Chartering Sustainability Pathways for BioAqua Action

Theo Zacharis

BIOAQUA'S 2nd HIGH-PERFORMANCE WORKSHOP

MARINE AQUATIC ECOSYSTEMS

WHEN?: 5th and 6th May 2025
WHERE?: IZSVE, Padova, Italy

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cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

GREEK SCIENTISTS SOCIETY

Theo Zacharis

Greek Scientists Society

Chartering Sustainability Pathways for BioAqua Action

05 June 2025

Agenda - Workshop

1. Introduction

- Introduction of participants (by stakeholder domain)
- Workshop objectives: From MoU deliverables to a Post-Action Sustainability Plan (PASP)
- Setting expectations for stakeholder-driven sustainability
- Definition & Key Concepts

2. Setting the Scene: Trends and Technologies in Aquaculture

- Current landscape: disease management, biosecurity, welfare, sustainability challenges
- Emerging technologies: IoT, AI, Biomolecular solutions
- Key takeaways for BioAqua impact areas

Agenda - Workshop

3. Mapping BioAqua Deliverables Towards Sustainability

- Data Lake: value, management, and stakeholders
- High-Performance Workshops and Joint Research Agenda: long-term relevance
- Dissemination tools: MOOC, Podcast, Videogame, Masterclasses
- Scientific outputs: Papers, Book
- Technology outputs: Patents, Innovation pathways

4. Stakeholder Mapping and Analysis

- **Stakeholder Analysis :** Dissemination Examples & Exploitation Avenues (*OHD, Net4Brain*)
- Identification of key groups: Researchers, Fish Farmers, Tech Providers, Policymakers, Citizens
- Needs, incentives, and engagement strategies
- *Breakout sessions: Group work to link deliverables to stakeholder interests*

Agenda - Workshop

5. Dissemination and Exploitation Pathways

- Designing tailored dissemination per stakeholder group
- Moving from dissemination to actionable exploitation:
  - Data valorisation (Data Lake)
  - R&I continuity (New projects, funding, IP protection)
  - Training continuity (MOOC, podcasts, masterclasses)
  - Commercialisation/Start-up pathways

6. Drafting the Sustainability and Exploitation Roadmap

- Priority actions and milestones for sustainability
- Roles and responsibilities: who does what after the Action ends
- Funding and networking opportunities (e.g., Horizon Europe, EIT Food, EIC Pathfinder, etc.)
- Immediate next steps for PASP drafting

1. Introduction What we aim - Designing for Real Impact

Beyond Deliverables: Designing for Real Impact Content

- ✓ Most COST Actions stop at deliverables.
- ✓ Few consider the real-world impact after the Action ends (Y4).
- ✓ BioAqua aims to break this pattern: building a **Post-Action Sustainability Plan (PASP)** as a bridge to lasting change.
- ✓ Our mission today: Explore impact-driven pathways based on MoU deliverables.

1. Introduction A New Strategic Approach - From MoU to Legacy

An Alternative Approach: Top-Down Sustainability Thinking

- ✓ Start from the endgame: What societal, economic, and scientific impacts do we want to leave behind?
- ✓ Reverse engineer: Which deliverables best support that vision?
- ✓ Design actions and stakeholder engagement around impact, not just completion.
- ✓ Understand: **Deliverables are tools — not goals**. **Impact is the goal.** Most COST Actions stop at deliverables.

Identifying and Engaging Key Stakeholders in Aquaculture

The Quadruple Helix model

1. Introduction

Communication
Dissemination
Exploitation

C D E

Communication	Dissemination	Exploitation	
Reach out to society and show the **impact and benefits of EU-funded R&I activities.** Targeted communication activities must address the public policy perspective of European R&I funding by considering aspects such as (i) the benefits of transnational cooperation in a European consortium or (ii) scientific excellence or (iii) contributing to competitiveness and to solving societal challenges.	**Transfer knowledge & results** with the aim to enable others to use or reuse and take up results, thus maximising the impact of EU-funded research.	**Effectively use/reuse project results** through scientific, economic, political or societal exploitation routes aiming to turn R&I actions into concrete value and impact for society.	Objective
Inform about and **promote** the **project AND its results/ success** in a non-technical manner and through strategically planned actions – possibly engaging in a two-way exchange.	**Describe** and **ensure results available** for others to **USE or REUSE** ➡ focus on results only!	**Make concrete use/reuse** of research results (not restricted to commercial use.)	Focus
Multiple audiences beyond the project's own community incl. media and the broad public.	Audiences that may take an interest in the potential **USE/REUSE** of the results (e.g. scientific community, industrial partner, policymakers).	People/organisations including project partners themselves that make concrete use/reuse of the project results, as well as user groups outside the project.	Target Audience

Definition & Key Concepts

•Innovation refers to the **introduction of new methods, ideas, or products** that improve efficiency, sustainability, or competitiveness.

In the context of **BioAqua**, innovation means:

•Advancing biomolecular solutions to improve **aquaculture health, diagnostics, tracking,** and **biosafety**, while enabling **cross-sector collaboration** and **long-term sustainability** of European aquatic food systems.

Types of Innovation

1.Technological Innovation – Development of biomolecular tools, diagnostic kits, biosensors, and tracking systems that enhance fish health, disease prevention, and biosafety in aquaculture.

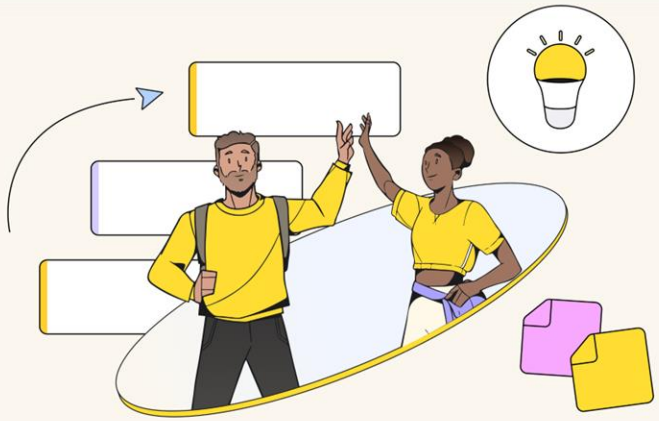
2.Business Model Innovation – Creation of new value chains and collaboration models between researchers, producers, and biotech companies to scale up and deploy sustainable aquaculture innovations.

3.Social Innovation – Design of inclusive training formats, citizen science activities, and stakeholder engagement strategies that promote trust, knowledge-sharing, and responsible aquaculture practices.

