunities for commercial KERs.
Porter's Five Forces	A method to evaluate the competitive environment of a market, focusing on competitive rivalry, threat of new entrants, bargaining power of suppliers, bargaining power of customers, and threat of substitute products.

1 Introduction to the OptiFish project and its pilots

1.1 OptiFish Summary

OptiFish is a Horizon Europe project that aims to transform fisheries management through the integration of advanced digital technologies, including Artificial Intelligence (AI), multi-sensor monitoring systems, electronic reporting tools, and DNA-based species identification. By combining these innovations, OptiFish seeks to improve the accuracy of catch registration, species recognition, and data sharing, ultimately contributing to sustainable fisheries, compliance with EU control regulations, and fair market practices.

The project adopts a **Multi-Actor Approach (MAA)**, engaging fishers, regulators, technology providers, and researchers in co-creation processes to ensure that the solutions are **practical, user-friendly, and widely adopted**. OptiFish also establishes a structured pathway for **capacity building**, notably through the **OptiFish Academy**, and supports long-term impact through the development of **BMs for commercial Key Exploitable Results**, alongside broader exploitation strategies and policy contributions for non-commercial outcomes.

1.2 OptiFish Consortium

The OptiFish consortium brings together a multidisciplinary group of 18 partners from across Europe, representing research institutions, universities, technology developers, fisheries organisations, and policy advisory bodies. This diversity ensures that the project combines technical innovation with deep sectoral expertise and has the capacity to deliver both scientific excellence and practical industry solutions.

Key roles within the consortium include:

- **Research and development leaders** – advancing AI, DNA, and sensor technologies.
- **Fisheries and industry actors** – ensuring solutions meet real-world needs onboard vessels and at landing sites.
- **Policy and legal experts** – aligning innovations with EU fisheries regulations.
- **Dissemination, exploitation, and communication leaders** – ensuring results reach all stakeholders and generate lasting impact.

This structure enables OptiFish to act as a **bridge between research, technology, policy, and practice**. By pursuing these goals and increasing the wide adoption of project outcomes, OptiFish aspires to reinvigorate the sector and generate sustainable Business Models for all involved stakeholder groups.

1.3 OptiFish Pilots

Central to OptiFish is the testing and validation of its solutions in **five real-world pilots**, representing different **catch handling facilities and operational contexts** within European fisheries. These pilots ensure that technologies are developed and evaluated in **diverse conditions**, from pelagic to demersal fisheries, and across small- and large-scale operations.

1.3.1 Pilot 1 - Catch handling facilities: Pumping

This pilot focuses on fisheries where **catch is pumped onboard from the net**. OptiFish technologies are tested to automatically **identify species, estimate biomass, and record catch composition** during the pumping process. The pilot examines how sensors and cameras can provide **real-time data** at the earliest stage of catch handling, ensuring **compliance with control requirements** while reducing the burden on fishers.

1.3.2 Pilot 2 - Catch handling facilities: Sorting band

In this pilot, OptiFish solutions are deployed along **sorting conveyor belts**, where fish are separated into species or size categories. The pilot tests **AI-based image recognition systems, multi-sensor devices, and automated data collection** in environments with **high processing speeds**. The goal is to integrate monitoring into existing workflows without disrupting efficiency, while generating **robust datasets for reporting and traceability**.

1.3.3 Pilot 3 - Catch handling facilities: Sorting table

This pilot is conducted in fisheries where fish are sorted manually on tables. OptiFish technologies provide **supportive digital monitoring tools** that can complement human sorting efforts. The pilot evaluates **portable AI-enabled devices, DNA verification, and user-friendly interfaces**, making these solutions accessible to **small-scale fisheries** and contexts where **space and resources are limited**.

1.3.4 Pilot 4 - Catch handling facilities: Sorting deck

Pilot 4 addresses fisheries where sorting occurs directly on deck. The focus is on developing **ruggedised monitoring systems** capable of withstanding **harsh marine conditions** such as water exposure, vibrations, and variable lighting. The pilot validates the **durability and adaptability of OptiFish solutions**, ensuring that monitoring technologies can function reliably across **challenging operational environments**.

1.3.5 Pilot 5 - Catch handling facilities: Direct sorting

The fifth pilot tests **direct sorting technologies**, such as **robotic and automated sorting mechanisms** that classify fish species and sizes immediately upon landing onboard. This is one of the most **innovative and future-oriented pilots**, aiming to demonstrate how **automation, robotics, and AI integration** can revolutionise fisheries monitoring and reduce manual workload, while enhancing **accuracy and transparency** in catch data.

1.4 OptiFish Exploitation Strategy

The OptiFish Exploitation Strategy provides the overarching framework for transforming the project's findings into tangible benefits. It encompasses both commercial and non-commercial results, ensuring that technologies, knowledge, and methodologies developed during the project can achieve sustainable uptake and long-term impact. Rather than being confined to post-project activities, exploitation is considered an integral part of OptiFish's implementation, guiding how results are identified, validated, and positioned for maximum impact.

Within this framework, KERs are the focal point of exploitation activities. Each KER follows a tailored pathway based on its nature and intended users—for example, commercial uptake by industry actors and fishers, or non-commercial uptake by authorities, policymakers, and academia. A central element in this process is the articulation of each KER's Unique Value Proposition (UVP), ensuring clarity and accessibility of its added value to diverse stakeholder groups.

As illustrated in **Figure 1**, the exploitation-related deliverables in WP6 are interconnected and built upon one another. D6.2, in particular, provides the foundation for business-oriented exploitation by outlining preliminary BMs for commercial KERs. These models represent an early methodological step, positioning each result within potential markets and laying the groundwork for more refined strategies that will follow in subsequent deliverables (e.g., D6.6 and D6.7).

The project's sustainability plan is structured around several overarching objectives, including:

- Establishing a coherent framework for exploitation planning across WP6 activities;
- Supporting IPR management as a basis for clarifying ownership and enabling BM development;
- Conducting targeted market analysis to inform positioning of commercial KERs;
- Exploring potential funding pathways to enhance long-term viability;
- Progressively refining BMs into actionable exploitation strategies.

Taken together, these objectives demonstrate OptiFish's holistic approach to sustainability. BMs, as developed in this deliverable, play a central role in connecting technical results with market opportunities. They provide a first structured step in defining how project innovations may translate into real-world adoption, while leaving flexibility for future refinement as results mature.

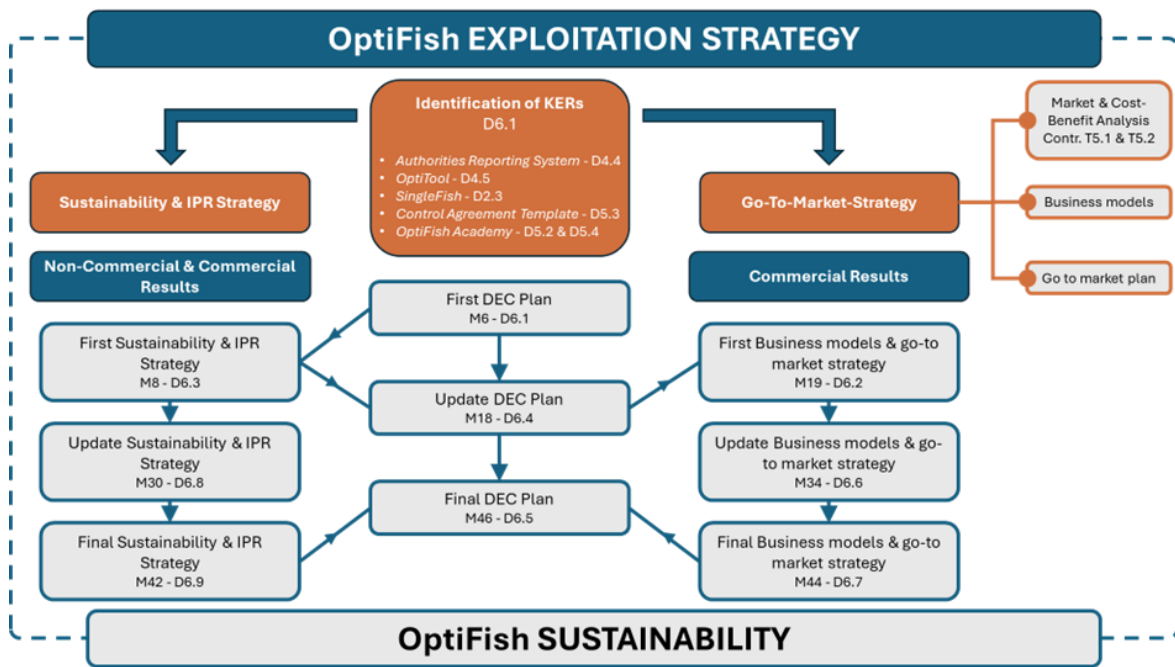


Figure 1. Schematic representation of OptiFish Exploitation Strategy, illustrating the links and dependencies between deliverables.

1.4.1 Deliverables Planning

Aspiring to timely prepare and submit exploitation-related deliverables within WP6, a definition of the work and progress required at each stage throughout the project is mandatory, along with the indicative timeline of the exploitation and sustainability activities. RFF is responsible for the execution of the activities with the support of all the other project beneficiaries within T6.4, which began at the beginning of the project (M1) and will conclude at the end of the project in **M48**.

An overview of WP6 deliverables is presented in the table below.

Table 1. Overview of WP6 Deliverables.

Del. No.	Deliverable Name	Lead	Due Month
D6.1	Initial Dissemination, Communication, and Exploitation (DEC) Plan	RFF	6
D6.2	First Business Models and Go-To-Market Strategy	RFF	19
D6.3	First Sustainability Plan and IPR Management Strategy	RFF	8
D6.4	Update Dissemination, Communication, and Exploitation (DEC) Plan	RFF	18

D6.5	Final Dissemination, Communication, and Exploitation (DEC) Plan	RFF	46
D6.6	Updated Business Models and Go-To-Market Strategy	RFF	34
D6.7	Final Business Models and Go-To-Market Strategy	RFF	44
D6.8	Second Sustainability Plan and IPR Management Strategy	RFF	30
D6.9	Final Sustainability Plan and IPR Management Strategy	RFF	42

D6.1, D6.4, and D6.5 are the main references for communication activities, with guidelines for partners to disseminate and exploit results. They also include an action plan for the planned liaisons with complementary initiatives.

The deliverables D6.2, D6.6, and D6.7 concern market opportunities and ways to capitalise on the exploitable results of the project.

Finally, D6.3, D6.8, and D6.9 provide the core framework for sustainability and IPR management in OptiFish, covering both commercial and non-commercial results, and outlining planned and implemented exploitation activities.

Progress Regarding the Exploitation Strategy and BMs as of M19

As of Month 19 (M19), significant progress has been made in structuring the OptiFish exploitation strategy and preparing the groundwork for BM development. The main achievements are:

- **Structured KER Identification Procedure:** A consortium-wide process was launched to capture exploitable results (Figure 3). All partners completed dedicated KER forms (Figure 4) describing scope, target audience, and intended use. These are periodically updated in accordance with the KER analysis scheme (Figure 2). This portfolio provides the foundation for both exploitation pathways (non-commercial KERs) and BM development (commercial KERs).
- **Initial KERs Identified:** Results span domains such as AI-based onboard monitoring, multi-sensor platforms, real-time analytics, and innovative BMs. The living KER Catalogue (Figure 4) serves as a working reference throughout the project, allowing adjustments and the addition of new KERs.
- **Linking KERs to BMs:** Relevant KERs with **commercial potential** have been connected to the BM development process under WP6. This marks the **transition from identification to framing BMs (Step 4)**. D6.2 provides the first structured presentation of preliminary BMs, with refinements foreseen in D6.6 and D6.7.
- **IPR Foundations:** An initial IPR management strategy was delivered in D6.3 (M8) and will be elaborated in D6.8 (M30) and D6.9 (M42). These measures provide the legal and ownership clarity necessary for defining viable BMs and ensuring post-project continuity.

- Capacity-Building Through Workshops:** The 1st Internal IPR Workshop (M17, RFF) introduced partners to ownership management and licensing strategies, equipping them with knowledge to align KERs with potential BMs. Future workshops will move beyond awareness and serve as validation checkpoints (Steps 5–7), testing BM hypotheses and refining assumptions with partners and stakeholders.
- Reverse Identification Methodology:** Partners propose KERs, which are then reviewed by WP6 and the Steering Committee before entry into the official portfolio (Figure 4). This structured filtering supports prioritisation of those KERs that require a BM approach.
- Next Phases:** Building on Steps 1–4 (vision, BMT introduction, initial market analysis, preliminary BMs), the project will move toward Steps 5–8: validating updated market insights, refining BMCs, and embedding scalability and sustainability into the models. The final iterations (Steps 9–10) will consolidate lessons learned and deliver robust business and governance models in later exploitation deliverables.

