



**Technological challenges**

# Agrifood



Achieve a sustainable, healthy  
and more productive agri-food  
sector by increasing its  
digitization

## Specific areas for improvement:

1. Optimized and comprehensive management of agricultural holdings from the analysis of the data generated in them
2. Greater control of the evolution of crops and livestock production
3. Improvement in the traceability of products: identification of origin and denomination
4. Early discovery of anomalies in traceability systems
5. Improvement in decision-making processes for the implementation of sustainable practices: prediction and reduction of phytosanitary treatments, use of by-products, etc.
6. Use of livestock manure to create high value-added compounds on farms (biofuels and biofertilizers)
7. Reduction of environmental impact (reduction of diffuse emissions, Life Cycle Analysis, biodiversity, water footprint, water pollution, etc.)

# Biotechnology



Value industry data by improving  
its integrity, analysis and  
accessibility

## Specific areas for improvement:

1. Genomic and proteomic information processing for the design of new drugs
2. Protection of the information generated, maintaining the anonymity of its origin, as well as guaranteeing its incorruptibility and traceability during its management
3. Generation of information sharing systems
4. Development of chemoinformatics information recovery, processing and analysis systems for the design of innovative products in all fields of biotechnology application
5. Screening of information in bibliographic repositories
6. Chemical and functional characterization of extracts with biofunctionality, developing ex vivo nutrient absorption and digestibility studies that result in statistical and predictive models using said information



# Forestry

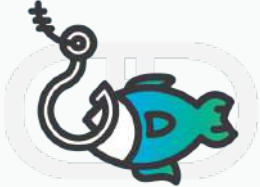


Industrialize and digitize the sector, promoting the development, manufacture and use of high value-added wood-based products, thus promoting the circular economy and fighting climate change

## Specific areas for improvement:

1. Digitization of information flows in the wood chain that facilitate effective and efficient collaboration
2. Genetic improvement of forest species with monitoring and traceability of their evolution, which serves as support for reforestation decisions, necessary qualities depending on the use, etc.
3. Pest control
4. Development of Digital Tools for the design and construction of wood. Digital twins, so that the customer is able to see and perceive a digital product that is a true reflection of later reality. Precast building processes, design, planning, construction and digital management using BIM
5. Energetic rehabilitation of buildings through prefabricated wooden construction systems, digitizing the process. Current homes generate 20% of CO2 levels
6. Develop new options for processing and finishing wood as a key renewable resource to promote the circular economy
7. Develop wood-based biomaterials as substitutes for non-sustainable and circular materials, such as bioresins or bioplastics
8. Implementation of systems for the digital management of forest resources (plantation, forestry, logistics, prevention and defense plans against forest fires, etc.), generating advanced predictive models to estimate, for example, biomass production or growth of the forest species
9. Digital simulation of wood, with access to complex information, such as that generated inside the trees, with the development of algorithms that simulate its behavior and allow its properties to be modeled to optimize subsequent industrial processes
10. Planning and enhancement of natural carbon sinks in forestry
11. Fire modeling (probability of risk, behavior, etc.)

# Sea



Optimized management of resources to improve their control, quality and safety

## Specific areas for improvement:

1. More efficient and optimized management of fishing resources, including fishing processes, through the collection of information and data related to environmental parameters, levels of contamination in water, diet and composition of food, daily exploitation levels, etc. .
2. Generating predictions of the captures of a campaign
3. Greater control over feeding, disease and growth of aquaculture species from a biological and environmental point of view
4. Increase in the quality and food safety of fishing species by incorporating operational information to the parameters referring to the quality of the product and its conservation in the different stages of the process
5. Improvement in the design of cold storage chambers, including their energy efficiency and management
6. Real-time monitoring of the status of stored fish products
7. Reduction of environmental impact through the valorization of by-products generated in the sector obtaining new marketable products
8. Promote the production and use of alternative fuels in the marine / maritime sector
9. Development of cultivation techniques for new products of interest (algae, microalgae, etc.)
10. Development of minimally processed products applying emerging conservation technologies
11. Development of electronic traceability tools and their relationship with all links in the value chain
12. Assessment of existing genetic resources, both in wild and aquaculture populations, to define management and sustainability guidelines
13. Genetic traceability and monitoring markers as a fundamental tool for the identification and tracking of stocks for their sustainable management

# Health



Development of solutions for the health sector focused on the Silver Economy, residential models, prevention and research through the digital transformation of processes

## Specific areas for improvement:

1. Reduction of inefficiencies in the supply and provision of healthcare services
2. Reduction of the health cost per capita (especially in chronic patients), especially in those areas where Big Data, Machine Learning and / or High Performance Computing technologies can be applied
3. Savings in the management of large volumes of data and improvement of the capacities for its processing
4. Improved access to personalized and higher quality treatments, without compromising public budgets
5. Development of clinical decision support systems that provide relevant information at the right time to healthcare professionals
6. Development of new diagnostic processes based on multimodal information associated with physiological signals
7. Continuous remote monitoring of patients for therapeutic follow-up and in rehabilitation processes
8. Digital transformation of the healthcare sector, person-centered care processes and residential models
9. Monitoring of environmental pollutants and development of systems to mitigate risks to people's health
10. Bioaccessibility and bioavailability studies of innovative foods.
11. Studies on intestinal microbiota, metabolic diseases and methodologies for incorporating probiotic microorganisms that use mathematical tools and data analytics in their development
12. Analysis of data on diets and their relationship with various diseases

# Cross-sector



In addition to the specific challenges, we identified several cross-cutting challenges that apply to all sectors of activity on which DATAlife operates.

## Specific areas for improvement:

1. Develop a more sustainable and efficient production and management of bio-resources and raw materials, relying on the capture and digitization of data from the production process, the use of sensorization architectures to capture parameters, the integration of multimodal information, the analysis of the different types of information and the development of tools to support decision-making.
2. Ensuring a supply of safe and quality food throughout the value chain respectful of the environment
3. Promote the improvement of health and the sustainability of the welfare state in a context marked by the progressive aging of the population
4. Mitigate the effects of climate change and adapt to them, optimizing processes and systems to reduce environmental impact
5. Effective implementation of circular economy criteria in all value chains
6. Generation of new products based on sectoral raw materials and / or by-products derived from production processes
7. Efficient integration of enabling technologies to optimize value chains from a technical, economic, social and environmental point of view
8. Guarantee the technological viability of the innovative processes and / or products developed based on the analysis of the commercial potential, evaluation of the industrial and intellectual property and its degree of disruption.
9. Generation of new techniques and learning processes that facilitate the adoption of enabling technologies, as well as the acquisition of digital skills in a more motivating and positive way for the end user



# Thank you

📍 Edificio Emprendia, Campus Vida s/n  
15782, Santiago de Compostela

☎ +34 604 08 52 97

✉ [gerencia@dihtdatalife.com](mailto:gerencia@dihtdatalife.com)