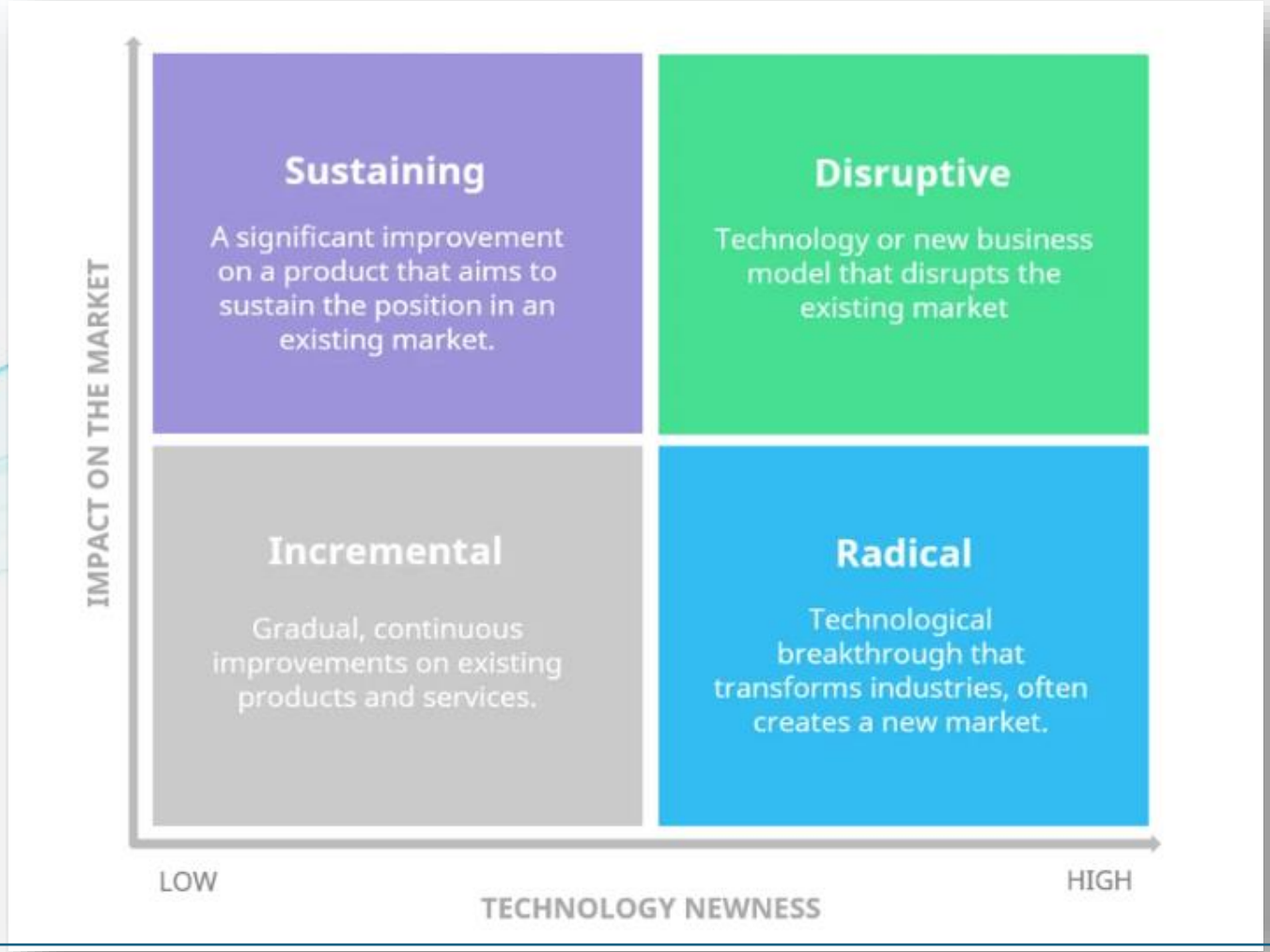
4.Process Innovation – Improvement of aquaculture monitoring, diagnostic, and biosecurity workflows through standardisation, digital integration, and real-time decision-support systems.

5.Policy Innovation - Development of evidence-based policy recommendations and regulatory frameworks that support the uptake of biomolecular technologies and align aquaculture practices with sustainability goals.

1. Introduction What is Innovation? The Innovation Matrix



Types of Innovation and Their Impact in Aquaculture



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Types of Innovation and Their Impact in Aquaculture

The **Innovation Matrix** helps categorize innovation based on **market impact** and **technological change**.
It is useful for understanding how industries and stakeholders can approach innovation in Aquaculture.

Type of Innovation	Market Impact	Technological Change	Example in Aquaculture
Incremental Innovation	Low	Low	Improved feeding protocols or tank aeration methods
Sustaining Innovation	High	Low	Refined molecular traceability tools for regulatory compliance
Radical Innovation	Low	High	Genomic editing or synthetic biology approaches for disease resistance
Disruptive Innovation	High	High	Biosensor kits for real-time disease detection on farms

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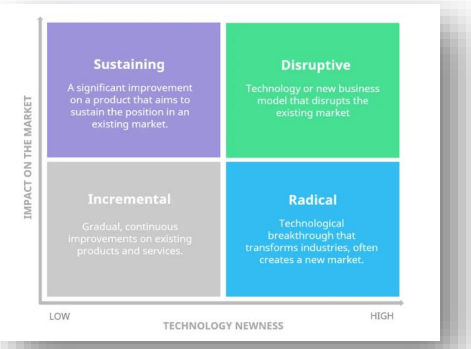

Key Takeaways

- **Incremental Innovation** Improves existing aquaculture practices using biomolecular enhancements *(e.g., refining existing diagnostic protocols with more accurate molecular markers)*.
- **Sustaining Innovation** Strengthens current biosafety and fish health systems without changing their structure *(e.g., standardising molecular tracking for regulatory alignment)*.
- **Radical Innovation** Applies breakthrough biomolecular methods that redefine aquaculture monitoring or veterinary practices. *(e.g., next-gen DNA-based tracking integrated with digital platforms, or molecular vaccines replacing antibiotics)*.
- **Disruptive Innovation** Introduces biomolecular technologies that change how fish health is managed or regulated *(e.g., portable biosensor kits for early disease detection at farm level)*.

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An Alternative Approach: Top-Down Sustainability Thinking

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1. The formal outputs defined in the Action's Memorandum of Understanding serve as the starting point for identifying opportunities with long-term relevance and application.

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2. Key stakeholder groups are mapped based on their potential to adopt, scale, or influence the use of selected deliverables, using a Quadruple Helix lens to ensure systemic engagement.

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3. Strategic use paths are co-developed, supported by targeted activities—such as dissemination, piloting, standardisation, policy recommendations or capacity-building—to enable real-world uptake and integration.
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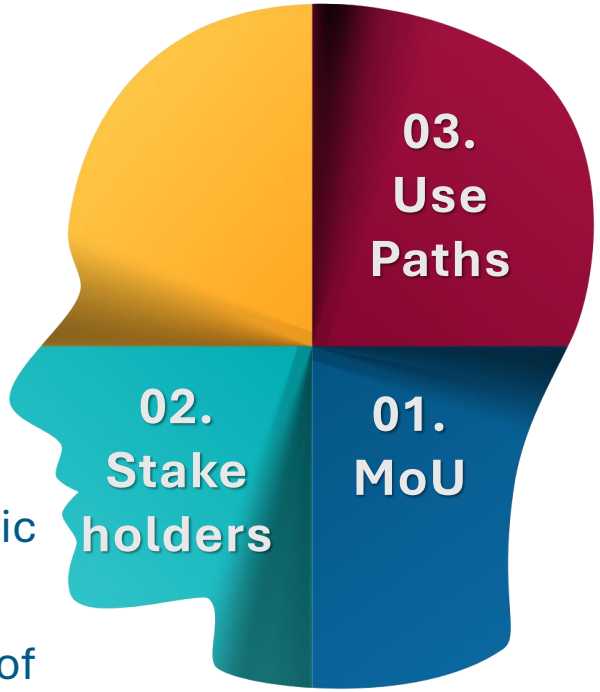

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4. Promising deliverables are matched with sustainability mechanisms, ownership models, and future funding pathways to ensure continuity and measurable impact beyond the Action's lifetime.

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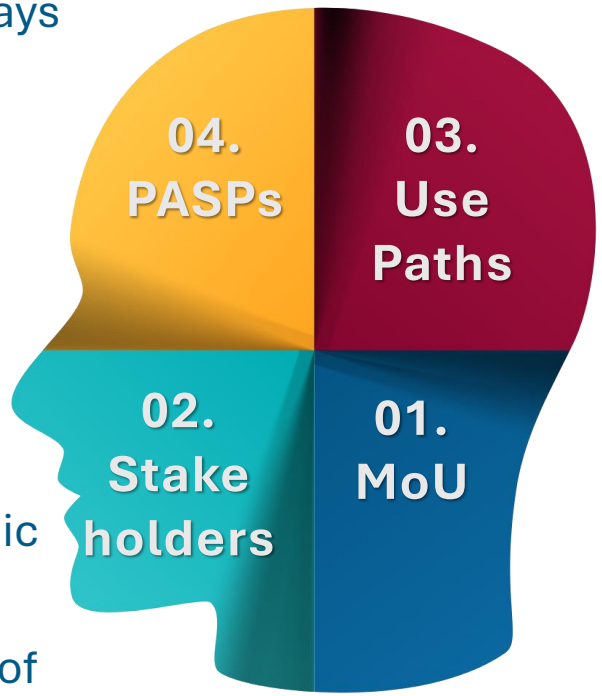

2. Setting the Scene: Trends and Technologies in Aquaculture

Current landscape: disease management, biosecurity, welfare, sustainability challenges

Framing the relevance of BioAqua's biomolecular innovation

- Sector Challenges Driving Innovation in Aquaculture
- Emerging Technologies Shaping the Sector
- Relevance to BioAqua's Innovation Agenda

2. Setting the Scene: Trends and Technologies in Aquaculture

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Framing the relevance of BioAqua's biomolecular innovation

Sector Challenges Driving Innovation in Aquaculture

✓ Current Challenges in European Aquaculture

- Disease outbreaks and fish mortality remain a major cost factor
- Antibiotic resistance and overuse of chemicals threaten public trust
- Lack of early diagnostics delays effective intervention
- Biosafety & traceability gaps in aquaculture production systems
- Environmental sustainability pressure from regulators and consumers
- Data fragmentation impedes real-time decision-making across the sector