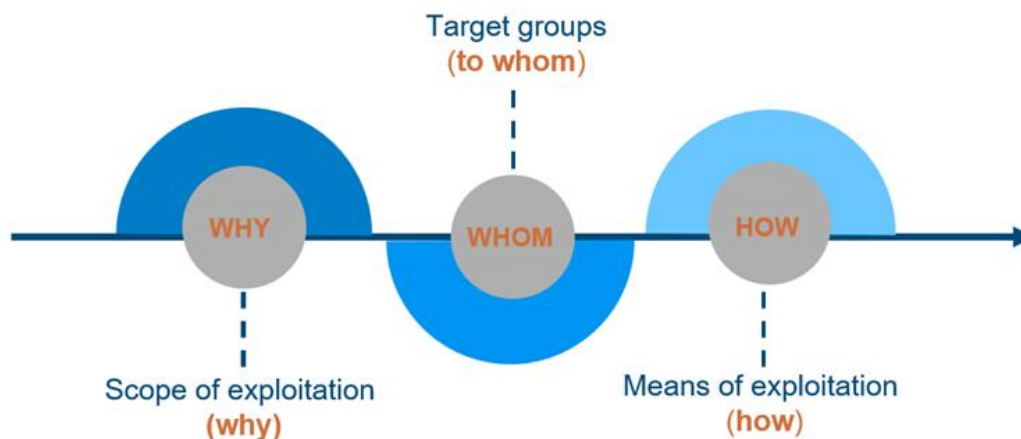


Figure 2. KER Analysis.

Inclusion of newly identified KER's

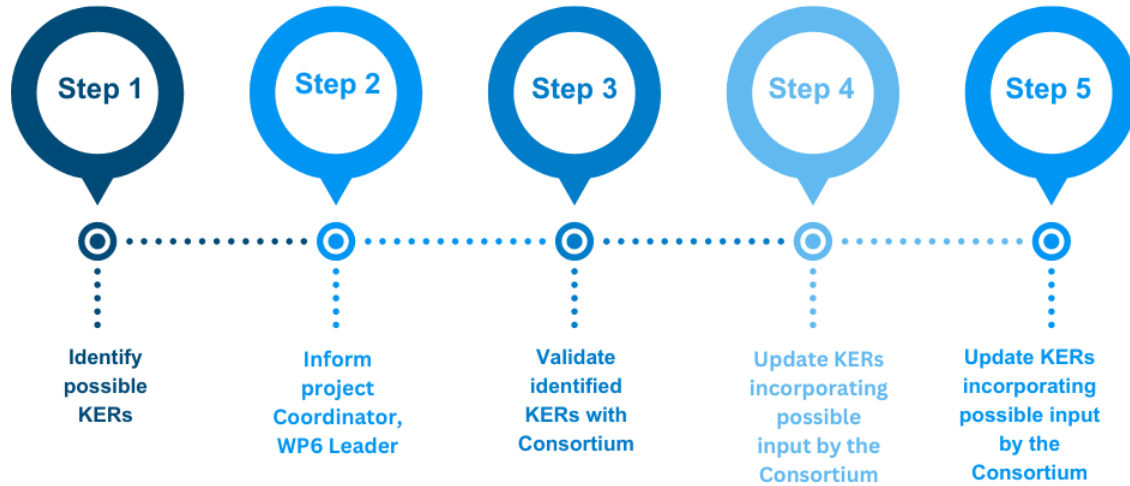


Figure 3. OptiFish Procedure for Identifying KERs.

KEY EXPLOITABLE RESULTS (KERs)		SCOPE OF EXPLOITATION						TARGET GROUPS	EXPLOITATION MEANS
KER No	Please add any other exploitable results	Scientific	Commercial	Policy making	Training and Education	other (please specify)	No commercial	For additional KERs please see note for the list of target groups	
1	Authorities Reporting System	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Control agencies and performance policy makers; fishers and fishing companies	Project results may provide policy-makers and regulators with evidence-based information that can be useful in the process of forming new policies or changing existing ones. Results and new knowledge emerging from the projects can serve decision-makers while forming strategies in various fields such as health, environment, security and industry.
2	OptiTool	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fishers and fishing companies	Scientific outputs such as models, methods, prototypes, and any available data generated throughout the course of the project can be utilized by the scientific community for future research. For example, data collected for the purpose of studying soil health can be used by the scientific community to further expand research. Some of the results can be used to develop education and training programs for professionals and/or the general public. They can provide skills and knowledge, and bring about societal transformation. For example, project can develop training for farmers, researchers etc.
3	SingleFish	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fishers and fishing companies	
4	Control Agreement Template	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Control agencies and policy makers	Project results may provide policy-makers and regulators with evidence-based information that can be useful in the process of forming new policies or changing existing ones. Results and new knowledge emerging from the projects can serve decision-makers while forming strategies in various fields such as health, environment, security and industry.
5	OptiFish Academy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fishers and fishing companies, Control agencies and policy makers	Some of the results can be used to develop education and training programs for professionals and/or the general public. They can provide skills and knowledge, and bring about societal transformation. For example, project can develop training for farmers, researchers etc.

Figure 4. OptiFish template for identifying new KERs and IPR.

1.5 Identification and description of early-identified KERs

Each exploitable result requires a tailored exploitation approach, depending on whether it is intended for commercialisation or has a primarily non-commercial impact (e.g., scientific, educational, or policy-

related). During the project preparation phase, the main KERs of OptiFish were identified by the consortium.

As of M19, OptiFish has defined five (5) KERs (presented in arithmetic order in Tables 2–6) together with their corresponding Unique Value Propositions (UVPs), which will be available for use and re-use by partners and target stakeholders.

Given that Deliverable 6.2 is dedicated to BMs, the primary emphasis here is placed on the commercial KERs: **KER3 – SingleFish**, **KER5 – OptiFish Academy** (hybrid: commercial and non-commercial). Non-commercial exploitation pathways are briefly presented here for clarity but remain part of the **broader exploitation strategy addressed in other WP6 activities and deliverables -namely those linked to D6.3 (M8), D6.8 (M30), and D6.9 (42).**

Table 2. Authorities Reporting System KER.

KER 1: Authorities Reporting System	
Partners contributing to its development	EFICE, SCiO, AZTI, WR, ZUN
Exploitation goals of the KER	Fishers: Utilise a more accurate system that requires less manual input and effort to meet catch reporting requirements Control: Use a more comprehensive system with more information, fewer errors to enhance monitoring.
UVP	A single integrated, harmonised system that goes beyond traditional reporting systems by including catch composition data, Copernicus, and other external data while minimising error and false positives.
Target Groups	Control agencies and performance policymakers Fishers and fishing companies
Scope of exploitation	Non-commercial

Table 3. OptiTool KER.

KER 2: OptiTool	
Partners contributing to its development	EV ILVO, EFICE, DFPO
Exploitation goals of the KER	Utilise data to improve operations (catch monitoring, fuel consumption, correct coupling of hauls and locations, meeting quotas, Copernicus data)

UVP	A single comprehensive decision support tool that fully integrates EM data on catches, fuel consumption, quota consumption, sensors, with existing data streams and support tools.
Target Groups	Fishers and fishing companies
Scope of exploitation	Non-commercial

Table 4. SingleFish KER.

KER 3: SingleFish	
Partners contributing to its development	VCU, DTU, DFPO, WR
Exploitation goals of the KER	Utilise a robotic system that improves the efficiency and accuracy of catch sorting onboard their vessels.
UVP	Single fish minimises occlusion of catch entering the EM camera's field of view, to provide more accurate and autonomous catch monitoring.
Target Groups	Fishers and fishing companies
Scope of exploitation	Commercial

Table 5. Control Agreement Template KER.

KER 3: SingleFish	
Partners contributing to its development	NDF, DTU, SO, EV ILVO, UC, DFPO, DPPO, JV
Exploitation goals of the KER	Utilise a template based upon an extensive investigation of the main areas of interest for future agreements on AI-based catch monitoring (incl. performance standards and testing methods, AI ethics, interoperability with existing measurements) to reduce consultation times for future agreements.
UVP	Template based on expert consultation and based on tested and validated technologies.
Target Groups	Control agencies and policymakers
Scope of exploitation	Non-Commercial

Table 6. OptiFish Academy KER.

KER 5: OptiFish Academy	
Partners contributing to its development	RFF, EFICE, VCU, BENCO, WR, UC, AZTI, DTU
Exploitation goals of the KER	Fishers: Access data sharing agreements and protocols for safe data sharing, technology manuals, and training on technologies; cost-benefit analyses and other results demonstrating the economic benefits of adoption Control: Access information and training protocols for implementation technologies and evidence for their viability from a policy perspective.
UVP	A multi-channel program, tailored to end-user practicalities and learning styles, covering all aspects of the OptiFish technologies that could influence their decision to adopt them.
Target Groups	Control agencies and policymakers Fishers and fishing companies
Scope of exploitation	Non-commercial and Commercial

Next Steps

Looking ahead, the next phase of work will focus on advancing the business modelling process for OptiFish’s commercial KERs. Key steps include:

- **Refinement of preliminary** BMs developed in D6.2, incorporating updated market and ecosystem data as well as feedback from pilots and early stakeholder discussions.
- **Testing and validation of BM assumptions** through targeted workshops and partner co-creation sessions, ensuring alignment with real operational contexts and market needs.
- **Integration of ownership and IPR** into BMs, responsibilities, and risk-sharing among partners.
- **Development of first Go-to-Market strategies** for each commercial KER, defining customer segments, distribution channels, and revenue streams.
- **Linking BMs with scalability and sustainability dimensions**, ensuring that each KER can grow beyond the project while maintaining financial viability and alignment with environmental and societal objectives.
- **Preparation for the next deliverables**—Updated Business Models and Go-to-Market Strategy (D6.6, M34) and Final Business Models and Strategy (D6.7, M44)—which will consolidate lessons learned and establish robust pathways for market entry and long-term sustainability.

This evolving business modelling process ensures that the commercial potential of OptiFish results is fully explored and maximised—translating innovative technologies into viable market offerings. The approach is structured, iterative, and evidence-driven, enabling each commercial KER to progress from concept to a realistic business pathway and, ultimately, to market entry. In doing so, it supports both the digital transformation of fisheries and the long-term sustainability of the sector.

2 Introduction to Business Models

Business models are essential tools for transforming innovative project outcomes into viable economic opportunities. Rather than lengthy business plans, modern approaches rely on **Business Model Tools (BMTs)**, such as the **Business Model Canvas**, which provide a simplified and visual overview of how an innovation creates, delivers, and captures value. Their visual nature makes them accessible, easy to update, and suitable for engaging both technical and non-technical audiences.

For OptiFish, the role of business models is central to assessing the **commercial KERs** identified so far. This deliverable (D6.2) therefore establishes a **methodological framework** and presents **preliminary business models** for relevant KERs. This allows us to explore early assumptions, test their plausibility, and create a structured basis for refinement in later deliverables (D6.6 and D6.7).

2.1.1 Definition and Importance of Business Models

In the context of OptiFish, a **Business Model** can be broadly defined as:

- An architecture describing how a product or service creates value for its users,
- A mapping of the key stakeholders and their roles within the ecosystem,
- A description of potential benefits and incentives for each actor, and
- An outline of the associated cost and revenue structures.

Business models are particularly valuable because they **deconstruct the value chain** of an innovation into its core elements (e.g., customer needs, technological enablers, cost drivers) and then **reconstruct** them into a coherent strategy for commercial uptake. This process is iterative and supports both exploration and validation of potential exploitation pathways.

In OptiFish, this approach is applied to commercial KERs such as **SingleFish** and the **OptiFish Academy (commercial strand)**, where new technologies and services are being developed for market adoption. By contrast, non-commercial KERs (e.g., reporting systems or control agreement templates) follow different exploitation pathways, but are not the focus of this deliverable.

Another important concept is that of **interaction patterns** - the flows of information, services, and revenues between stakeholders. These flows reveal not only how value is created but also where additional opportunities may emerge (e.g., through service bundling or economies of scale).

Ultimately, business models help to answer the central question: *How can OptiFish innovations create and capture value in a sustainable and scalable way?*

2.1.2 Application to OptiFish

For OptiFish, the development of business models follows a structured pathway:

1. **Selection of appropriate BMTs** – OptiFish adopts a simplified and flexible approach, primarily using the BMC, adapted where necessary to fit fisheries-specific contexts.
2. **Initial exploration of value propositions** – Early identification of the UVPs for each commercial KER.
3. **Iterative refinement** – Preliminary business models presented here will evolve as pilot outcomes, market insights, and stakeholder feedback become available.
4. **Preparation for exploitation** – Final business models will serve as the foundation for commercial strategies, go-to-market planning, and long-term sustainability efforts in later deliverables.

In short, the OptiFish business model work in D6.2 provides the **first structured step** in translating innovations into market-ready opportunities, with a clear focus on commercial KERs and their potential adoption pathways.

2.1.3 Business Model Tools

Business Model Tools (BMTs) are practical methods, frameworks, or templates designed to **communicate, analyse, and refine business model ideas**. They provide a shared language for stakeholders who may come from very different backgrounds—such as fishers, regulators, technology providers, and researchers - helping them to understand how innovations can generate value.

In research, BMTs are often described as **boundary objects**³: flexible enough to adapt to the needs of different stakeholders but structured enough to maintain a common identity across contexts. This flexibility is particularly important in OptiFish, where the project brings together actors with different priorities - some focused on technical implementation, others on economic benefits, and others on policy or sustainability.

