Thematic Session - Forum Innovation 2025

Systemic innovations in the blue economy: Towards « blue innovation »

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One-page presentation of the theme:

The oceans play a fundamental role for humanity by providing essential ecosystem services (Barbier 2017, Lopez-Rivas & Cardenas 2024): climate regulation, support marine biodiversity, protection of coasts against erosion, supply of food resources, materials, renewable energies and biotechnological compounds used in various sectors including health and industry etc.

The oceans are also the basis of the seafood industry, which includes production systems (fishing and aquaculture), packaging, processing in all its forms, transport, marketing and consumption. This sector is thus part of the blue economy, which according to the European Commission's definition (2021) encompasses all industries and sectors linked to the oceans, seas and coasts, whether in the marine or terrestrial environment.

However, the ecosystem services provided by the oceans, and consequently the seafood industry, face major threats and challenges (Talukder et al. 2022, Solé Figueras et al. 2024), including climate change, various forms of pollution including plastic pollution, biodiversity erosion, overexploitation of resources, destruction of marine habitats, conflicts of use, wars and geopolitical tensions, inflation, new consumption patterns, etc.

Faced with these environmental, societal, economic and legal challenges, it is becoming imperative to find solutions to preserve the oceans while meeting the growing needs of the world's population. Blue economy innovation is emerging as a strategic response to these challenges, combining protection of the oceans, sustainable exploitation of their resources and economic benefit (Hajar et al. 2021, Pace et al. 2023).

« Blue innovation » can be defined based on the definition of innovation by the OECD's Oslo Manual (2018). It takes the form of a new or improved product (good or service) or process (organization, management or business method), made available to potential users (product) or implemented by the unit (process) and relating to the blue economy. « Blue innovation »

must also be based on the principles of sustainability and transdisciplinarity. It must be analyzed in a systemic way, integrating micro, meso and macro-economic dimensions and emphasizing the interactions between players in the blue economy ecosystem, to generate and disseminate it.

« Blue innovation » can thus rely on the integration of advanced technologies such as artificial intelligence, biotechnologies and clean energies (Mesut 2021). It should foster initiatives such as sustainable aquaculture and fishing, ocean observation through high-frequency data acquisition by new sensors or drones, traceability of seafood products using innovative digital tools, optimization of transport based on AI, decarbonization, valorization of co-products, extraction of new bioactive molecules, creation of biomaterials for artificial reefs useful for ecosystem restoration, etc.

« Blue innovation » thus responds to several major challenges: reducing environmental impacts, creating new economic opportunities, improving resilience to climate change and guaranteeing food security for a growing world population. By integrating cutting-edge technological solutions and transdisciplinary approaches, they reconcile human needs with the preservation of marine ecosystems, thus contributing to the sustainability of the seafood industry.

In this session, which is intended to be multidisciplinary (economics and management of innovation, industrial economics, logistics, marketing, oceanography, law, biology, etc.), proposals for papers are expected on the following themes:

- « Blue innovations » for a circular economy: recycling and recovery of waste and co-products for the development of a blue bioeconomy;
- « Blue innovations » for managing and increasing the sustainability of the seafood industry;
- « Blue innovations » and decarbonation: new energies, new technologies ;
- « Blue innovations » for ocean and coastline observation ;
- The systemic dimensions of « blue innovation »: public policies, incentives, foresight ;
- Risks and controversies surrounding blue (technological) innovations: sustainability, sobriety ;
- ...

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