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Framing the relevance of BioAqua's biomolecular innovation

Sector Challenges Driving Innovation in Aquaculture

✓ Technology Trends Transforming Aquaculture

- Biomolecular diagnostics for early disease detection
- DNA-based traceability tools for origin and species verification
- Biosensors for real-time health and water quality monitoring
- Microbiome analysis to improve nutrition and immunity
- Data Lakes and AI for predictive analytics in fish health
- Portable kits enabling in-field veterinary applications
- Digital twin and IoT integration for smarter farm management

SINTEF(Norway), EU projects (e.g.,AquaIMPACT, FutureEUAqua)

2. Setting the Scene: Trends and Technologies in Aquaculture

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Framing the relevance of BioAqua's biomolecular innovation

Sector Challenges Driving Innovation in Aquaculture

✓ Where BioAqua Contributes to This Transition

BioAqua Focus Area	Sector Need	Potential Deliverable
Diagnostic Tools	Early disease response	Biomolecular kits
Biosafety	Cross-border fish health protocols	Data Lake
Traceability	Regulatory & consumer assurance	DNA tracking methods
Training & Capacity	Skill gaps on molecular tools	MOOC, masterclasses
Innovation Continuity	Fragmented R&I efforts	Joint R&D proposals

2. Setting the Scene: Trends and Technologies in Aquaculture

Emerging technologies: IoT, AI, Biomolecular solutions

Enabling a shift from reactive practices to smart, sustainable, and preventive aquaculture.

✓ Internet of Things (IoT)

- Real-time monitoring of water quality, feeding, and fish behaviour
- Smart sensors deployed in tanks and open-sea cages
- Supports precision aquaculture and early warning systems

✓ Artificial Intelligence (AI)

- Predictive analytics for disease outbreaks and growth forecasting
- Image analysis for fish health and welfare assessment
- ✓ Supports decision-making and reduces overreliance on manual observation

✓ Biomolecular Solutions

- DNA/RNA-based diagnostics and biosensors for early disease detection
- Molecular tracking for species verification and traceability
- Enables non-invasive, accurate, and scalable fish health monitoring

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2. Setting the Scene: Trends and Technologies in Aquaculture

Key Takeaways: BioAqua's Impact Areas

- **Fish Health & Welfare** -BioAqua advances precision diagnostics and biomolecular tools for early, accurate, and non-invasive health monitoring.
- **Biosecurity & Disease Management** - Action deliverables contribute to preventive, cross-border biosafety protocols and real-time surveillance capacity.
- **Traceability & Consumer Trust** - Molecular tracking methods enhance supply chain transparency, species verification, and regulatory compliance.
- **Training & Capacity Building** - Outputs like MOOCs, masterclasses, and podcasts close skill gaps and democratise access to biomolecular knowledge.
- **Post-Action Continuity & Innovation Ecosystems** - By linking deliverables with PASP and stakeholder ownership, BioAqua ensures real-world uptake and long-term relevance.

3. Mapping BioAqua Deliverables Towards Sustainability

4.1.2. DESCRIPTION OF DELIVERABLES AND TIMEFRAME

Compiled in the following table:

Deliverable	Timeframe
Tests (data, surveys…) from "High-performance workshops." Reports on workshops and research-enabling experiments.	Annually
40 webinars	Monthly from month 6
1 podcast channel (or blog)	From month 6
5 joint papers / WG	Years 3 and 4
Joint research agendas and technical reports from WGs	Action's Mid-term & End of Action
Reports on networking and dissemination	Action's Mid-term & End of Action
4 joint R&D proposals in the area	Action's Mid-term & End of Action
BIOAQUA Data Lake	End of Action
3 patent families supported	End of Action
Success story brochures and infographics	End of Action
1 video game	End of Action
MOOC	End of Action
15 masterclasses	End of Action
BIOAQUA book (or equivalent)	End of Action

3. Mapping BioAqua Deliverables Towards Sustainability

Data Lake: value, management, and stakeholders

High-Performance Workshops and Joint Research Agenda: long-term relevance

Dissemination tools: MOOC, Podcast, Videogame, Masterclasses

Scientific outputs: Papers, Book

Technology outputs: Patents, Innovation pathways

3. Mapping BioAqua Deliverables Towards Sustainability

BioAqua Data Lake: Strategic Asset for Sustainable Aquaculture

Purpose and Value

- Central repository of biomolecular data for diagnostics, biosafety, and veterinary applications
- Enables standardisation, cross-border comparison, and collaborative innovation
- Long-term asset for research, innovation, and policy alignment

Key Management Considerations

- Governance: Who maintains and updates it post-Action?
- Access Models: Open, restricted, tiered?
- Interoperability: Compatibility with EU data spaces, industry platforms, R&D infrastructures
- Data Quality: Standards, curation, validation

Stakeholder Ecosystem

- Researchers: Using the data to develop new diagnostics and tracking models
- Biotech Companies: Applying datasets to build tools and services
- Policy Bodies (EFSA, national agencies): Using evidence for risk assessment or policy development
- Farmers / Industry: Integrating data into health and welfare management practices

The Data Lake is not just a technical deliverable — it's a platform for multi-actor collaboration and long-term knowledge transfer.

3. Mapping BioAqua Deliverables Towards Sustainability

High-Performance Workshops & Joint Research Agenda: Building Scientific Continuity

Strategic Purpose

- Strengthen collaboration across disciplines, institutions, and countries
- Align scientific activities around biomolecular innovation in aquaculture
- Generate co-owned knowledge priorities that outlive the Action timeline

Sustainability Potential

- Workshops seed new consortia and proposals (e.g. Horizon Europe, Blue Economy, EIC Pathfinder)
- Agenda serves as a living roadmap for biomolecular R&I in aquaculture
- Enhances visibility of the Action among policy bodies, funders, and new entrants
- Opportunity to formalise an informal scientific network or platform beyond the Action

Stakeholder Relevance

- Researchers: Use agenda to design aligned, funded projects
- Policy actors: Gain insights on research gaps and science-policy needs
- Industry: Access a forward-looking knowledge base for R&D and product development
- Funders: Reference the agenda as a roadmap for priority-setting

These deliverables establish BioAqua's role as a knowledge integrator and agenda-setter in the biomolecular aquaculture field.

3. Mapping BioAqua Deliverables Towards Sustainability

Dissemination Tools: MOOC, Podcast, Videogame, Masterclasses

Strategic Purpose

- Translate complex biomolecular knowledge into accessible formats for diverse audiences
- Promote awareness, uptake, and skills development across academia, industry, and society
- Support long-term visibility of BioAqua beyond the life of the Action

Sustainability Potential

- MOOC and masterclasses can be integrated into university curricula or CPD platforms
- Podcast series can evolve into a stakeholder-driven communication channel
- The videogame offers a novel, engaging format for youth education or public outreach
- Materials can be repurposed by other EU-funded projects, networks, or platforms

Stakeholder Relevance

- Educators and students benefit from structured, accessible content
- Industry gains from training tools that support workforce development
- Policymakers and NGOs can use materials for advocacy and awareness
- Civil society, including younger audiences, are engaged through creative, interactive media

These deliverables position BioAqua as a knowledge integrator and agenda-setter in the emerging field of biomolecular aquaculture.

3. Mapping BioAqua Deliverables Towards Sustainability

Scientific Outputs: Joint Papers and BioAqua Book

Strategic Purpose

- Consolidate and disseminate scientific findings generated through the Action
- Position BioAqua's network as a reference point in biomolecular aquaculture research
- Translate project knowledge into peer-reviewed literature and an accessible long-term resource

Sustainability Potential

- Papers contribute to the academic record and support citation in future projects or policy briefs
- The BioAqua book can function as a foundational text or knowledge base for the field
- Outputs may support future joint proposals, curricula development, or policy advisory roles
- Open access formats enhance longevity and visibility

Stakeholder Relevance

- Researchers benefit from co-authorship and recognition
- Educators gain curated content for teaching and training
- Policymakers and agencies can reference scientific insights in guidelines or strategies
- Future EU projects may adopt or cite outputs to build continuity

These outputs reinforce BioAqua's scientific credibility and provide a lasting knowledge foundation for future research, education, and policy development.