Among the wide variety of BMTs, there is an important distinction:

- **Comprehensive tools**, which cover the full scope of a business model. The most widely used example is the **Business Model Canvas**⁴, which integrates nine building blocks: value proposition,

³ Bouwman, H., Heikkilä, J., Heikkilä, M., Leopold, C., & Haaker, T. (2017a, February 18). *Achieving agility using business model stress testing - electronic markets*. SpringerLink. <https://link.springer.com/article/10.1007/s12525-016-0243-0>

⁴ Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*.

partner networks, customer segments, customer relationships, channels, key resources, activities, revenue streams, and cost structure.

- **Specialised tools**, which address specific aspects of a business model. For instance, the **Value Proposition Canvas** focuses narrowly on aligning products and services with customer needs.

For OptiFish, the **Business Model Canvas** has been selected as the primary tool, because it offers a **clear and holistic structure** for exploring how each commercial KER (such as **SingleFish** and the commercial strand of the **OptiFish Academy**) can create, deliver, and capture value. Its visual nature makes it particularly suitable for iterative testing and communication with stakeholders from diverse backgrounds.

The key strength of BMTs lies in their ability to **integrate multiple perspectives**—from technical requirements and investment costs to user benefits and sustainability considerations—into a **single coherent framework**. For example, while a technology provider may be interested in scalability and cost structures, a fisher may be more focused on usability and compliance benefits. The BMT provides a format where both perspectives can be accommodated without losing coherence.

In OptiFish, the role of BTs is therefore twofold:

1. **Exploration** – framing initial hypotheses on value propositions, cost structures, customer segments, and potential revenue streams for commercial KERs.
2. **Validation** – testing and refining these hypotheses through pilot data, stakeholder workshops, and iterative analysis.

This approach ensures that the emerging business models are not only conceptually sound but also practically aligned with the realities of fisheries markets and stakeholder needs.

Subsequent chapters will apply these tools directly to the OptiFish commercial KERs, providing preliminary business models that will be refined as the project progresses.

3 Go-to-Market Strategy

3.1 Methodological Approach

The methodological approach for D6.2 follows a structured, stepwise process for developing BMs in alignment with recognised best practices for Horizon Europe exploitation planning. The purpose of this first deliverable on BMs is to provide a **preliminary framework** for commercial KERs and to demonstrate how these models will evolve and mature during the project, transitioning from early concepts into validated, scalable, and sustainable business opportunities.

3.1.1 Step 1: Define Project Scope and Innovation Activities

The first step (RP1) has been to situate each KER within the overall scope of OptiFish, clarifying how the innovation contributes to the project's objectives. For each commercial KER, the consortium partners outlined the expected functionality, beneficiaries, and linkages to broader fisheries policy goals (e.g.,

digitalisation, traceability, compliance). This step established a shared baseline for exploitation work across the consortium.

3.1.2 Step 2: Introduce Business Model Concepts

The next step is to introduce the project team to the fundamentals of Business Models and Business Model Tools (BMTs). A clear understanding must be established that multiple tools exist — such as the Business Model Canvas (BMC), Sustainable Business Model Canvas (SBMC), Triple Layered Business Model Canvas (TLBMC), Lean Startup Canvas, Value Proposition Canvas, and others. Projects should not default to a single canvas, but rather select the most appropriate tool based on the characteristics of each innovation activity (e.g., sustainability emphasis, early-stage vs late-stage development, complexity of stakeholder interactions).

3.1.3 Step 3: Plan Initial Market and Ecosystem Analysis

A structured approach must be developed to analyse the ecosystem around each innovation. At a minimum, each innovation must be assessed using:

- **SWOT Analysis** (Strengths, Weaknesses, Opportunities, Threats)
- **PESTELE Analysis** (Political, Economic, Social, Technological, Environmental, Legal, Ethical factors)
- **TAM/SAM/SOM Estimation** (Total, Serviceable Available, and Obtainable Markets)
- **Porter's Five Forces** (industry competitiveness and market barriers)

These analyses form the critical baseline for understanding market attractiveness, strategic positioning, and the operational environment of the innovation.

3.1.4 Step 4: Frame Preliminary Business Models

Based on early ecosystem insights, first-draft BMs were framed for the commercial KERs. These preliminary models include assumptions about the unique value proposition (UVP), target users, delivery mechanisms, and potential revenue streams. Importantly, the framing exercise has been treated as **hypothesis-building** rather than final design, recognising that validation is required.

- Steps 3 and 4 are the main components of the present deliverable.
- Steps 5-10 presented below will follow in the upcoming deliverables.

3.1.5 Step 5: Validate Initial Assumptions

Before advancing to more detailed modelling, assumptions must be tested. Validation will take place through internal workshops and structured co-creation sessions, involving both consortium partners and external stakeholders where relevant. These sessions will function as checkpoints, critically challenging early assumptions, refining the definition of customer segments, and aligning BMs with environmental, social, and governance considerations.

3.1.6 Step 6: Update Market and Contextual Insights

Following validation workshops, market and contextual analyses will be updated to incorporate real-world input. This includes the use of techno-economic indicators, regulatory insights, and stakeholder feedback. Updated analyses (SWOT, TAM/SAM/SOM, Porter's Five Forces) will provide the evidence base for revising BMs.

3.1.7 Step 7: Refine and Validate Business Model Canvasses

Each BM will then be refined, adjusting or replacing building blocks as necessary. This step recognises that it may be appropriate to adopt a different BM framework for certain KERs (e.g., service-based vs. product-based). The focus will be on ensuring coherence between the UVP, delivery mechanisms, and financial logic.

3.1.8 Step 8: Integrate Scalability, Sustainability, and Post-Project Continuity

Finalised models must go beyond technical feasibility to incorporate roadmaps for scaling and sustaining results beyond the project lifetime. This includes embedding sustainability dimensions (economic viability, environmental alignment, and social acceptance) as integral features of the models.

3.1.9 Step 9: Consolidate Lessons Learned and Critical Success Factors

Throughout the iteration cycle, lessons learned, and critical success factors will be systematically captured. These will inform both the refinement of individual KER models and the overall OptiFish exploitation framework.

3.1.10 Step 10: Deliver Final Business and Governance Models

While D6.2 presents the **first iteration** of preliminary BMs, subsequent deliverables (D6.6 and D6.7) will build on the methodology outlined above. The final output will be a coherent and validated set of BMs, incorporating governance structures where necessary, and ensuring commercial KERs are ready for post-project market uptake.

3.2 Methodological Approach to Market Analysis in OptiFish

Building on the framework presented in the previous chapters, this section outlines the methodological approach that OptiFish adopts for conducting market analysis in support of its commercial KERs. Since the BMs developed in D6.2 are preliminary and will evolve during the project, the purpose here is to describe how market data will be aggregated and applied to inform subsequent iterations.

The following components illustrate the **level of depth and structured analysis** intended, ensuring that each commercial KER is grounded in a realistic understanding of its potential market context. The approach is not prescriptive, nor will all elements necessarily be applied to every KER.

Key components of the market analysis include:

- **TAM, SAM, and SOM Assessment:** Estimating the Total Addressable Market (TAM), the Serviceable Available Market (SAM), and the Serviceable Obtainable Market (SOM) for each commercial KER. This layered assessment provides a clear view of both the overall market opportunity and the realistic share that OptiFish solutions can capture, serving as a foundation for scalable business models.
- **Target User Identification:** Defining the key user groups (e.g., small-scale fishers, large-scale fleets, control agencies, industry stakeholders) is critical for tailoring each business model to specific needs. By understanding their operational challenges and adoption drivers, OptiFish can position its KERs as solutions that bring measurable benefits.
- **PESTLE Analysis:** Evaluating Political, Economic, Social, Technological, Environmental, Legal, and Ethical dimensions helps identify broader trends, barriers, and opportunities influencing the fisheries sector. This ensures that OptiFish business models are aligned with both current market realities and longer-term shifts (e.g., digitalisation, sustainability regulations).
- **SWOT and Competitive Analysis:** Analysing internal strengths and weaknesses alongside external opportunities and threats allows each KER to be positioned effectively in a competitive market. This includes mapping existing technologies, alternative solutions, and unique selling points (USPs).



- **Regulatory and Compliance Considerations:** Ensuring that proposed solutions adhere to relevant EU and international regulations (e.g., fisheries control, data protection, certification standards) is essential. Compliance not only reduces risk but also increases the credibility and market readiness of each KER.

Figure 5. Market Analysis: Methodological Approach

In conclusion, the market analysis serves as a **critical input for business model development** in D6.2 and beyond. It ensures that each preliminary BM is not only conceptually robust but also supported by evidence-based insights into its market potential, competitive landscape, and adoption environment. This approach commences in D6.2 with initial exploration and SWOT analysis and will continue to evolve in future deliverables (D6.6 and D6.7), where all components will be used and refined analyses and validated assumptions will guide the final commercialisation strategies.

3.3 OptiFish Use Cases Position in the Market

The European fisheries and aquaculture sector represents a significant market, with over **70,000 fishing vessels** and a combined production value of approximately **€11-12 billion annually**⁵. Increasingly, the sector is under pressure to improve sustainability, transparency, and efficiency while adapting to digitalisation trends promoted by the EU Common Fisheries Policy (CFP) and the EU Green Deal.

Adoption of **digital monitoring tools, multi-sensor platforms, and AI-based data analytics** in fisheries is still at an early stage, but the potential for transformation is widely recognised. The main drivers for uptake include the need for more efficient compliance reporting, enhanced traceability in seafood value chains, and cost savings from fuel optimisation and reduced bycatch.

Nevertheless, several challenges currently limit widespread exploitation. These include **fragmented regulatory frameworks** across Member States, **high upfront costs** of digital tools for small- and medium-scale fishers, and persistent **scepticism about data-sharing**. As in other primary production sectors, many operators still perceive advanced monitoring technologies as burdensome rather than enabling.

Despite these barriers, the **market outlook is highly favourable**. The EU has introduced multiple incentives for digitalisation in fisheries, including funding programmes for automation and electronic monitoring, as well as policy instruments requiring more reliable catch reporting and traceability. As technology costs decline and regulatory obligations expand, digital solutions such as those developed in OptiFish are well positioned to become mainstream offerings across Europe.

3.4 Concentration Ratio Assessment

In the context of fisheries technology and digital monitoring markets, the **Concentration Ratio (CR)** provides a useful indication of market structure and competitiveness. By measuring the share of the largest firms in the sector, the CR helps determine whether the market is dominated by a small number of actors or whether it is more fragmented and open to new entrants.

The formula for CR is:

$$CR_n = \sum_{i=1}^n S_i$$

⁵ Scientific, Technical and Economic Committee for Fisheries (STECF) - The 2024 Annual Economic Report on the EU Fishing Fleet (STECF 24-03 and 24-07), PRELLEZO, R., SABATELLA, E.C., VIRTANEN, J., TARDY MARTORELL, M. and GUILLEN, J. editor(s), Publications Office of the European Union, Luxembourg, 2024, doi:10.2760/5037826, JRC139642

Where n represents the number of leading firms and S their respective turnover shares. Typically, **CR4** (the top four firms) is used as a benchmark.

- A **high CR** signals concentrated markets with a few dominant technology or service providers. In such cases, OptiFish BMs must emphasize differentiation, intellectual property protection, and strategic alliances to secure market entry.
- A **low CR** suggests more fragmented and competitive markets, where OptiFish solutions could capture share more rapidly, though with stronger price-based competition.

The precise computation of CR for relevant OptiFish KERs will rely on detailed market data gathered in subsequent phases of the project.

3.5 Herfindahl–Hirschman Index (HHI) Application

The **Herfindahl–Hirschman Index (HHI)** complements CR by providing a more sensitive measure of market concentration. It is calculated as the sum of squared market shares of firms within an industry:

$$HHI = \sum_{i=1}^n S_i^2$$

The HHI emphasizes larger firms, making it particularly useful in understanding the relative weight of incumbents in fisheries monitoring technologies, sensor systems, or digital analytics.

- **HHI < 1500** indicates a competitive market.
- **HHI 1500–2500** suggests moderate concentration.
- **HHI > 2500** signals a highly concentrated market.

For OptiFish, applying the HHI will support the design of realistic **go-to-market strategies**, ensuring that the business models account for incumbent influence and entry barriers.

3.6 Porter’s Five Forces Framework

To fully capture competitive pressures, **Porter’s Five Forces** will be applied to OptiFish innovations. This provides a structured view of profitability and strategic positioning:

1. **Threat of New Entrants** – Assessing entry barriers in fisheries digitalisation (e.g., regulatory hurdles, capital intensity of sensor technology).
2. **Threat of Substitutes** – Evaluating alternative approaches (manual monitoring, competing digital platforms, generic AI analytics).

3. **Bargaining Power of Suppliers** – Considering dependencies on hardware providers, satellite data, or AI models.
4. **Bargaining Power of Buyers** – Reflecting the influence of fishing cooperatives, regulators, and control agencies.
5. **Industry Rivalry** – Identifying competing technology providers and policy-backed initiatives.

This analysis will help determine where OptiFish should focus business model innovation - whether through differentiation, cost leadership, or ecosystem integration.



Figure 6. Representation of Porter's Five Forces.

3.7 TAM, SAM, and SOM for OptiFish Use Cases

Market sizing is a cornerstone of the OptiFish business model approach. Using **TAM–SAM–SOM**:

- **TAM (Total Addressable Market):** The total economic opportunity for digital monitoring and sustainable fisheries solutions across the EU.
- **SAM (Serviceable Available Market):** The portion of this market realistically targetable given current regulatory frameworks, fleet structures, and technology readiness.
- **SOM (Serviceable Obtainable Market):** The market share OptiFish solutions can realistically capture in the short to medium term, factoring in competition and adoption barriers.

