

SEA2
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Impediments and opportunities for adopting blockchain technology for seafood traceability

Research insight / analysis
Guidelines / recommendations

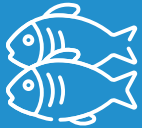
Result Description

Comprehensive reports identifying the main impediments and incentives for deploying blockchain technology in the seafood value chain. Based on a dual methodology (a systematic literature review and targeted consultation with 36 key stakeholders from Portugal, Spain, France and Greece), the work covers both fisheries (small- and large-scale) and aquaculture. The reports highlight key incentives to deploy blockchain, such as improved traceability, identification of origin, increased trust and transparency across the value chain, enhanced food safety, support for regulatory compliance, and better market opportunities. At the same time, the report also identifies major challenges regarding the use of blockchain, including high implementation costs, technological complexity, limited interoperability between systems, confidentiality concerns, and low engagement from value chain actors. The reports provide a structured comparison of how these factors vary across sectors and countries, helping to guide future digitalization and traceability strategies.

Result Significance

The seafood market relies heavily on complex supply chains, raising urgent concerns about food safety, sustainability, and illegal and unreported fishing. While blockchain can ensure tamper-proof data and real-time transparency, its adoption is currently limited by a lack of understanding regarding practical barriers. The results address existing knowledge gaps by clarifying what prevents stakeholders from joining digital systems and what benefits actually drive participation. Solving these issues is critical for the seafood sector to comply with upcoming EU digital traceability regulations.

Key Findings / Insights



Top incentives:

Enhanced tracking and tracing, stopping illegal and unreported fishing, and identification of product origin were identified as the most significant opportunities.



Primary barriers:

The cost/price of implementation is the most prominent challenge globally, followed by a lack of access to technology and low familiarity among operators.



Sector-Specific needs:

Fisheries specifically struggle with large, complex supply chains, whereas aquaculture focuses more on using blockchain to improve market opportunities and production efficiency.



Stakeholders' views:

While familiarity with blockchain is generally low, stakeholders still rank it as a preferred method for future traceability due to its perceived data security.

Practical Value of this Knowledge

This knowledge enables better decision-making for seafood companies by highlighting the drivers for digital transitions, such as reduced paperwork and increased consumer trust. For policymakers, it identifies the specific areas (such as high implementation costs and technical training) where financial or regulatory support is needed to facilitate the EU's move toward mandatory digital traceability by 2029.

Who Can Use This Knowledge



Seafood producers and processors

Can use sector-specific insights about the challenges and benefits of using blockchain and potentially identify additional tools for digital traceability, such as QR codes or RFID tags.

Policymakers:

Can design better-targeted incentives and regulations that account for the barriers faced by small-scale operators.



Long-Term Impact Potential

The long-term impact is a more resilient and transparent seafood industry that contributes to the UN Sustainable Development Goals (such as 14 - "Life Below Water"). By addressing current impediments, this result paves the way for a digital traceability implementation that empowers consumers to make sustainable choices based on verified data. Ultimately, this supports a transition toward responsible consumption and ensures the competitive advantage of EU producers who adopt high-standard, digitalized sustainability practices.

Contact information



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Read the Reports

https://sea2see.eu/wp-content/uploads/2023/06/Sea2See_D1.2_-REPORT-ON-THE-MAIN-IMPEDIMENTS-AND-POTENTIAL-INCENTIVES-FOR-SEAFOOD.pdf

<https://sea2see.eu/wp-content/uploads/2026/01/D1.3-REPORT-ON-THE-MAIN-IMPEDIMENTS-AND-POTENTIAL.pdf>