3. Mapping BioAqua Deliverables Towards Sustainability

Technology outputs: Patents, Innovation pathways

Strategic Purpose

- Protect and valorise novel biomolecular methods, tools, or processes emerging from the Action
- Promote translation of research into applied solutions and commercial pathways
- Foster collaboration between academia, biotech developers, and industry partners

Sustainability Potential

- Patent filings support long-term innovation positioning and potential licensing
- Intellectual property can serve as a launchpad for startups, spin-offs, or joint ventures
- Exploitation strategies may feed into EU valorisation initiatives or EIC-related schemes
- Contributes to PASP as a bridge between knowledge and market application

Stakeholder Relevance

- Researchers gain access to protection pathways and exploitation advice
- Industry benefits from investable, validated innovation streams
- Technology transfer offices and IP experts can guide sustainability models
- Policy and funding bodies see a clear return on research investment

These innovation assets enable BioAqua to bridge research and real-world application, fostering sustainable impact through protected knowledge and collaboration.

4. Stakeholder Mapping and Analysis

Stakeholder Analysis : Dissemination Examples & Exploitation Avenues (*OHD, Net4Brain*)

Identification of key groups: Researchers, Fish Farmers, Tech Providers, Policymakers, Citizens

Needs, incentives, and engagement strategies

Breakout sessions: Group work to link deliverables to stakeholder interests

4. Stakeholder Mapping and Analysis

Identifying Key Stakeholder Groups

Stakeholder Mapping in the BioAqua Ecosystem

Researchers

- Interests: Scientific collaboration, data access, publication opportunities
- Incentives: Co-authorship, funding alignment, platform for knowledge sharing

Fish Farmers & Producers

- Interests: Disease prevention, cost-effective diagnostics, biosafety tools
- Incentives: Practical value, training, real-time tools, reduced losses

Technology Providers & Biotech SMEs

- Interests: Innovation opportunities, access to IP, collaboration with scientists
- Incentives: Product development, licensing, market expansion

Policy Makers & Agencies (e.g., EFSA, national bodies)

- Interests: Evidence-based regulation, biosafety standards, traceability
- Incentives: Scientific legitimacy, stakeholder buy-in, policy alignment

Citizens & Civil Society

- Interests: Food safety, environmental protection, transparency
- Incentives: Awareness campaigns, citizen science, trust in aquaculture products

4. Stakeholder Mapping and Analysis

Engagement Strategies for Lasting Impact

From Stakeholder Needs to Engagement Pathways

Align deliverables with real-world incentives - Map how each output addresses specific stakeholder problems or goals (e.g., efficiency, compliance, visibility)

Use tailored communication formats - Choose the right channels: technical briefs for policymakers, hands-on tools for producers, data portals for researchers

Promote co-design and early involvement -Include stakeholders in tool development, testing, and feedback loops to foster ownership and relevance

Enable continuity beyond the Action - Identify champions, networks, or platforms that can host and scale key deliverables post-Action

Build relationships, not just events - Engagement is a process—move from one-off dissemination to trusted dialogue and collaboration over time

Create value on both sides - Ensure every interaction offers something meaningful—whether it's insight, visibility, funding alignment, or technical benefit

4. Stakeholder Mapping and Analysis

Engagement Strategies for Lasting Impact

From Stakeholder Needs to Engagement Pathways

Stakeholder Group	Needs	Incentives	Engagement Strategy
Researchers	Access to data, scientific collaboration, publication opportunities	Co-authorship, funding alignment, access to infrastructure	Co-develop agenda, open calls for joint papers, integrate into Data Lake development
Fish Farmers	Practical solutions for disease management and biosecurity	Reduced losses, better efficiency, affordable tools	Pilot programmes, training in diagnostics, feedback loops for tool refinement
Tech Providers / Biotech SMEs	Use cases for technologies, access to IP or data, collaboration	Market access, licensing, validation	Matchmaking sessions, involvement in workshops, exploitation planning
Policymakers & Agencies	Evidence for policy, biosafety data, risk modelling	Scientific legitimacy, alignment with EU Green Deal and food policy goals	Policy briefs, advisory workshops, alignment with regulatory cycles
Citizens / Civil Society	Transparency, trust in fish products, sustainability assurance	Public good, informed consumption, environmental benefits	Podcasts, gamified learning tools (e.g., videogame), citizen science pilots

4. Stakeholder Mapping and Analysis

Breakout Activity:

Linking Deliverables to Stakeholder Interests

Instructions:

- Form small groups; each takes 1–2 BioAqua deliverables
- Identify which stakeholder groups are most relevant
- Discuss how to align the deliverable's form, function, or access with stakeholder needs
- Map key challenges to sustainability and propose a pathway for uptake

Outcome:

- Each group presents one concrete idea for how a deliverable can be sustained through stakeholder engagement.

5. Dissemination and Exploitation Pathways

Designing tailored dissemination per stakeholder group

Moving from dissemination to actionable exploitation:

- Data valorisation (Data Lake)
- R&I continuity (New projects, funding, IP protection)
- Training continuity (MOOC, podcasts, masterclasses)
- Commercialisation/Start-up pathways

5. Dissemination and Exploitation Pathways

Designing tailored dissemination per stakeholder group

Dissemination and Exploitation Pathways: Customising Communication and Use

Purpose Ensure each stakeholder group receives the right content, in the right format, at the right time — maximising visibility, relevance, and uptake of BioAqua deliverables.

Tailored Dissemination and Exploitation Strategies

Stakeholder Group	Dissemination Format	Exploitation Opportunity
Researchers	Scientific papers, research agenda, workshops	Joint proposals, co-authored outputs, sustained networks
Fish Farmers	Webinars, factsheets, on-site training, diagnostic demos	Field testing, tool adoption, feedback integration
Tech Providers / SMEs	Technical briefs, matchmaking events, pilot invitations	Licensing, commercialisation, innovation partnerships
Policymakers	Policy briefs, advisory sessions, strategic roundtables	Evidence uptake, regulation alignment, pilot programme support
Educators / Students	MOOCs, podcasts, masterclasses	Curriculum integration, skill development
Citizens	Podcasts, videos, gamified learning (videogame)	Public trust, awareness, citizen science engagement

5. Dissemination and Exploitation Pathways

Exploitation Planning: Turning Deliverables into Sustainable Assets

Core Areas of Focus

Ownership and Stewardship

- Assign post-Action responsibility for key assets (e.g., Data Lake, MOOC, Book)
- Identify suitable hosts: universities, consortia, NGOs, or industry alliances

Intellectual Property and Licensing

- Define which outputs are open, shared under Creative Commons, or protected by IP
- Explore licensing options for tools, content, and patented processes

Business and Value Models

- Identify value proposition for each stakeholder group (e.g., cost-saving, regulatory fit, knowledge access)
- Assess opportunities for spin-offs, start-up partnerships, or continued R&D services

Integration into Existing Ecosystems

- Link outputs to national or EU platforms (e.g., data infrastructures, knowledge hubs)
- Embed tools in training systems, policy platforms, or product pipelines

PASP Anchoring

- Ensure key exploitable deliverables are prioritised in the Post-Action Sustainability Plan
- Develop handover documentation and stakeholder agreements

5. Dissemination and Exploitation Pathways

Exploitation Planning: Turning Deliverables into Sustainable Assets

Moving from Dissemination to Actionable Exploitation: Data Valorisation (Data Lake)

Dissemination

- The BioAqua Data Lake is introduced to stakeholders through workshops, presentations, and documentation
- Its purpose, structure, and scientific value are communicated to stimulate interest and visibility

Actionable Exploitation Strategy

- Use Case Definition: Tailor datasets to disease modelling, regulatory risk assessments, or AI-driven innovation
- Access and Licensing Models: Decide between open access, tiered use, or subscription-based access (e.g., CC for research, commercial licence for industry)
- Interoperability and Integration: Link with EU data spaces or industry digital tools
- Revenue Streams: Offer commercial access or analytics services, support funded collaborations
- Long-Term Hosting: Assign post-Action stewardship under PASP with governance and update models

Key Message

The Data Lake must evolve from a static output to a dynamic, user-driven service that supports innovation, regulation, and commercial activity across the aquaculture sector.

5. Dissemination and Exploitation Pathways

Exploitation Planning: Turning Deliverables into Sustainable Assets

Moving from Dissemination to Actionable Exploitation: R&I Continuity

Dissemination

- Results are communicated through papers, workshops, and the Joint Research Agenda
- Stakeholders are informed of findings, tools, and gaps identified by the Action

Actionable Exploitation Strategy

- New Project Generation
  - Use the research agenda and deliverables as the basis for Horizon Europe, EIC, or national funding proposals
  - Build consortia around specific BioAqua tools (e.g., Data Lake, diagnostics, training formats)
- Funding Alignment
  - Position BioAqua outcomes within existing EU priorities (e.g., EU Blue Deal, Food Systems Partnerships, Digital Europe)
  - Leverage visibility from dissemination to attract funders and strategic partners
- IP Protection and Valorisation
  - Identify results with commercial or innovation potential
  - Protect key methods or content through patents, trademarks, or licensing terms
  - Integrate IP considerations into PASP and future exploitation plans

Key Message

Dissemination is only the first step — the real return on investment comes when BioAqua results are used to secure future funding, protect innovation, and sustain impact through new initiatives.