This structured approach ensures that each business model is grounded in realistic market projections and not just theoretical potential.

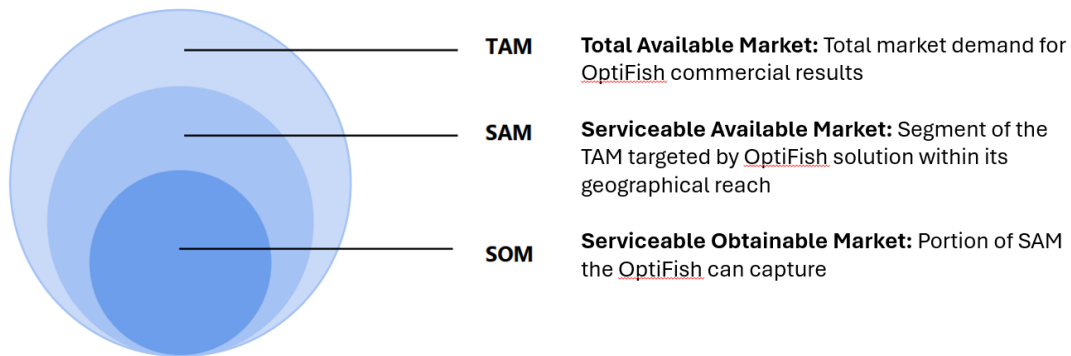


Figure 7. TAM, SAM, SOM

3.8 Market Drivers: PESTELE Analysis

The broader market environment will be analysed using the **PESTELE framework**:

- **Political:** EU fisheries policy, Common Fisheries Policy (CFP), and Blue Economy strategies.
- **Economic:** Fleet revenues, subsidy schemes, and investment capacity in coastal communities.
- **Social:** Stakeholder acceptance, fisher digital literacy, and cultural resistance to monitoring.
- **Technological:** Advances in AI, IoT sensors, and real-time data analytics.
- **Environmental:** Climate change adaptation, stock sustainability, and biodiversity commitments.
- **Legal:** Data protection, maritime regulation, and IP frameworks.
- **Ethical:** Fair use of monitoring technologies, data ownership by fishers, and transparency.

This multi-layered view ensures OptiFish business models align with real-world constraints and opportunities.

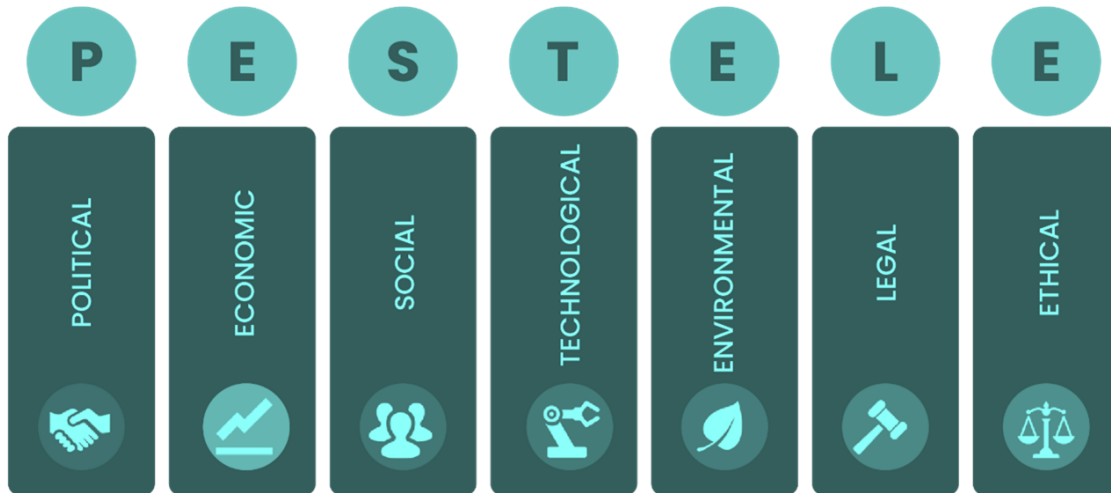


Figure 8. PESTELE Analysis.

3.9 SWOT Analysis

For each KER, a **SWOT analysis** will be conducted to highlight:

- **Strengths:** e.g., innovative AI algorithms, EU policy alignment.
- **Weaknesses:** e.g., reliance on new hardware, limited initial adoption.
- **Opportunities:** e.g., regulatory incentives for automation, growing sustainability demand.
- **Threats:** e.g., competition from established maritime tech firms, policy uncertainty.

These findings will directly inform the design of robust, adaptable business models for both **commercial and non-commercial exploitation pathways**.



Figure 9. SWOT Analysis Example.

3.10 Business Model Canvas

The **Business Model Canvas (BMC)** is one of the most widely used strategic management and entrepreneurial tools for structuring and analysing business opportunities. It enables project teams and innovators to describe, design, and refine business models in a clear, visual format⁶ (Fig. 10).

⁶ Osterwalder, A., & Pigneur, Y. (2010). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers.

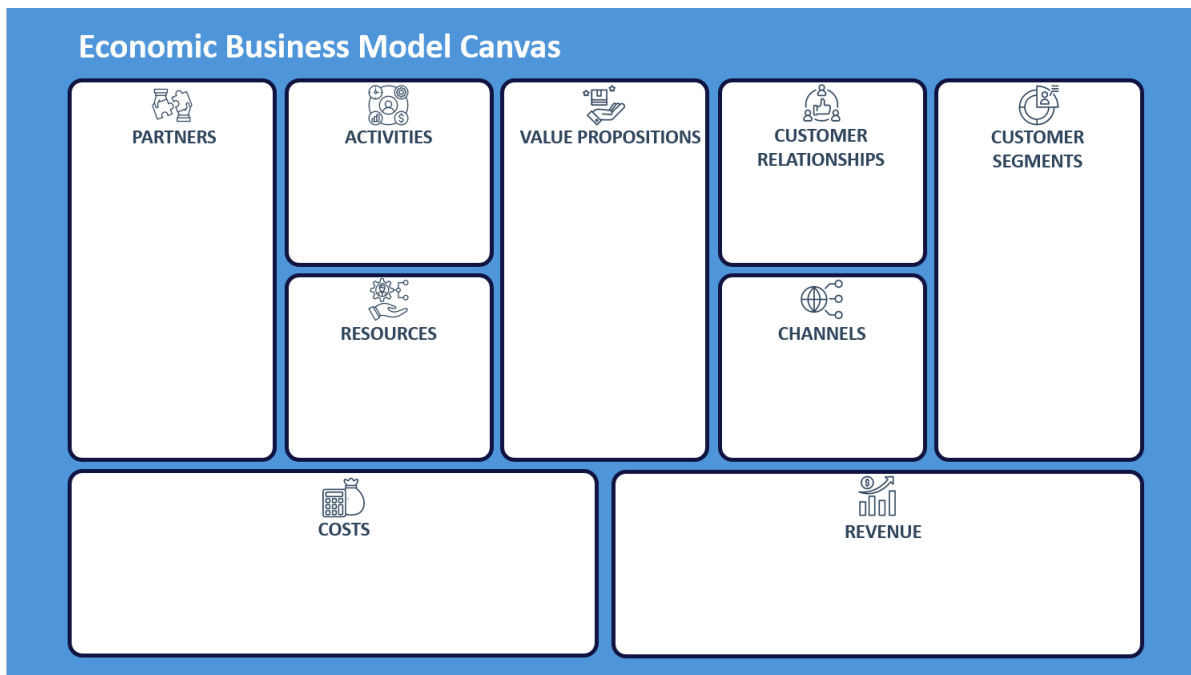


Figure 10. BMC.

For OptiFish, the BMC is used as a **practical framework** to connect KERs with real market opportunities and exploitation pathways. Its strength lies in being simple, visual, and communicable: a one-page representation of how value is created, delivered, and captured. This makes it highly effective for projects like OptiFish, where stakeholders include fishers, regulators, technology providers, NGOs, and policymakers with diverse backgrounds and interests.

3.10.1 The Business Model Canvas and Value Proposition

The BMC consists of **nine interlinked building blocks**, each representing a fundamental component of a business model. These help structure the discussion around how OptiFish results can move from innovation to impact. The BMC has been selected because of its **plasticity** (ability to adapt to different use cases and stakeholders) and its **robustness** (broad acceptance and credibility across industries).

The nine building blocks, tailored to OptiFish use cases, are:

1. Key Activities

- The core actions required to deliver OptiFish KERs.
- Example: Development and deployment of AI-based monitoring systems, maintenance of the SingleFish platform, or delivery of training through the OptiFish Academy.

2. Key Resources

- Assets necessary to implement the business model.

- For OptiFish: AI algorithms, validated datasets, IoT hardware, scientific expertise, and the consortium's established stakeholder networks.

3. Key Partnerships / Networks

- External actors and alliances that help reduce risks or extend reach.
- In OptiFish: fishing associations, maritime authorities, digital tech providers, NGOs, and EU-funded networks.

4. Value Propositions

- The unique benefits delivered to each stakeholder group.
- Examples: compliance facilitation for regulators, reduced paperwork for fishers, better stock data for policymakers, transparency for NGOs.

5. Customer Segments

- The groups served by the innovation.
- OptiFish examples: small- and medium-scale fishers, regulators, fisheries control agencies, technology providers, and policymakers.

6. Channels

- The ways through which OptiFish results reach end users.
- Options include: direct project dissemination (e.g., OptiFish Academy), partner networks, regulatory channels, online platforms, and open-access repositories.

7. Customer Relationships

- The type of relationship to be established with each user segment.
- In OptiFish: trust-building with fishers through training and co-creation, formal service agreements with regulators, and community engagement via knowledge-sharing platforms.

8. Cost Structure

- The most important costs associated with operating the business model.
- For OptiFish: system development and maintenance, data management, training delivery, customer support, and regulatory compliance.

9. Revenue Streams

- The ways in which value is monetised (for commercial KERs) or delivered as a public good (for non-commercial KERs).

- Examples: subscription or licensing models for digital tools; consultancy services; free dissemination of open-access resources; hybrid models combining public funding with service-based income.

3.10.2 Why the Business Model Canvas for OptiFish?

The **BMC** is particularly well-suited for OptiFish because it:

- accommodates both commercial and non-commercial pathways (e.g., free public goods vs. paid services);
- allows rapid iteration as new data, stakeholder input, and pilot results become available;
- makes business models communicable to non-experts, which is essential in a multi-actor approach;
- and links directly to value propositions, a central element of OptiFish exploitation planning.

By structuring the initial business models for OptiFish KERs around the BMC, the project ensures that innovations are translated into clear pathways for uptake—whether through market deployment, open knowledge sharing, or long-term governance models.

Building on this baseline, OptiFish will further explore which Business Model Tools (BMTs) best capture the unique value propositions of its KERs. While the BMC will serve as the foundation, it will be complemented by other instruments (such as the VPC) where additional depth is needed.

The outcome will be **tailored business and governance models** that link innovation with practical exploitation, ensuring that OptiFish results achieve both **market uptake and societal value**.

3.11 Sustainable Business Model Canvas

Like the Business Model Canvas (BMC), the **SBMC** is a single-page business model tool that visualises the key components of a business in a structured and communicable way. Its mission and intent remain identical to the original BMC: to convey a clear and actionable business model strategy.

However, the SBMC emerged from the growing pressure on businesses and innovation projects to integrate **sustainability into core operations and decision-making**. It extends Osterwalder & Pigneur's BMC by adding two critical dimensions:

- **Social and environmental costs**
- **Social and environmental benefits**

These extensions acknowledge that innovation is not only about financial value creation but also about societal contributions and ecological impact. For OptiFish, this is particularly relevant, as many of KERs aim to improve sustainability, transparency, and governance in fisheries.

Social and Environmental Benefits refer to the external positive outcomes that OptiFish KERs can generate for marine ecosystems and stakeholder communities. For example, digital monitoring tools can support sustainable fishing practices, reduce IUU activities, and strengthen fishers’ social licence to operate. Improved traceability also provides consumers with confidence in the sustainability of seafood products, generating broader societal value.

Social and Environmental Costs capture potential unintended impacts of OptiFish innovations. For instance, digitalisation may create entry barriers for small-scale fishers if tools are costly or complex. Similarly, the increased use of sensors or data infrastructures has its own environmental footprint. Identifying and addressing such costs ensures that OptiFish’s models remain **credible, balanced, and viable**.

