

2021 ACTIVITIES REPORT

September 2022

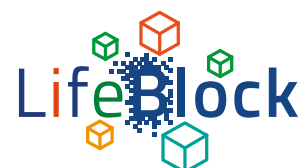
 **EcoPortal** LifeWatch ERIC
Tesseract LifeWatch ERIC
**Metadata
Catalogue****LifeBlock**



Photo by CSIC-LW.ES

Lynxes in Doñana National Park, Andalusia, Spain

Table of contents

> Foreword	4
> Executive Summary	8
> LifeWatch ERIC Team, 2021	12
> LifeWatch ERIC Structure	16
> Scientific & Technical Progress	20
> Operational Progress	24
> Dissemination & Outreach Progress	28
> Training Progress	30
> Dialogue with other ERICs, RIs and International Organisations	31
> Projects	34
> Financial Statements	38
> LifeWatch ERIC Looking Ahead	42
> Acknowledgements	46

LifeWatch ERIC

Statutory Seat
Plaza de España,
SECTOR II-III
41071 Seville (Spain)

Tax Identification Number
N9101001G

> Foreword



Gert Verreet

Chair of the
LifeWatch ERIC
General Assembly
2019 – April 2021



2021, as 'Year 5' in the life of LifeWatch as an ERIC, provided important checkpoints for the infrastructure. While scientific and technical developments continued unabated, several strands of reflection occupied the colleagues in the General Assembly. The whole leadership of LifeWatch ERIC was strongly occupied with making the necessary preparations for the second five-year period, during which one would expect the infrastructure to become fully up to speed. It was therefore very fortunate that the General Assembly could benefit from a lot of input for its work from various corners. We made sure to look back, so that we could better plan for the future.

In its overall business model and resource base, LifeWatch ERIC relies strongly on the in-kind contributions from its members. In 2021, the process of validation of these contributions started to deliver results. The support of all members of the infrastructure remains vital for the future. At the end of my term as Chair in Spring 2021, the General Assembly was fortunate to be able to elect Inmaculada Figueroa from Spain as its new Chair.

Now firmly anchored in all its member states, LifeWatch ERIC strongly welcomes the accession of Bulgaria to the group of members in 2022.



**Inmaculada
Figueroa**

Chair of the
LifeWatch ERIC
General Assembly
April 2021 – present



I am honoured to have been elected chair of the LifeWatch ERIC General Assembly after Gert Verreet's term of office in the second part of 2021. In this role I have the pleasure of contributing a few words to the LifeWatch ERIC 2021 Activities Report. Over the following pages you will have opportunity to see the activities carried out by the ERIC throughout the year.

2021 was a year of transition, in which the infrastructure intensified its efforts to continue providing services in the aftermath of the COVID-19 pandemic. Although mobility remained limited, with almost all governing bodies and different committee meetings taking place remotely, this circumstance did not affect the functioning of the ERIC's multiple activities, which were well-supported by the Common Facilities and National Nodes.

A number of important milestones achieved by 2021 are summarised in this report. Among others, in 2021 the construction of the infrastructure was almost completed, important improvements in administrative and managerial procedures were implemented, the staff was consolidated, new tools were developed, and the VREs were reinforced. All this has served to improve the services offered by the infrastructure and as an immediate result we have seen a significant increase in the number of LifeWatch ERIC users. The continued commitment of the ERIC at global and European level has enabled it to contribute to a variety of ambitious projects, new and ongoing.

LifeWatch ERIC nurtures the ambition to become a global infrastructure, like the challenges it responds to. In this sense, during 2021 it reinforced its international collaboration efforts, especially with the regions of Latin America and the Caribbean and Africa. This has been evidenced in several international meetings and events to which its officials have been invited as organisers or speakers.

The ERIC is well-established in the European Research Area and aims to contribute to a coherent ecosystem of European Research Infrastructures (RIs). As such, it fits perfectly into the group of environmental infrastructures to which it contributes by providing services and collaborating to meet the UN SDGs in terms of preserving biodiversity and combating climate change. In its interest to serve the RI community, it has contributed during this period with the due dedication to the ERIC Forum governing bodies.

LifeWatch ERIC, a distributed infrastructure, is a reality thanks to the strong commitment of its members. Member countries are making significant investments at national level, investments with an important regional impact, which in some cases have enabled the use of European cohesion funds. These resources are helping to sustain the continued growth of the infrastructure and the services it provides.

To finish, I want to thank the sustained commitment of all member countries and the tireless work of all LifeWatch ERIC staff in Common Facilities and National Nodes for making what was once a dream come true.





Christos Arvanitidis

Chief Executive Officer
of LifeWatch ERIC



LifeWatch ERIC, the e-Science European Infrastructure for Biodiversity and Ecosystem Research, reached maturity as an infrastructure in 2021. Our flagship activity over these last three years, the Internal Joint Initiative, has produced a prototype of a Research Infrastructure, properly equipped with Virtual Research Environments (VREs) that combine multiple resources.