5. Dissemination and Exploitation Pathways

Exploitation Planning: Turning Deliverables into Sustainable Assets

Moving from Dissemination to Actionable Exploitation: Training continuity (MOOC, podcasts, masterclasses)

Dissemination

- BioAqua delivers high-quality learning tools: MOOC, podcast series, and masterclasses
- These materials are made available to stakeholders through events, websites, and networks

Actionable Exploitation Strategy

- Long-Term Hosting & Access
  - Partner with universities, professional associations, or online platforms to host and maintain the MOOC /masterclasses
  - Ensure podcast channels are maintained or transferred to stakeholder organisations
- Curriculum Integration
  - Adapt content for inclusion in university or vocational programmes
  - Align with EQF/ESCO frameworks or blue economy skill-building schemes
- Revenue and Service Models
  - Offer free basic access (eg Creative Commons), with optional certification or advanced modules under paid models
  - Use training assets as entry points for funded capacity-building or consultancy services
- Stakeholder Activation
  - Invite fish farmer associations, biotech clusters, and public bodies to use materials for staff development
  - Position materials as tools to support responsible innovation and biosafety adoption

Key Message

Training tools must shift from one-time outputs to continuously used resources that inform, upskill, and embed biomolecular innovation in the aquaculture workforce.

5. Dissemination and Exploitation Pathways

Exploitation Planning: Turning Deliverables into Sustainable Assets

Moving from Dissemination to Actionable Exploitation: Commercialisation and Start-up Pathways

Dissemination

- Present BioAqua tools, prototypes, or IP assets at tech transfer events, innovation forums, or investor briefings
- Promote visibility of exploitable outcomes (e.g., patented tools, diagnostics, game-based training, data services)

Actionable Exploitation Strategy

- Market Validation and Demand Mapping
  - Identify real market demand for tools (e.g., biosensors, diagnostic kits, data services)
  - Engage end-users (producers, labs, SMEs) to refine features and demonstrate value
- Commercial Pathway Assessment
  - Evaluate options: spin-off creation, licensing, public-private partnerships
  - Develop lean business models, using tools like the Business Model Canvas or Value Proposition Canvas
- Investor and Accelerator Engagement
  - Approach EU accelerators (e.g., EIT Food, BlueInvest, EIC, PRIMA) with validated use cases
  - Explore seed funding or early co-development schemes
- Support Services
  - Collaborate with technology transfer offices and innovation hubs
  - Provide coaching and mentoring to researchers and postdocs involved in exploitable outputs

Key Message

Where applicable, BioAqua deliverables can serve as foundations for commercially viable solutions — but this requires targeted support, partnership-building, and post-Action continuity planning.

6. Drafting the Sustainability and Exploitation Roadmap

Priority actions and milestones for sustainability

Roles and responsibilities: who does what after the Action ends

Funding and networking opportunities (e.g., Horizon Europe, EIT Food, EIC Pathfinder,PRIMA, etc.)

Immediate next steps for PASP drafting

6. Drafting the Sustainability and Exploitation Roadmap

Priority actions and milestones for sustainability

- ✓ Identify 3–5 high-impact deliverables to anchor in the PASP
- ✓ Assign ownership and hosting arrangements for each (e.g., Data Lake, MOOC)
- ✓ Define short-term funding pathways (e.g., Horizon Europe, national programmes)
- ✓ Formalise stakeholder engagement through letters of support or MoUs
- ✓ Establish a timeline linking final Action outputs to post-Action sustainability steps

6. Drafting the Sustainability and Exploitation Roadmap

Assign ownership and hosting arrangements for each

- ✓ Appoint a lead or host institution for each key deliverable (e.g., Data Lake, podcast, book)
- ✓ Define the role of core group members in maintaining visibility, outreach, or updates
- ✓ Identify stakeholder organisations willing to adopt or co-manage specific outputs
- ✓ Explore governance options (advisory board, informal network, non-profit structure)
- ✓ Document responsibilities in the PASP to ensure continuity and accountability

6. Drafting the Sustainability and Exploitation Roadmap

Funding and Networking Opportunities

- ✓ Align BioAqua deliverables with Horizon Europe calls (e.g., Cluster 6, One Health, Blue Economy)
- ✓ Explore EIC Pathfinder and Transition schemes for tech-based outputs (e.g., diagnostics, biosensors)
- ✓ Engage with EIT Food or BlueInvest for start-up support and market validation
- ✓ Position the Joint Research Agenda as the foundation for new collaborative proposals
- ✓ Build long-term alliances with COST Actions, research infrastructures, and EU partnerships

6. Drafting the Sustainability and Exploitation Roadmap

Immediate Next Steps for PASP Drafting

- ✓ Consolidate feedback from today's workshop and breakout sessions
- ✓ Prioritise deliverables with clear sustainability or exploitation potential
- ✓ Draft initial PASP outline: roles, timeline, hosting, funding options
- ✓ Circulate draft for input and commitment from key stakeholders
- ✓ Develop a task force and / or identify key enablers
- ✓ Finalise and validate PASP by the end of the Action's timeline

BioAqua
Sustainable aquaculture solutions

4. Stakeholder Mapping and Analysis

Stakeholder Analysis : Dissemination Examples & Exploitation Avenues (*OHD, Net4Brain*)

Workshop Agenda

1

Overview of Stakeholder Analysis Framework

- Explanation of the framework
- Objectives and importance

2

Identifying Stakeholder Groups

- Criteria for identification
- Initial suggestions and open discussion

3

Selecting Stakeholder Analysis Tools

- Overview of available tools
- Choosing the right tools for our needs

4

•Developing an Action Plan

- Steps involved in creating the action plan
- Milestones and timelines

Overview of Stakeholder Analysis Framework

A. White Paper on the Environmental Impact of Antiparasitic Drugs

B. Guidelines for the development of low environmental impact antiparasitic drugs

Overview of Stakeholder Analysis Framework

Stakeholders Analysis

Stakeholder analysis framework will serve as a structured approach to identify, analyse, and engage with the key stakeholders who influence and are impacted by our works. We aim to ensure that OHD stakeholder strategy aligns with our project goals and addresses the interests and concerns of all relevant parties.

Step 1
Identify Stakeholders
1

Step 2
Utilize Stakeholder Analysis Tools
2

Step 3
Engagement Strategies
3

Step 4
Dissemination and Exploitation Opportunities
4

Step 5
Exploitation Strategies
5

Future Plans
Timeline and Milestones
6

Stakeholders Analysis

Overview of Stakeholder Analysis Framework

Step 1. Identify Stakeholders

Identifying Stakeholder Groups

Step 1. Identify Stakeholders

- Academic and Research Institutions
- Healthcare Providers
- Biotechnology and Pharmaceutical Companies
- Investors and Funding
- Policy Makers and Regulatory Bodies
- Patient Advocacy Groups
- Technology Developers

Stakeholders Analysis – Key Stakeholders

ACADEMIC AND RESEARCH INSTITUTIONS

- Research Excellence Centres
- Biomedical Institutes

BIOTECH AND PHARMA COMPANIES

- Drug development
- Manufacturing, and distributing new drugs and technologies.

INVESTORS AND FUNDING BODIES

- Venture Capitalists
- EU & Government grants
- Foundations & Philanthropic organizations.

REGULATORY BODIES & STANDARDS ORGANISATIONS

- European Medicines Agency (EMA)
- European Centre for Disease Prevention
- and Control (ECDC)
- European Food Safety Authority (EFSA)
- National Health Authorities **(PM)**
- Medicines and Healthcare products Regulatory Agency (MHRA) - UK
- Federal Institute for Drugs and Medical Devices (BfArM) - Germany
- French Agency for the Safety of Health Products (ANSM) - France
- Italian Medicines Agency (AIFA) - Italy
- Health Technology Assessment (HTA) Bodies

POLICY MAKERS

- European Level – Directorate-General for Health and Food Safety (DG SANTE)
- National level – Ministries
- World Health Organization (WHO)
- World Organisation for Animal Health (OIE)

HEALTHCARE PROVIDERS

- Veterinarians
- Doctors & Nurses
- Other Clinicians who will use the new technologies in clinical settings

OTHER - PATIENTS AND PATIENT ADVOCACY GROUPS, NGOS, THINK TANKS, HEALTH INSURANCE COMPANIES, TECHNOLOGY DEVELOPERS (Companies developing diagnostic tools, AI applications, and other relevant technologies.) AND IT COMPANIES, ETC.