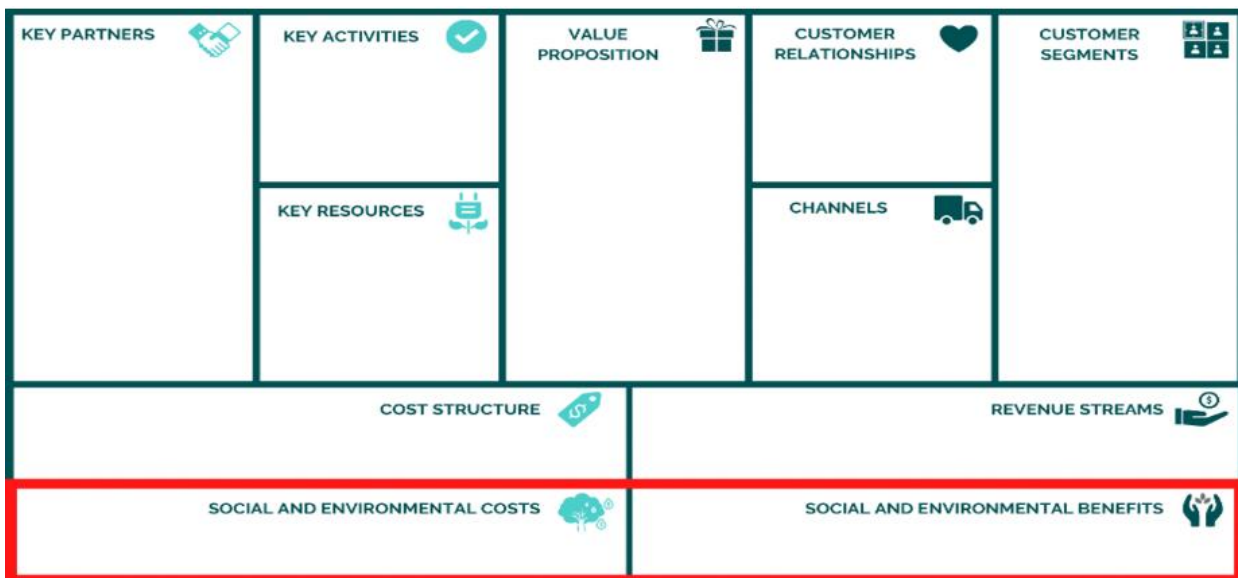


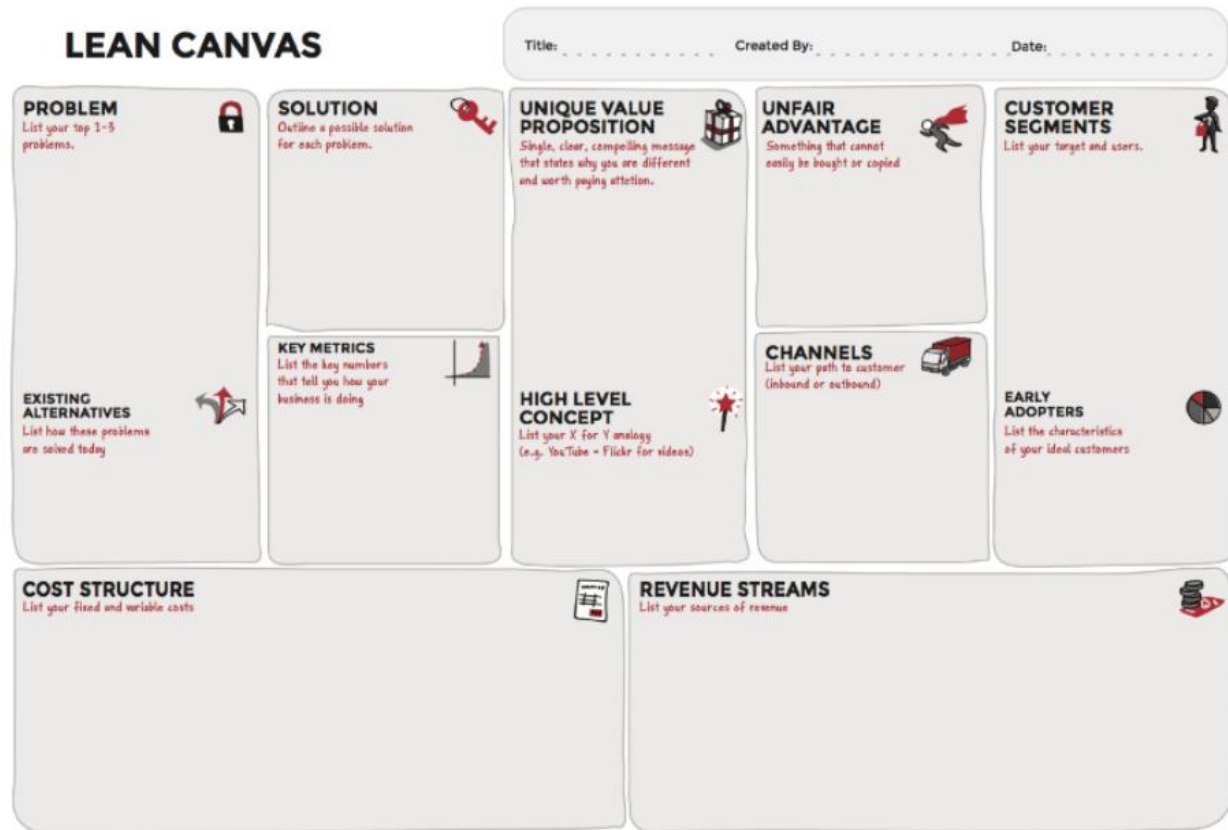
Figure 11. SBMC.

More advanced versions of the SBMC (e.g., Tiemann & Fichter, 2015⁷) embed sustainability concerns more deeply into each of the nine building blocks of the BMC. While useful, the project’s benchmarking process will prioritise a practical SBMC variant that directly links sustainability dimensions with OptiFish value propositions.

⁷ Tiemann, I. & Fichter, K. (2016). *developing business models with the Sustainable Business Canvas: Manual for conducting workshops*. Oldenburg, Berlin: Universität Oldenburg. Borderstep Institut. (2019, August 1). <https://www.borderstep.de/publikation/tiemann-i-fichter-k-2016-developing-business-models-with-the-sustainable-business-canvas-manual-for-conducting-workshops-oldenburg-berlin-universitaet-oldenburg/>

3.12 Lean Startup Canvas

The **Lean Startup Canvas (LSC)**, introduced by Ash Maurya (2012⁸), is a variation of the BMC adapted for entrepreneurs and innovators. It shifts the focus toward rapid testing, iteration, and problem-solution alignment, which makes it particularly suitable for early-stage innovation such as OptiFish’s pilot use cases.



LEAN CANVAS

Title: _____ Created By: _____ Date: _____

PROBLEM List your top 3-5 problems.	SOLUTION Outline a possible solution for each problem.	UNIQUE VALUE PROPOSITION Single, clear, compelling message that states why you are different and worth paying attention.	UNFAIR ADVANTAGE Something that cannot easily be bought or copied.	CUSTOMER SEGMENTS List your target and users.
EXISTING ALTERNATIVES List how these problems are solved today.	KEY METRICS List the key numbers that tell you how your business is doing.	HIGH LEVEL CONCEPT List your X for Y analogy (e.g. YouTube = Flickr for videos).	CHANNELS List your path to customer (inbound or outbound).	EARLY ADOPTERS List the characteristics of your ideal customers.
COST STRUCTURE List your fixed and variable costs.		REVENUE STREAMS List your sources of revenue.		

Figure 12. The Lean Canvas. Source: Ash Maurya.

The LSC retains the single-page format but replaces certain BMC blocks with elements that emphasise **problems, solutions, key metrics, and unfair advantages**. This reflects its orientation toward experimentation under uncertainty — a common condition in digital fisheries innovation.

For OptiFish, the LSC is useful for testing KERs that must quickly demonstrate value and adaptability, such as:

- **SingleFish app prototypes** for reporting catches.

⁸ Maurya, A. (2012). *Running lean iterate from plan A to a plan that works* Ash Maurya. O’Reilly.

- **AI-based monitoring tools** that require validation in diverse contexts.
- **Fisher engagement platforms** where adoption hinges on solving clear user pains.

Key differences from the BMC include:

1. **Simplified language** – the LSC avoids jargon, making it more accessible to fishers, NGOs, and regulators.
2. **Problem–Customer–Solution orientation** – central for ensuring that OptiFish addresses the real challenges of small-scale and industrial fisheries.
3. **Actionable and measurable** – the canvas is designed to link innovation directly to field-testing and validation.
4. **Tailored for high uncertainty** – OptiFish pilots, operating in heterogeneous EU fisheries contexts, mirror the conditions the Lean Canvas was built for.

The LSC therefore supports OptiFish in **early validation and refinement**, though it may not fully capture long-term governance or sustainability concerns.

3.13 Value Proposition Canvas

The **Value Proposition Canvas (VPC)**, introduced by Osterwalder et al. (2014)⁹, is a complementary tool to the BMC. While the BMC maps a full business model, the VPC zooms in on the match between customer needs (jobs, pains, and gains) and the product/service value offered.

In OptiFish, the VPC is highly relevant because its KERs are designed for **multiple distinct stakeholder groups**:

- **Fishers** (small-scale and industrial) seeking easier compliance and operational efficiency.
- **Regulators and control authorities** requiring reliable, tamper-proof data.
- **Seafood buyers and consumers** demanding proof of sustainability and transparency.
- **NGOs and local communities** monitoring environmental and social outcomes.

By mapping **Customer Jobs, Gains, and Pains** against **Products/Services, Gain Creators, and Pain Relievers**, the VPC ensures that OptiFish KERs are designed to genuinely solve problems and create value.

For example:

- *Job*: A small-scale fisher must comply with reporting requirements but finds the paperwork burdensome.

⁹ Osterwalder, A., Pigneur, Y., Bernarda, G., Smith, A., & Papadacos, T. (2014). Value proposition design: how to create products and services customers want. *Wiley*, p. 320.

- *Pain*: Fear of sanctions due to errors or delays.
- *Gain*: A simple mobile reporting tool that automatically ensures compliance.

This exercise strengthens OptiFish’s ability to align technical innovation with stakeholder needs, a prerequisite for adoption and impact.

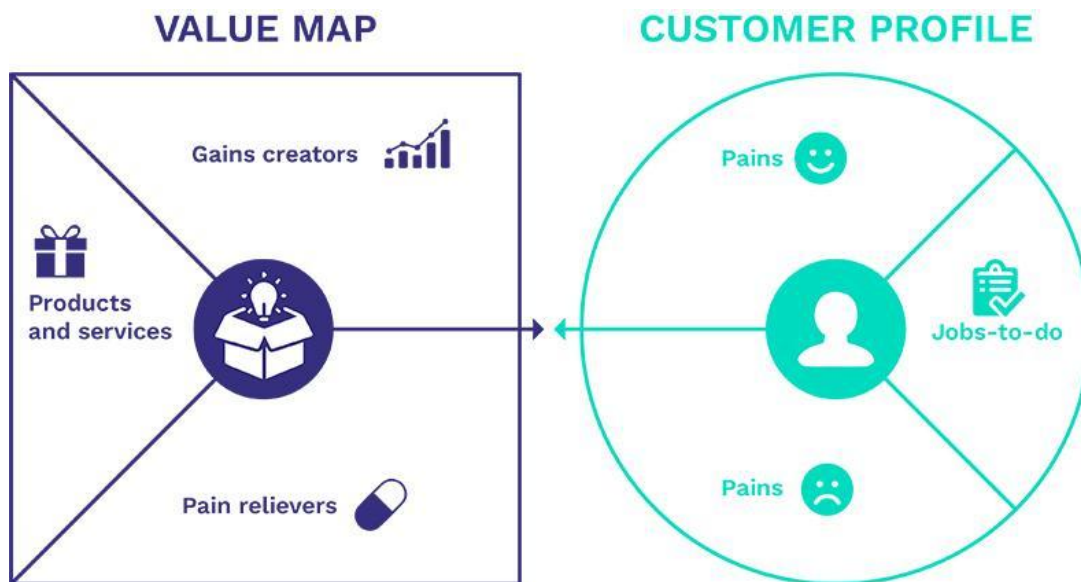


Figure 13. Value Proposition Canvas¹⁰ (Source: <https://gofurther.digital/en/blog/posts/how-to-use-the-value-proposition-canvas>)

3.14 Business Model Radar (Service-Dominant Logic)

The **Service-Dominant Business Model Radar (SDBM/R)**, developed by Turetken et al. (2019)¹¹, represents a **network-centric view of value creation**. Instead of focusing only on a focal firm, it recognises that value in modern ecosystems is co-created by multiple actors.

¹⁰ <https://gofurther.digital/en/blog/posts/how-to-use-the-value-proposition-canvas>

¹¹ Turetken, O., Grefen, P., & Gisling, R. (2019). Service-Dominant Business Model Design for Digital Innovation in Smart Mobility. *Business Information Systems in Engineering*, pp. 9-29.

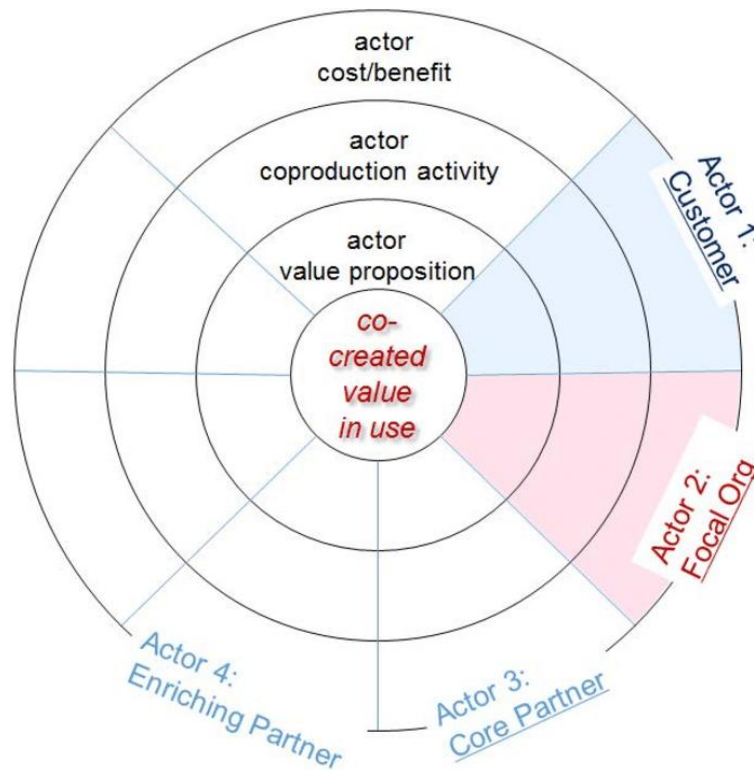


Figure 14. SDBM/R template (Source: Grefen, Turetken, & Razavian, 2016¹²).

For OptiFish, this approach is highly applicable. Its KERs exist within a **multi-actor system** that includes fishers, technology providers, authorities, NGOs, and consumers. The SDBM/R allows OptiFish to model:

- **Co-created value-in-use** – e.g., transparent fisheries data benefits regulators, buyers, and communities simultaneously.
- **Actor value propositions** – each participant contributes and benefits differently (e.g., fishers provide data, regulators provide legitimacy, NGOs provide credibility).
- **Cost–benefit distribution** – clarifying who bears which costs (e.g., equipment, training) and who gains which benefits.

By adopting this tool, OptiFish can design **governance models** that balance incentives and responsibilities across the ecosystem.

¹² Grefen, P., Turetken, O., & Razavian, M. (2016). *Awareness Initiative for Agile Business Models in the Dutch Mobility Sector: An Experience Report*.

3.15 Prototype Canvas

The **Prototype Canvas** (Fig. 15) is a tool to test early versions of business models or innovations in practice. For OptiFish, prototyping is not limited to technology—it extends to **testing governance and business models** in real-world fisheries contexts.

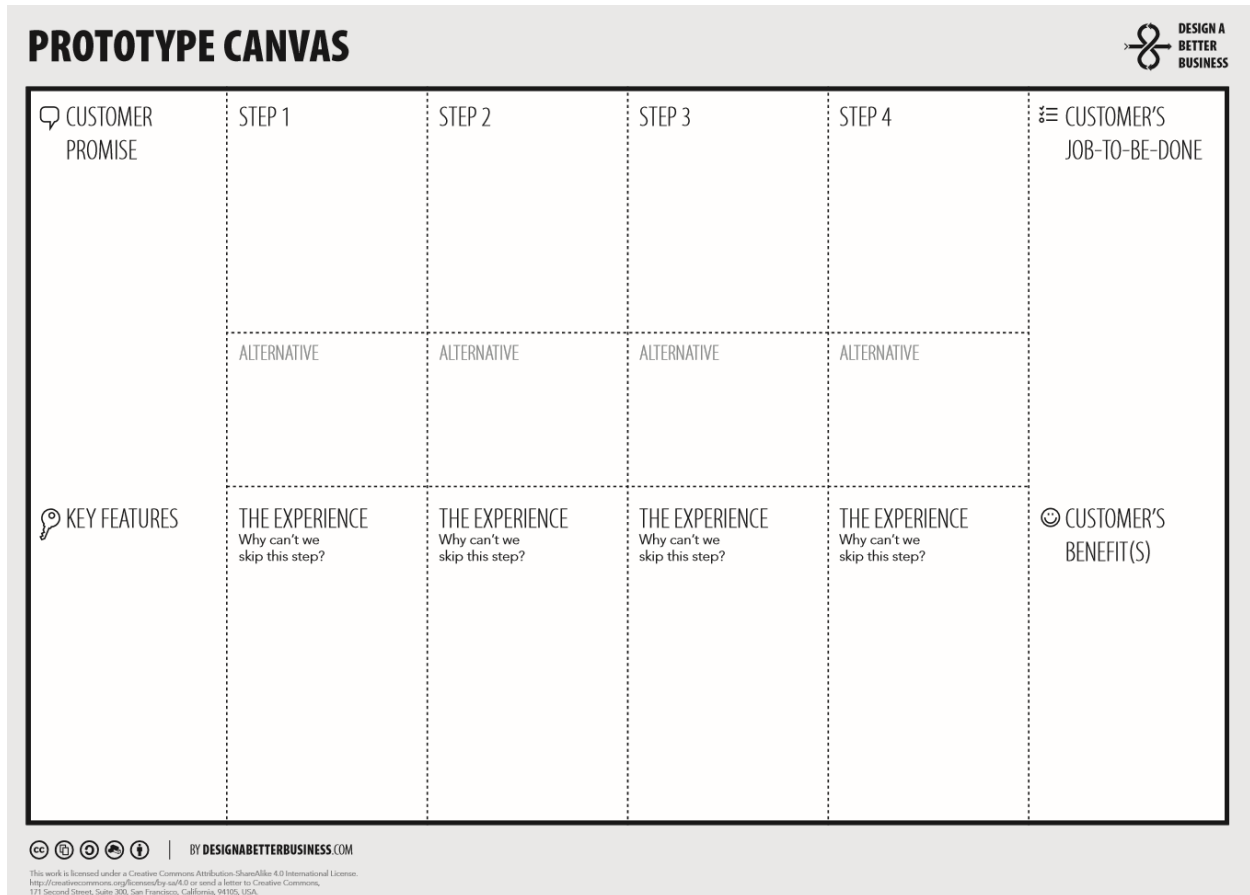


Figure 15. Prototype Canvas.

Key elements such as **Customer Jobs, Promises, Key Features, and Steps** can help pilot teams validate whether OptiFish tools:

- Deliver tangible value to fishers in daily operations.
- Reduce compliance burdens effectively.
- Provide trusted and actionable insights for regulators.
- Generate consumer-facing benefits (e.g., seafood traceability labels).

Because fisheries vary widely across the EU, the Prototype Canvas is particularly useful for **iterating solutions across different pilot sites**. It helps de-risk innovation by clarifying what works, what doesn't, and why.

3.16 Triple Layered Business Model Canvas

The **Triple Layered Business Model Canvas (TLBMC)**, introduced by Joyce & Paquin (2016), adds an **environmental layer** and a **social layer** to the standard BMC. This enables a holistic analysis of sustainability impacts.

- **Economic layer** – conventional business elements (value proposition, revenues, costs, etc.)

Economic Business Model Canvas



Figure 16. The Triple Layered Business Model Canvas: The Economic Layer.

- **Environmental layer** – maps materials, production, distribution, use, end-of-life, environmental costs and benefits.

Environmental Life Cycle Business Model Canvas

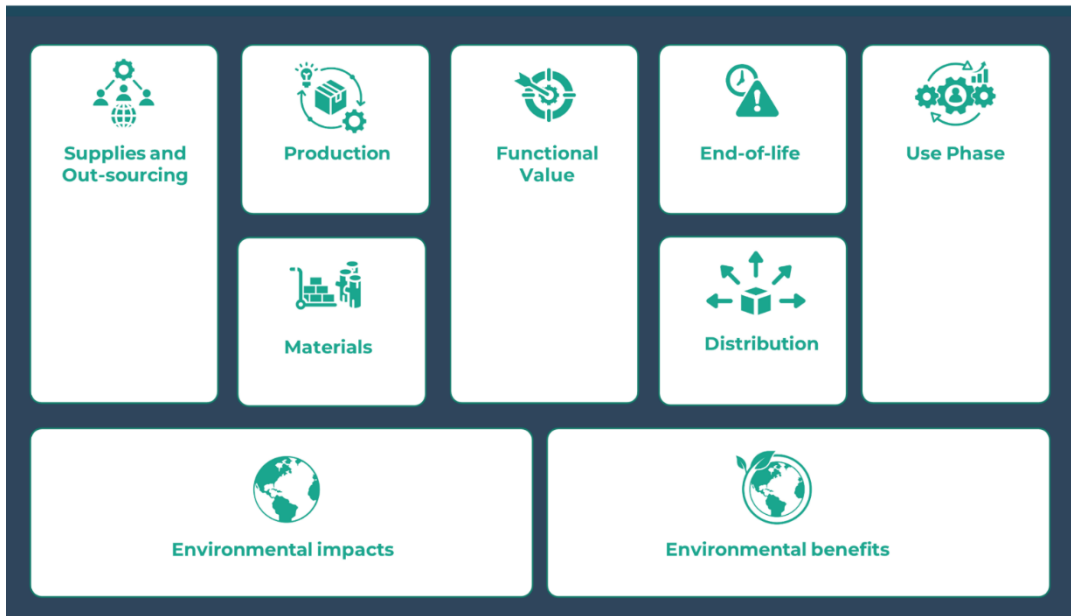


Figure 17. The Triple Layered Business Model Canvas: The Environmental Layer.

- **Social layer** – maps governance, communities, culture, outreach, employee impacts, and social value creation.

Social Stakeholder Business Model Canvas



Figure 18. The Triple Layered Business Model Canvas: The Social Layer.

For OptiFish, the TLBMC is highly relevant:

- **Economic value** – improved fisheries monitoring, market access for compliant fishers, new services (e.g., SingleFish).
- **Environmental value** – reduced IUU fishing, more sustainable stock management, lower ecological footprint of monitoring.
- **Social value** – enhanced legitimacy for fishers, fairer competition, consumer trust, and strengthened coastal communities.

The TLBMC's **vertical coherence** (aligning across layers) and **horizontal coherence** (integration within each layer) make it particularly suitable for OptiFish, where both **sustainability and governance** are at the heart of exploitation.

3.17 Benchmarking and Selection of Tool

In benchmarking the BMC, SBMC, LSC, VPC, SDBM/R, Prototype Canvas, and TLBMC, it becomes clear that **different tools serve different purposes within OptiFish**:

- **BMC** – baseline tool for structuring value propositions and exploitation pathways.
- **Lean Startup Canvas** – suitable for rapidly testing early-stage prototypes and high-uncertainty pilots.
- **VPC** – critical for aligning innovation with the specific needs of fishers, regulators, buyers, and consumers.
- **SDBM/R** – valuable for modelling multi-actor governance and co-created value.
- **Prototype Canvas** – helps validate KERs in real pilot environments.
- **SBMC** – ensures social and environmental impacts are considered alongside economic ones.
- **TLBMC** – the most comprehensive tool, enabling integrated sustainability analysis across economic, environmental, and social dimensions.

For OptiFish, the **Business Model Canvas (BMC)** will serve as the **baseline tool** for structuring preliminary business models. In the next iteration, the **Triple Layered Business Model Canvas (TLBMC)** will be applied directly to the KERs, ensuring that sustainability considerations are fully integrated into exploitation pathways. Complementary tools such as the **Value Proposition Canvas (VPC)** and the **Prototype Canvas** will support pilot-level validation, helping to refine value propositions and test assumptions in practice.

Given OptiFish's dual emphasis on **sustainability and governance**, the TLBMC emerges as the most appropriate framework for **long-term exploitation and governance design**. By capturing economic, social, and environmental value, it ensures that OptiFish KERs are not only **market-ready**, but also **socially legitimate and environmentally sustainable**.

4 Initial Market and Ecosystem Analysis

A preliminary analysis has been conducted for all identified KERs, including non-commercial ones. For the latter, instead of a commercial market assessment, the focus is on a **stakeholder and landscape analysis**—examining adoption potential, utilisation context, and alignment with ongoing initiatives. This **methodological step** ensures that these outputs respond to real stakeholder needs and can be effectively taken up by their intended communities. The analyses and suggested next steps for each KER were based on desk research and will be validated (or challenged) by OptiFish partners during RP2 and RP3, and further integrated into the sustainability deliverables.

4.1 Initial Landscape Analysis for KER 1: Authorities Reporting System

4.1.1 Market Context

Catch reporting is a **core obligation** in EU fisheries, governed by the **EU Fisheries Control Regulation (Regulation (EC) No 1224/2009, amended 2021)**¹³. Current systems rely heavily on manual input via logbooks and electronic reporting systems (ERS), which are often prone to errors, inconsistencies, and underreporting, as the EU Commission Audit (ECA) found that incompatibility and complexity across Member States' data systems contribute to unreliable reporting and data exchange.¹⁴ Control agencies across Europe increasingly require **higher data accuracy, integration with other sources (e.g., Copernicus, VMS, AIS), and harmonisation across fleets**¹⁵.