Identifying Stakeholders

Overview of Stakeholder Analysis Framework

Step 2. Stakeholders Analysis Tools

Stakeholders Analysis Tools

Stakeholder Analysis Matrix: A table used to evaluate stakeholders based on various criteria such as interest, influence, power, and support. This helps in **prioritizing** stakeholder engagement strategies.

Power-Interest Grid: This tool plots stakeholders on a grid based on **their level of interest** in the project and their power to influence it. It helps in identifying which stakeholders need **more attention** and which can be monitored with less frequent communication.

SWOT Analysis: Sometimes adapted for stakeholder analysis by assessing the **Strengths, Weaknesses, Opportunities, and Threats** that stakeholders bring to a project.

Salience Model: This model classifies stakeholders based on three attributes: **power, legitimacy, and urgency**. It helps in understanding who should be given priority based on their attributes' combination.

Influence-Impact Grid: Similar to the Power-Interest grid, this tool helps in assessing stakeholders based on their **influence** over the project and the **impact** the project has on them.

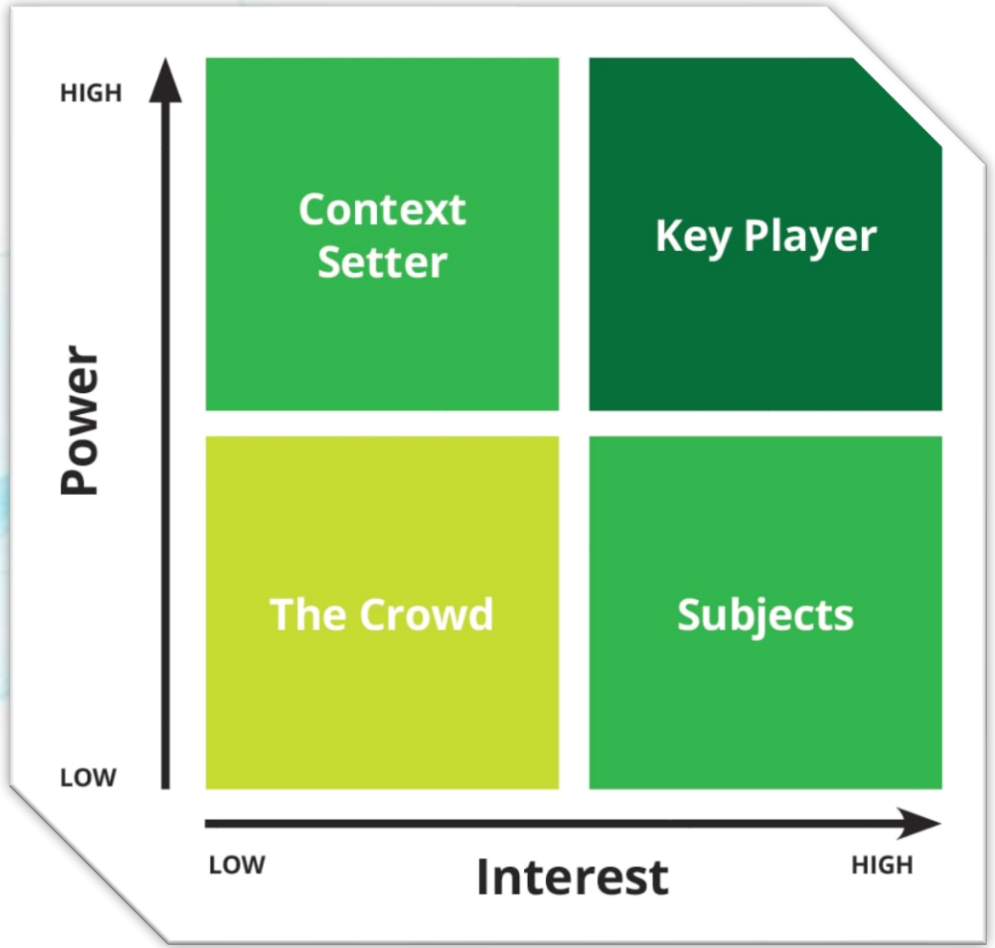
Stakeholder Engagement Assessment Matrix: This matrix helps in determining the **current level of engagement** of each stakeholder and the **desired level of engagement** to ensure project success.