At the same time, fishers face increasing **administrative burdens** in reporting while struggling with **time and resource constraints**. A harmonised Authorities Reporting System (ARS) would relieve these burdens, while providing richer, more reliable datasets for authorities – by eliminating duplication and enabling reuse of existing administrative data within a simplified, integrated framework.¹⁶

¹³ Council of the European Union. (2024). *Regulation - 1224/2009 - en - EUR-lex*. EUR-Lex. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02009R1224-20241011>

¹⁴ ECA. (2017). *EU fisheries controls: More efforts needed*. European Court of Auditors | Special report 8/2017: EU fisheries control. <https://op.europa.eu/webpub/eca/special-reports/fisheries-08-2017/en/>

¹⁵ See, for example, EFCA's integrated information system: EFCA. (2023). *EFCA Fisheries Information System | European Fisheries Control Agency*. EFCA European Fisheries Control Agency. <https://www.efca.europa.eu/en/content/efca-fisheries-information-system>

¹⁶ Directorate-General for Maritime Affairs and Fisheries. (2025, July 30). *Commission proposes simplification on EU Fisheries and Aquaculture Statistics*. Oceans and fisheries. https://oceans-and-fisheries.ec.europa.eu/news/commission-proposes-simplification-eu-fisheries-and-aquaculture-statistics-2025-07-30_en

4.1.2 Market Size and Demand Drivers

- **EU Fisheries Fleet:** In 2022, the EU fishing fleet comprised approximately **70,986 vessels**, as reported by the European Commission’s 2024 Annual Economic Report.¹⁷ Although the most recent breakdown of vessel types isn’t publicly available yet, the 2015 STECF report indicates that roughly **26 %** of active vessels were **large-scale** (requiring full electronic monitoring and reporting), corresponding to around **17,000 vessels** at that time.¹⁸
- **Control Agencies:** EU-level (e.g., DG MARE, EFCA) and national/regional fisheries authorities responsible for compliance.
- **Policy Drivers:**
 - EU Fisheries Control Regulation revisions emphasise **digitalisation, transparency, and stricter reporting obligations**¹⁹.
 - The EU Green Deal, notably through its Farm-to-Fork strategy²⁰, advocates for **stronger traceability and sustainability metrics** in seafood supply chains—calling for digital labelling systems that provide comprehensive information on the origin, species, and production methods of fish and seafood, thereby enhancing transparency, consumer trust, and alignment with sustainability goals²¹.

Demand is primarily policy-driven, with strong incentives for **error reduction, transparency, and efficiency** in monitoring and control.

¹⁷ EU Blue Economy Observatory. (2024, November 22). *2024 Annual economic report on the EU Fishing Fleet*. https://blue-economy-observatory.ec.europa.eu/publications/2024-annual-economic-report-eu-fishing-fleet_en

¹⁸ Joint Research Centre: Institute for the Protection and Security of the Citizen, STECF, Motova, A., Borrello, A., Carvalho, N., & Paulrud, A. (2015). *The 2015 annual economic report on the EU fishing fleet (STECF 15-07)*, (A.Motova, editor, A. Borrello, editor, N. Carvalho, editor, A. Paulrud, editor), Publications Office. <https://data.europa.eu/doi/10.2788/307845>

¹⁹ Scholaert, F. (2024). *Revising the Fisheries Control System: Think tank: European Parliament*. Think Tank | European Parliament. https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI%282019%29642281; Council of the EU. (2023). *Council strikes deal on new rules to combat overfishing*. European Council. <https://www.consilium.europa.eu/en/press/press-releases/2023/05/31/council-strikes-deal-on-new-rules-to-combat-overfishing/>; EC. (2024). *Control regulation*. Oceans and fisheries. https://oceans-and-fisheries.ec.europa.eu/fisheries/rules/enforcing-rules/control-regulation_en

²⁰ EC. (2020). *Farm to fork strategy*. Food Safety. https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en

²¹ HAZEKAMP, A., & DORFMANN, H. (2021). *Report on a farm to fork strategy for a fair, healthy and environmentally-friendly food system: A9-0271/2021: European Parliament*. REPORT on a farm to fork strategy for a fair, healthy and environmentally-friendly food system | A9-0271/2021 | European Parliament. https://www.europarl.europa.eu/doceo/document/A-9-2021-0271_EN.html

4.1.3 Competitive Landscape

- **Existing Systems:**
 - **ERS (Electronic Reporting Systems):** widely adopted but fragmented across member states, with limited harmonisation.²²
 - **Private IT tools (e.g., Navis, Logbook apps):** focus on convenience for fishers but lack deep integration with control authorities.²³
- **Gaps:**
 - No existing solution combines **catch composition, satellite data (Copernicus), and automated validation** into one streamlined reporting tool.
 - Limited interoperability between national logbook/reporting systems.

The OptiFish Authorities Reporting System fills this **integration gap** by offering a harmonised, error-minimising system aligned with EU digitalisation trends.

4.1.4 Exploitation Path and Target Users

- **Target Groups:**
 - **Primary:** Control agencies (national, regional, EU-level).
 - **Secondary:** Fishers and fishing companies (benefiting from simplified reporting and reduced risk of penalties).
- **Scope of Exploitation:**
 - **Non-commercial:** The system is not meant to be sold as a proprietary product, but positioned as an **open-access, validated template/tool** that can be taken up by authorities.
 - Adoption could occur via integration into existing national reporting platforms or through EU-level mandates.

²² **ERS (Electronic Reporting Systems):** widely adopted but fragmented across member states, with limited harmonisation.

²³ Calderwood, J. Smartphone application use in commercial wild capture fisheries. *Rev Fish Biol Fisheries* **32**, 1063–1083 (2022). <https://doi.org/10.1007/s11160-022-09727-6>

4.1.5 SWOT Analysis

Table 7. SWOT Analysis: KER1.

SWOT Analysis - KER 1: Authorities Reporting System	
Strengths	<ul style="list-style-type: none"> • Integrated system combining multiple data sources. • Reduces manual burden for fishers. • Direct alignment with EU regulatory priorities.
Weaknesses	<ul style="list-style-type: none"> • Dependence on regulatory uptake—adoption driven by authorities, not market demand. • High coordination required across Member States.
Opportunities	<ul style="list-style-type: none"> • Position as reference model in upcoming EU control reforms. • Uptake beyond EU with strong digitalisation agendas.
Threats	<ul style="list-style-type: none"> • Resistance from some authorities already invested in legacy ERS systems. • Concerns from fishers about increased surveillance/control if not communicated as beneficial.

4.1.6 Suggested Next Steps for Market Readiness

- Validate ARS functionalities in **Pilot tests** to demonstrate error reduction and efficiency gains.
- Engage **DG MARE, EFCA, and national authorities** through targeted workshops to present system benefits.
- Develop **policy briefs** aligning ARS outcomes with EU Fisheries Control Regulation requirements.
- Explore opportunities for **integration with existing ERS providers** (commercial IT vendors) to accelerate adoption.

4.2 Initial landscape analysis for KER 2: OptiTool

4.2.1 Market Context

Fishing companies face growing pressure to optimise operations—not only to comply with quotas but also to **improve fuel efficiency, reduce bycatch, and align with sustainability demands**. Data is fragmented

across Electronic Monitoring (EM), VMS/AIS, fuel logs, and quota management systems. Few solutions integrate these into a single decision-support system (DSS).²⁴

OptiTool addresses this gap by offering a consolidated DSS that integrates EM, Copernicus, and operational data to support real-time decision-making.

4.2.2 Market Size and Demand Drivers

- **Potential Users:** approx. 10,000 EU large-scale vessels and approx. 60,000 small- to mid-scale vessels could benefit from optimisation.²⁵
- **Economic Drivers:**
 - **Fuel efficiency:** fuel remains a significant portion of operational costs for EU fisheries²⁶
 - **Quota compliance:** penalties for misreporting or exceeding quotas.
- **Policy Drivers:**
 - EU decarbonisation targets (*Fit for 55* package)²⁷.
 - Push for **digitalisation of fisheries** under the CFP.²⁸

4.2.3 Competitive Landscape

- Existing commercial tools often specialize in specific functionalities—such as fuel optimization, catch recording, or traceability—but few offer full-system integration that consolidates multiple data streams into a single unified platform.²⁹

²⁴ Radi, D., Lamantia, F. & Bischi, G. Benefits and Perils of Integrated Data Systems in Managing Sustainable Fishing Quotas. *Environ Resource Econ* (2025). <https://doi.org/10.1007/s10640-025-00979-x>

²⁵ EU Blue Economy Observatory. (2024, November 22). *2024 Annual economic report on the EU Fishing Fleet*. https://blue-economy-observatory.ec.europa.eu/publications/2024-annual-economic-report-eu-fishing-fleet_en

²⁶ EC. (2025). *Energy transition in the EU fishing fleet*. Energy transition in the EU fishing fleet - The EU Blue Economy Report 2025 - Maritime Affairs and Fisheries (DG-MARE). <https://op.europa.eu/webpub/mare/eu-blue-economy-report-2025/energy-transition-and-costal-flood-impacts/energy-transition-in-the-eu-fishing-fleet.html>

²⁷ EC. (2025). *Fit for 55 - Consilium*. <https://www.consilium.europa.eu/en/policies/fit-for-55/>

²⁸ EC. (2023). *Common Fisheries Policy (CFP)*. Oceans and fisheries. https://oceans-and-fisheries.ec.europa.eu/policy/common-fisheries-policy-cfp_en

²⁹ Tri Panudju, A., Rahardja, S., Nurilmala, M., & Marimin, M. (2023). (PDF) decision support system in fisheries industry: Current State and future agenda. ResearchGate. https://www.researchgate.net/publication/370760436_Decision_Support_System_in_Fisheries_Industry_Current_State_and_Future_Agenda

- Research-driven platforms (EU Horizon projects) lack **long-term uptake strategies** and often end post-project.
- OptiTool’s added value lies in **consolidation**: combining EM catch data, fuel monitoring, and quota tracking into a single user-friendly interface.

4.2.4 Exploitation Path and Target Users

- **Target Groups:** Fishers, fishing companies, producer organisations
- **Scope:** Non-commercial. Provided as a **reference tool** to demonstrate the benefits of integration.
- Could be used as a **capacity-building and decision-support example** in OptiFish Academy.

4.2.5 SWOT Analysis

Table 8. SWOT Analysis: KER2.

SWOT Analysis - KER 2: OptiTool	
Strengths	<ul style="list-style-type: none"> • Integrates multiple datasets in real-time. • Improves efficiency and sustainability.
Weaknesses	<ul style="list-style-type: none"> • Non-commercial scope limits long-term maintenance unless adopted by the industry.
Opportunities	<ul style="list-style-type: none"> • Potential to influence the development of future commercial DSS tools. • Could serve as a model for POs (Producer Organisations) across the EU.
Threats	<ul style="list-style-type: none"> • Resistance from companies already invested in proprietary optimisation tools.

4.2.6 Suggested Next Steps

- Demonstrate operational benefits in pilot trials.
- Gather feedback from POs and fishers on usability.
- Disseminate findings via **workshops & OptiFish Academy training modules**.
- Explore collaborations with commercial DSS developers to **extend tool longevity**.

4.3 Initial Market Analysis for KER 3: SingleFish

4.3.1 Market Context

Sorting and identifying fish onboard is labour-intensive, prone to error, and affects the quality of EM-based catch data. Automation is critical for **precision fisheries**.

SingleFish is a robotic sorting system designed to improve efficiency and accuracy in catch sorting onboard vessels. By minimising occlusion of fish entering the EM (Electronic Monitoring) camera's field of view it enables more precise and autonomous catch monitoring. This KER directly addresses operational inefficiencies in sorting, reduces manual workload, and enhances compliance with monitoring requirements.

4.3.2 Market Size and Demand Drivers

The SingleFish market drivers

- **Target Market:**
 - Fishers and fishing companies, mid- to large-scale trawlers (~10,000 in EU³⁰) with significant onboard catch volumes and sorting demands.
 - Technology providers and equipment suppliers seeking to expand their product portfolio.
- **Economic Drivers:**
 - **Increasing demand for automation in fisheries to reduce labour costs and improve efficiency / Labour shortages** in fisheries³¹.
 - Increased demand for **automation and efficiency** in seafood supply chains³².
- **Policy Drivers:**

³⁰ EU Blue Economy Observatory. (2024, November 22). *2024 Annual economic report on the EU Fishing Fleet*. https://blue-economy-observatory.ec.europa.eu/publications/2024-annual-economic-report-eu-fishing-fleet_en

³¹ EC. (2023a). *Common Fisheries Policy - State of play*. IMMC.SWD%282023%29103%20final.eng.xhtml.1_en_autre_document_travail_service_part1_v5.docx. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A52023SC0103>

³² DNV. (2024). *Increasing transparency and efficiency in global seafood supply chains*. <https://www.dnv.no/assurance/food-and-beverage/increasing-transparency-and-efficiency-global-seafood-supply-chains/>

- Rising expectations for accurate catch documentation and traceability from both regulators and consumers / Alignment with CFP digitalisation and traceability.
- Need for more reliable data collection to support sustainable fisheries management.
- EU labour safety standards onboard.

4.3.3 Competitive Landscape

- Few existing robotic solutions for onboard sorting—most automation is land-based (processing plants).³³
- Start-ups (e.g., in Norway, Iceland) developing fish-handling robotics, but limited adoption due to **space and cost constraints** onboard.³⁴
- **Unique Advantage:** SingleFish directly integrates with EM monitoring, improving compliance as well as operations.

4.3.4 Exploitation Path and Target Users

- **Target Groups:** Fishing companies, vessel owners.
- **Scope:** Commercial.
- Exploitation will involve **IP protection** and potential **commercial partnerships** with marine engineering or robotics firms.

4.3.5 SWOT Analysis

Table 9 SWOT Analysis: KER3.

SWOT Analysis - KER 3: SingleFish	
Strengths	<ul style="list-style-type: none"> ● Novel integration of robotics and EM monitoring. ● Reduces manual labour.
Weaknesses	<ul style="list-style-type: none"> ● High upfront costs for vessel retrofitting.

³³ Allinson, M. (2024, July 25). *Robotics in the seafood industry: Boosting efficiency and ensuring quality*. Robotics & Automation News. <https://roboticsandautomationnews.com/2024/07/25/robotics-in-the-seafood-industry-boosting-efficiency-and-ensuring-quality/84498/>

³⁴ Standal, D., & Ahlquist, I. H. (2025). Transforming Coastal Fisheries in Norway: Institutional implications of green technology implementation. *Marine Policy*, 171, 106471. <https://doi.org/10.1016/j.marpol.2024.106471>

	<ul style="list-style-type: none"> • Technology readiness must be proven in harsh marine environments.
Opportunities	<ul style="list-style-type: none"> • Strong demand for automation across seafood industry. • EU incentives for automation and digitalisation in fisheries. • Potential for improved market access for fishers adopting certified, automated sorting solutions linked to sustainability credentials. • Competitive advantage for early adopters in terms of efficiency and reduced compliance burden. • Potential for cross-sector applications (e.g., aquaculture).
Threats	<ul style="list-style-type: none"> • Competing land-based automation systems. • High upfront investment required for robotic systems / Resistance from small-scale fleets due to cost. • Need for integration with existing vessel infrastructure. • Resistance to automation from segments of the fishing workforce.

4.3.6 Suggested Next Steps

- Pilot demonstrations to validate technical reliability.
- IP protection strategy (patents).
- BM development with focus on **licensing or joint ventures**.
- Market engagement with large trawler companies and processing firms.

4.4 Initial Landscape Analysis for KER 4: Control Agreement Template

4.4.1 Market Context

AI-based monitoring systems in fisheries raise legal, ethical, and operational questions. The success and trajectory of AI-driven cooperative fisheries monitoring are heavily influenced by cross-cultural and cross-sectoral dynamics.³⁵ Currently, there is no harmonized template to guide agreements between fishers, authorities, and technology providers.

³⁵ Sustainability Directory. (2025, April 19). *AI-driven cooperative fisheries monitoring for compliance* → scenario. Prism. <https://prism.sustainability-directory.com/scenario/ai-driven-cooperative-fisheries-monitoring-for-compliance/>

The **Control Agreement Template** standardises this process, ensuring transparency, legal compliance, and alignment with EU performance standards.

4.4.2 Market Size and Demand Drivers

- **Target Audience:** National fisheries authorities, EC, EFCA.
- **Drivers:**
 - Need for **trust frameworks** to reduce negotiation time.³⁶
 - Growing adoption of AI and EM in fisheries monitoring.³⁷

4.4.3 Competitive Landscape

- Currently, **no equivalent templates** exist.
- Fragmented agreements negotiated case by case.
- This template could become a **reference model** for EU-wide adoption.

4.4.4 Exploitation Path and Target Users

- **Target Groups:** Policymakers, regulators, control agencies.
- **Scope:** Non-commercial.
- Uptake via inclusion in EU regulatory frameworks and guidance documents.

4.4.5 SWOT Analysis

Table 10. SWOT Analysis: KER4.

SWOT Analysis - KER 4: Control Agreement Template	
Strengths	<ul style="list-style-type: none"> • Based on expert consultation. • Reduces administrative burden.
Weaknesses	<ul style="list-style-type: none"> • Non-commercial—depends on regulatory uptake.

³⁶ *Electronic monitoring policy at sea beyond “human bycatch”*. Environmental Justice. (2024b). <https://www.liebertpub.com/doi/10.1089/env.2023.0077>

³⁷ EC. (2025c). *Inspections, monitoring and surveillance*. Oceans and fisheries. https://oceans-and-fisheries.ec.europa.eu/fisheries/rules/enforcing-rules/inspections-monitoring-and-surveillance_en

Opportunities	<ul style="list-style-type: none"> • Could set a de facto EU standard.
Threats	<ul style="list-style-type: none"> • Political resistance to harmonisation.

4.4.6 Suggested Next Steps

- Validate template with stakeholders via **consultation workshops**.
- Align with EFCA and DG MARE standards.
- Disseminate through ICES and policy forums.

4.5 Initial Landscape and Market Analysis for KER 5: OptiFish Academy

4.5.1 Market Context

Capacity building is critical for the uptake of new fisheries technologies. Fishers and authorities often lack **accessible training on digital tools**. This can contribute to scepticism about data-sharing and hinder adoption.³⁸

The **OptiFish Academy** will provide a **multi-channel training, dissemination and capacity-building platform** mainly addressed to fishers. It will provide accessible resources such as technology manuals, data-sharing protocols, videos, webinars, workshops, and tailored training programs that support the adoption of OptiFish solutions. The Academy has the potential to combine free/public resources (e.g., open-access guides, webinars, policy briefs) with commercial/paid services (e.g., advanced training modules, certification programs, consultancy packages) - hence its commercial scope.

4.5.2 Market Size and Demand Drivers

- **Target Users:** Fishers (over 70,000 vessels³⁹), control agencies, POs.
- **Drivers:**

³⁸ FAO. (2020). *The State of World Fisheries and Aquaculture 2020 | Sustainability in Action*. Open Knowledge | FAO. https://openknowledge.fao.org/server/api/core/bitstreams/02d655dc-06a3-4a37-bd5a-328f45bc2852/content/ca9229en.html?utm_source=chatgpt.com

³⁹ Joint Research Centre: Institute for the Protection and Security of the Citizen, STECF, Motova, A., Borrello, A., Carvalho, N., & Paulrud, A. (2015). *The 2015 annual economic report on the EU fishing fleet (STECF 15-07)*, (A. Motova, editor, A. Borrello, editor, N. Carvalho, editor, A. Paulrud, editor), Publications Office. <https://data.europa.eu/doi/10.2788/307845>

- Increasing **complexity of fisheries technologies**.
- Growing need for digital skills and capacity building in fisheries, particularly around AI, EM systems, and data-sharing.
- Demand for harmonised training resources across the EU, given the fragmented and ad-hoc nature of national-level initiatives.
- Increasing importance of certification and formal training as prerequisites for compliance and funding eligibility.
- Need for trust-building in **data sharing protocols**.
- Push for digital and blended learning post-COVID.

4.5.3 Competitive Landscape

- Few structured training programs for fisheries digitalisation exist (FAO, 2020).
- Training in fisheries—particularly in areas such as digital monitoring and data-sharing—has so far been addressed mainly through scattered initiatives. While these efforts provide value at the local or national level, there is still no coherent framework that systematically builds digital capacity across the sector.
- OptiFish Academy is unique in combining **training + stakeholder engagement + data-sharing protocols**.

4.5.4 Exploitation Path and Target Users

- **Target Groups:** Fishers, control agencies.
- **Scope:** Hybrid model: Both commercial (e.g., paid training modules, consultancy that can ensure financial sustainability of the platform) and non-commercial (free, open resources for broad uptake and impact).
- Exploitation could involve **subscription-based models** or integration with national fisheries training programs.

4.5.5 SWOT Analysis

Table 11. SWOT Analysis: KER5.

SWOT Analysis - KER 5: OptiFish Academy	
Strengths	<ul style="list-style-type: none"> • Multi-channel tailored approach. • Builds trust and reduces resistance to technology adoption.
Weaknesses	<ul style="list-style-type: none"> • Resource-intensive to maintain.

Opportunities	<ul style="list-style-type: none"> • Regulatory Opportunity: The EU’s emphasis on skills development and digital transition in fisheries, supported by the European Maritime, Fisheries and Aquaculture Fund (EMFAF) and the EU Pact for Skills, creates opportunities for co-funding and mainstreaming the Academy as a recognised training resource. • Potential to embed OptiFish Academy modules into national training curricula and certification schemes for fishers and inspectors. • Development of value-added services (e.g., certification, consultancy, advanced courses) for commercial exploitation, complementing free open-access resources. • Partnerships with industry associations and certification bodies to broaden reach and increase legitimacy.
Threats	<ul style="list-style-type: none"> • Reluctance among some fishers to engage in formal training, often due to time and cost constraints: Low initial uptake if fishers perceive it as “extra work.” • Potential scepticism around data-sharing and digital monitoring technologies. • Need for sustained financial support to maintain training platforms beyond project funding.

4.5.6 Next Steps

- Finalise strategy and roll-out (M24–M48).
- Continue pilot engagement with stakeholder workshops.
- Translate training materials into multiple EU languages.
- Explore sustainable BMs for long-term operation (e.g., subscription, EU funding).

5 Preliminary business models

For **commercial** KERs, RFF has prepared **preliminary BMs**. These will be validated, refined, and adjusted by all partners in deliverables **D6.6** and **D6.7**, leading to completed canvases. OptiFish will support this through a co-creation and iterative validation process, using workshops and MIRO boards to update assumptions and BMCs in line with project progress.

5.1 KER 3: SingleFish (Commercial)

Value Proposition

- Robotic sorting system that improves onboard sorting efficiency and EM monitoring accuracy.
- Reduces manual labour, increases data quality, and enables automation in fish handling.

Customer Segments

- Large and mid-scale trawler companies.
- Fishing cooperatives.
- Processing companies (interested in better quality sorted fish).

Channels

- Direct B2B sales (partnerships with vessel owners).
- Joint ventures with marine engineering firms.
- Demonstrations at seafood expos and tech fairs.

Revenue Streams

- **Commercial:**
 - Direct sales of hardware.
 - Licensing of software algorithms.
 - After-sales support & maintenance contracts.

Cost Structure

- High R&D and prototyping costs.
- Manufacturing and installation.
- IP protection (patents).

Key Partners

- VCU, DTU, DFPO, WR.
- Potential future: marine engineering companies.

Risks/Barriers

- High upfront cost for adoption.
- Harsh marine environment may limit reliability.
- Resistance from small fleets.

5.2 KER 5: OptiFish Academy (Mixed: Non-commercial + Commercial)

Value Proposition

- Training and dissemination platform covering OptiFish technologies.
- Builds capacity, explains benefits, and reduces resistance to adoption.
- Includes training manuals, webinars, workshops, and live events.

Customer Segments

- Fishers and fish POs.
- Control agencies and policymakers.
- NGOs and training institutions.

Channels

- Online platform, webinars, workshops, social media.
- Live training events in pilot regions.
- Partnerships with fisheries schools and academies.

Revenue Streams

- **Non-commercial:** Free training and open resources.
- **Commercial:** Paid consultancy services, subscription-based modules, tailored packages for agencies or companies.

Cost Structure

- Content development (manuals, videos, webinars).
- IT platform development and maintenance.
- Translation and localisation.

Key Partners

- RFF, EFICE, VCU, BENCO, WR, UC, AZTI, DTU.

Risks/Barriers

- Low initial engagement if perceived as “extra work.”
- Sustainability after project funding ends.

6 Conclusion

Deliverable D6.2 represents the first concrete step in shaping the **BM and GTM strategy** for the OptiFish project. Building on the foundations established in RP1, this deliverable has outlined:

- The identification of the first **KERs** across commercial and non-commercial domains.
- The benchmarking of BMTs.
- The design of **preliminary BMs**, tailored to each KER's nature, audience, and scope of exploitation.
- The articulation of **UVPs**, ensuring that each result is positioned clearly for its intended stakeholders.
- A **first GTM strategy**, including stakeholder mapping, adoption pathways, and early dissemination and engagement actions.
- The integration of **IPR considerations**, following guidance from the 1st Internal IPR Workshop (M17), to support sustainable ownership and exploitation routes.

The analysis confirms that OptiFish is on track to deliver a **balanced portfolio of commercial and non-commercial outcomes**, ranging from tangible onboard technologies such as *SingleFish* to policy-relevant instruments such as the *Control Agreement Template* and capacity-building platforms like the *OptiFish Academy*.

Looking ahead, the next phase of work will focus on:

- **Refining and validating KERs** with pilot data and stakeholder feedback.
- **Advancing UVPs** into clear adoption narratives for fishers, control agencies, industry, and policymakers.
- **Developing tailored exploitation pathways**, including protection strategies for commercially sensitive results and open-access strategies for policy and knowledge-based outputs.
- **Strengthening the business case for commercial KERs** (notably *SingleFish*), including cost–benefit analyses and market readiness assessment.
- **Engaging stakeholders through the OptiFish Academy**, co-creation workshops, and continued dissemination activities.
- Preparing for the **2nd Internal IPR Workshop**, which will build on RP1 by addressing co-ownership, licensing models, and joint exploitation opportunities.

D6.2 therefore provides the **strategic baseline** for subsequent exploitation deliverables:

- **D6.4 Updated DEC Plan (M18)** – already aligned with D6.2 (M19) and providing the communications framework for exploitation visibility.

- **D6.6 Updated Business Models and Go-To-Market Strategy (M34)** – will update and refine the BMs, validate adoption pathways, and align strategies with pilot outcomes.
- **D6.7 Final Business Models and Strategy (M44)** – will consolidate all lessons learned and provide a comprehensive, validated exploitation roadmap for post-project sustainability.

In summary, D6.2 sets the groundwork for turning OptiFish outputs into impactful solutions. By combining rigorous exploitation planning, inclusive stakeholder engagement, and iterative validation, the project is positioning itself to maximise its scientific, societal, policy, and commercial contributions to the future of sustainable fisheries in Europe and beyond.

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