Stakeholders Analysis Tools

Stakeholder Analysis Matrix

Stakeholders Analysis Tools

Power-Interest Grid

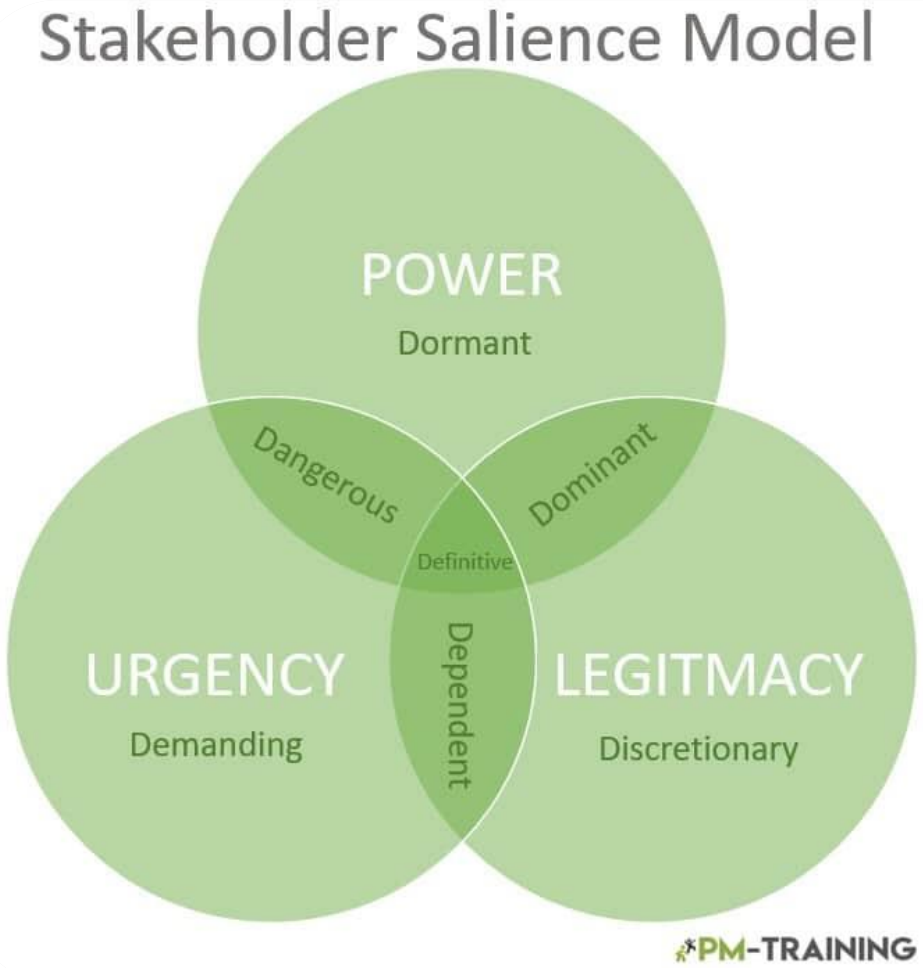


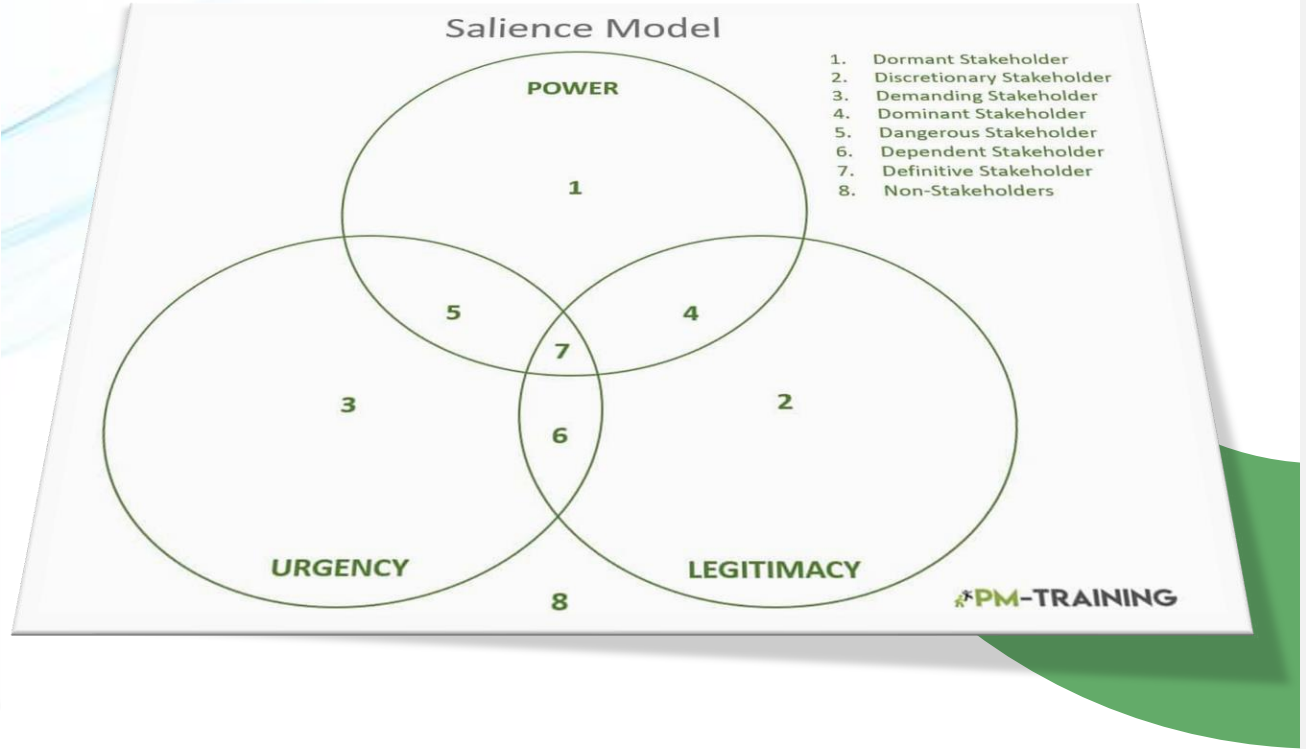
Stakeholders Analysis Tools

SWOT Analysis

Stakeholders Analysis Tools

Salience Model

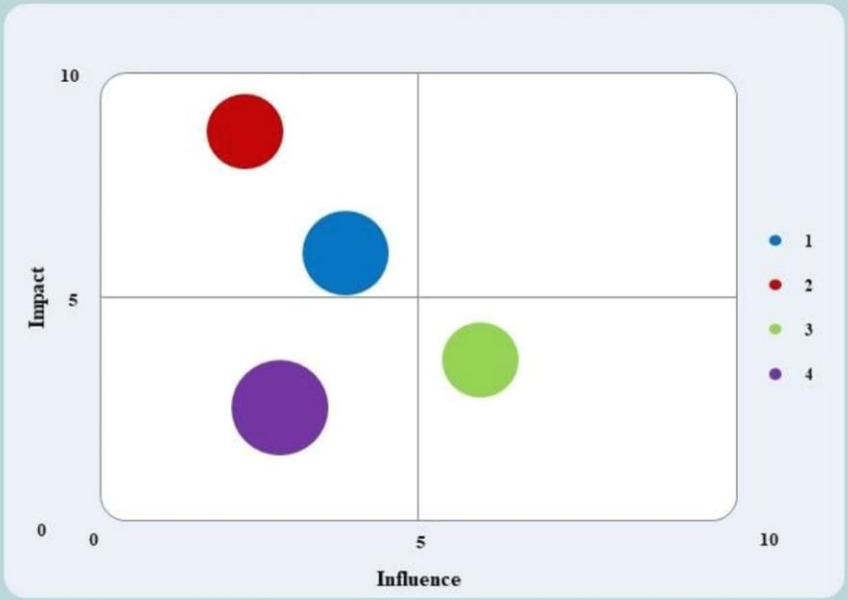




Stakeholders Analysis Tools

Influence-Impact Grid

Stakeholder prioritization based on commitment and impact



Stakeholder	Impact	Influence	Actions for effective management
	6	4	Communicate advantages
	9	3	Include in project team and use there suggestions
	4	6	Keep them informed
	3	2	No action required

Stakeholders Analysis Tools

Stakeholder Engagement Assessment Matrix

C	Current Level of Engagement
D	Desired Level of Engagement
C D	Both Current and Desired

STAKEHOLDER	Unaware	Resistant	Neutral	Supportive	Leading
Stakeholder 1	C			D	
Stakeholder 2			C D		
Stakeholder 3		C	D		
Stakeholder 4				C D	
Stakeholder 5					
Stakeholder 6					
Stakeholder 7					
Stakeholder 8					

Selecting Stakeholder Analysis Tools

Select Stakeholder Analysis Tool

Stakeholders Analysis Tools

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Overview of Stakeholder Analysis Framework

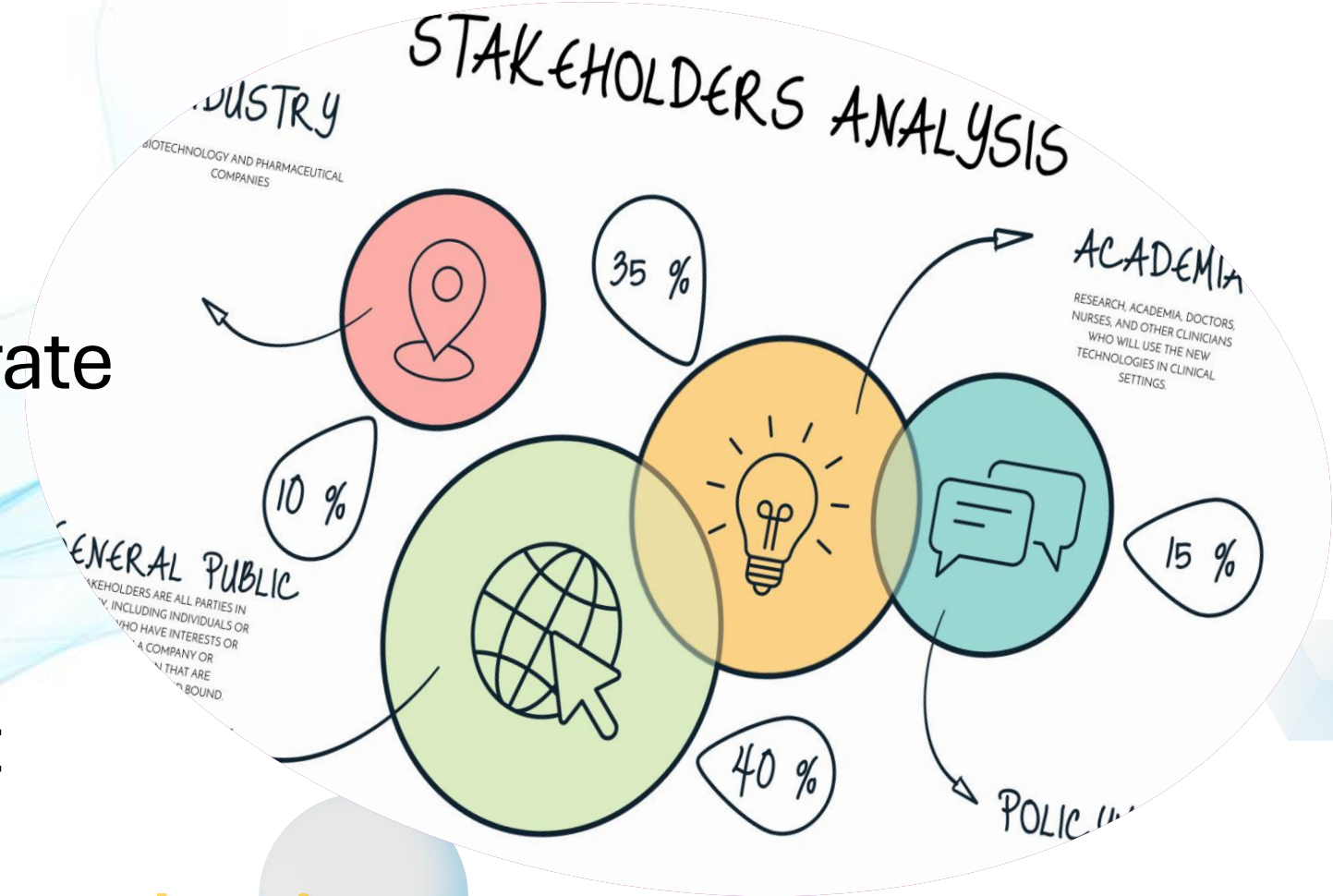
Step 3. Action Plan

A. White Paper on the Environmental Impact of Antiparasitic Drugs

B. Guidelines for the development of low environmental impact antiparasitic drugs

Engage
Understand Collaborate

Reaching
Stakeholders for
Breakthrough Impact



Stakeholders Analysis

Developing an Action Plan

Dissemination & Exploitation

Stakeholders Case Study

Net4Brain
Let's beat brain cancer together

Dissemination Examples

Research Publications and Collaborations: Opportunities for members to publish cutting-edge research in high-impact journals and collaborate through the network.

Technological Innovations and Commercial Partnerships: The potential for developing new diagnostic tools, therapies, and AI applications in partnership with tech companies.

Policy Influence and Funding: Network can influence health policy decisions and increase visibility for securing funding.

Stakeholders Analysis - Exploitation Avenues

Intellectual Property and Commercialisation

- Patents: Assist Researchers to protect innovative findings or technologies through patents, which can lead to commercial partnerships or startup creation.
- Licensing: Explore opportunities for licensing technologies or methodologies developed within the network to biotech or pharmaceutical companies.

Technology Transfer

- Spin-offs and Startups: Support the creation of spin-off companies that can develop and market the technologies invented within the community.
- Industry Collaboration: Establish formal collaborations with industry partners who can provide funding, resources, and platforms for scaling up promising technologies.

Stakeholders Analysis - Exploitation Avenues

Clinical Trials and Implementation

- Protocol Development: Use the network's collective expertise to develop new clinical trial protocols, enhancing the efficiency and effectiveness of brain cancer treatments.
- Clinical Partnerships: Establish Partnerships with Clinical Institutions to test new diagnostic tools and treatments developed by the network.

Data Utilisation and Software Development

- Data Sharing Platforms: Develop and exploit comprehensive *own(?)* data sharing platforms that can be used by Researchers, enhancing the scope of data analysis and research insights.
- Software Tools: Create proprietary software tools for data analysis, neuroimaging, or patient management, which can be licensed to hospitals and research institutions.

Stakeholders Analysis - Exploitation Avenues

Educational Products and Services

- Continuing Professional Development (CPD): Develop and offer CPD courses on the latest research, technologies, and treatment methodologies for brain cancer.
- E-Learning Modules: Create e-learning modules and virtual workshops to disseminate knowledge and train researchers and clinicians across Europe.

Policy and Advocacy

- Guideline Development: Work on developing new guidelines for the diagnosis and treatment of brain cancer, based on the latest research findings from the network.
- Policy Advocacy: Use the network's collective voice to advocate for changes in health policy, funding priorities, and public health initiatives related to brain cancer.

Stakeholders Analysis

Key technologies that are currently in focus or hold promise for significant impact

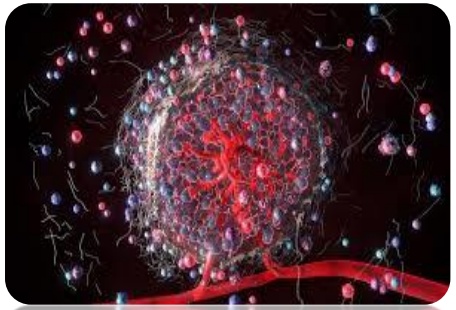
Net4Brain
Let's beat brain cancer together

Neuroimaging Technologies

- Advanced MRI Techniques - diffusion tensor imaging (DTI) functional MRI (fMRI) and perfusion MRI
- PET Imaging- PET (Positron Emission Tomography) combined with MRI or CT scans

- Liquid Biopsies
- Genomic Profiling
- Wearable Technologies
- Robotic Surgery

- **Diagnostic Algorithms**
- **Predictive Analytics**
- **Systems Biology- Modelling and simulation of biochemical pathways**
- **Data Integration Platforms Combining genomic data, clinical data, and imaging data**



Therapeutic Technologies

- Targeted Drug Delivery Systems
- Immunotherapy Platforms - vaccines and CAR-T cell therapies

Stakeholder Analysis Matrix

Stakeholders	Commercialisation	Clinical Adoption	Public-Private Partnerships	Policy Development	Data Sharing	Educational Programs
Academic Institutions	■	■	■		■	■
Biotech and Pharma	■	■	■			
Investors and Funding Bodies	■		■			
Policymakers and Insurers			■	■		
Regulatory Bodies		■		■		
Healthcare Providers		■	■			■
Patients and Advocacy Groups			■	■		■
Technology and IT Companies	■	■	■		■	

Stakeholders Analysis

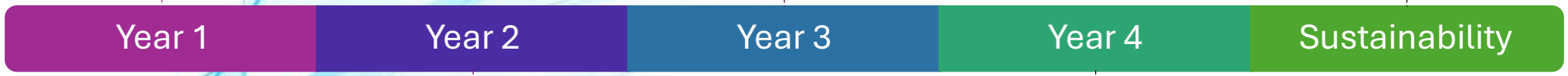
OHD Action Timeline

Establish foundational partnerships with biotech firms, pharmaceutical companies, and academic institutions, Initiate discussions with regulatory bodies

Showcase preliminary findings through conferences, workshops, and webinars, Develop IP Strategies, Clinical Engagement

Maintain active collaboration networks with Stakeholders, Monitor and adapt Exploitation Strategies

Legacy Activities - long-term utilization of the research outcomes, such as perpetual training programs, updates to the established database/biobank, and ongoing public engagement campaigns.



Begin dialogue with policymakers to advocate for supportive policies and funding opportunities, Broaden engagement with technology developers and biotech companies

Secure agreements on commercialization paths with industry partners, Strengthen Policy Advocacy, Plan for Sustainability: Establish long-term partnerships and funding mechanisms

Net4Brain
Let's beat brain cancer together

Net4Brain
Let's beat brain cancer together

Exploitation

In order to maximize the impact of our research, Net4Brain COST Action should adopt a robust Exploitation Strategy aimed at transforming scientific discoveries into tangible clinical applications and commercial products.

This strategy should encompass the protection and management of intellectual property, the development of commercial partnerships, and the engagement of stakeholders across the healthcare ecosystem. By aligning our scientific objectives with market needs and regulatory requirements, we should aim to accelerate the translation of our breakthroughs in brain cancer research into improved diagnostics, therapies, and patient outcomes. We need to ensure that these innovations reach the market efficiently and ethically, providing significant benefits to patients and the medical community.

Summary

Net4Brain COST Action should strategically engage with a diverse array of stakeholders over a four-year timeline to optimize brain cancer research and treatment innovations.

Year 1 establish foundational collaborations healthcare providers industry regulatory bodies
l-aligned from the ou
Year 2
policymakers
educational institutions, enhancing
Year 3
showcasing preliminary
findings akeholders, dev
intellectual property strategies
clinical trials
Year 4
commercialization paths
policy initiatives
sustainable legacy
e funding period.
mercial applications.

Phase 1

Workshop on Stakeholders Analysis (SA) – Oxford, UK July 3-5

Identify Stakeholders

Academia / Research, Biotech and Pharma Companies, Healthcare Providers, Policy Makersetc.

Utilize SA Tools

Stakeholder Analysis Matrix, Power-Interest Grid, SWOT Analysis, Salience Model, Influence-Impact Grid, Stakeholder Engagement Assessment Matrix

Action Plan

Define Deliverables, Timeline & Stakeholders involvement

WHY JOIN KIC

- **Shape Open Science**: Become a Curator, Contributor, or Collaborator (EOSC Service User) supporting FAIR principles and federated research.
- **Training and Capacity Building**: Learn best practices for data management, AI tools, Open Science platforms, and ethical research innovation.
- **Active Participation**: Get involved in real projects—from clinical studies to citizen science—aligned with physical activity, mobility, and healthy ageing.
- **Translation and Commercialisation**: Transform your research into impact — helping you move from evidence generation to product development, policy influence, and commercial opportunities.
- **Guidance and Mentorship**: From defining your research question to developing tools, models, and platforms — we guide you all the way to dissemination, scaling, and real-world adoption.

KINESIS
INNOVATION CENTER
ACCELERATING INNOVATION, TRANSFORMING LIVES

"Building Europe's innovation hub for physical activity, health, and active living, together."

Thank You

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