LifeWatch ERIC has been designed to offer a **systemic solution** by uniting all the separate resources developed at national level. This **holistic approach** addresses the issue of the **integration** of its **resources** through **innovative components** such as **Tesseract** and its **VRE building platform** (including **Jupyter Notebook**), **LifeBlock**, the **MetaData Catalogue** and **EcoPortal**. These components are capable of connecting and integrating both the content and **services** developed by the **national operators**. This means that **content** and services can be **used individually** but also **in combination**, with the output of one service serving as an input for the next, and so on.

We have also grown as a community. Our state-of-the-art VRE was co-created and co-constructed by teams of ecologists and ICT engineers working together, and then validated by dedicated research cases into non-indigenous, invasive species (NIS). This community work was presented at the online e-Science for NIS Research Workshop on 20–21 May 2021. The roll-out of our Training Platform and Catalogue this year will further increase the number of individuals and organisations in our network.

In addition, we have made great leaps as an organisation. Our staff numbers have grown to handle the ever-more-complex operations in our three Common Facilities: the Statutory Seat and ICT-Core in Seville, Spain; the Service Centre in Lecce, Italy; and the Virtual Laboratory and Innovations Centre in Amsterdam. The Distributed Centres in Belgium, Greece, Italy, the Netherlands, Portugal, Slovenia and Spain continue to attract funding to extend their research operations and help strengthen the EU in facing societal, ecological and economics-driven challenges.

We look forward to even greater successes with this holistic approach over the next five-year period, as we galvanise our communities to effect the cultural change whereby researchers in biodiversity and ecosystems will no longer analyse their work in isolation, but will share and model their data in the cutting-edge ICT technologies provided by LifeWatch ERIC.

Working together gives us a better chance of preserving life on Earth.

On behalf of the LifeWatch ERIC Executive Board



> Executive Summary

2021 was the year in which the prototype of the LifeWatch Research Infrastructure was delivered. LifeWatch ERIC managed to:

- **Grow** by **45,4%** and assemble a total human potential of **33 employees**
- **Complete** the **integration** between the scientific and technical teams in order to further deliver the **data** and **analytics** which were needed to finalise the Internal **Joint Initiative (IJI)** through **workflows** and **VREs**, and to demonstrate this progress in a **public online workshop**
- Bring the **prototype** of the Infrastructure up to **Technology Readiness Level (TRL) 6** and deliver **6 workflows** at an operationally **tested** stage
- **Admit Bulgaria** as the **eighth EU Member State of LifeWatch ERIC** and submit the relevant amendment of its **Statutes** to be expected early next year
- Make progress on administrative and financial operations, to **adopt** its **Code of Conduct**, its **Strategy to expand Membership**, the first version of its **Gender Equality Plan**, the first version of its **Data & e-Infrastructure Access**, and **IPR Policies**. Finally, it managed to advance with its **Quality Assurance Risk Management (QARM)**
- **Increase** its **online presence**, a fact demonstrated by an **average of 66% more users, followers** and **subscribers** on the **website, social media channels** and **newsletter**
- **Maintain a high-level dialogue** and define its **trading zones** with **ERICs, RIs** and **International Organisations and Networks**
- **Continue** its active **participation in ongoing** (4) and **new** (10) **projects** and in the preparation of **proposals** (13)
- **Maintain** its **developmental, managerial** and **operational** activities during the continuous **waves** of the **COVID-19 pandemic** thanks to its **resilience** stemming from the attributes of a **distributed e-Infrastructure**.

Photo by Matej Blatnik | LifeWatch Slovenia

Underground habitat in ice cave Snežna jama na planini Arto, Slovenia



> LifeWatch ERIC Team, 2021

LifeWatch ERIC introduces new family members

In 2021, LifeWatch ERIC employee power grew by **45,4%**, from 22 employees (including Executive Board members) to **33**. The new personnel were hired following a standardised, open and transparent procedure, which is now described in the LifeWatch ERIC Employment Policy. During the year, the following colleagues joined LifeWatch ERIC, listed below in alphabetical order:

- José Manuel Ávila-Castuera, Agroecology Coordinator;
- Elizabeth Bamford, Communication Officer;
- Xeni Kechagioglou, Ontology Developer;
- Hooi Sung Lim, Quality Assurance & Risk Management Officer;
- Javier López-Torres, Procurement & Institutional Relationship Officer;
- Rocío Mantero Cejudo, Technical Assistant & QARM;
- Elisa Morón-López, Project Manager;
- Eleonora Romano, Administrative Officer;
- Javier Sáenz Reina, Finance Officer;
- Cosimo Vallo, Training Officer.

The Executive Board



Christos Arvanitidis
Chief Executive Officer



Juan Miguel González-Aranda
Chief Technology Officer



Alberto Basset
Director of Service Centre



Lucas de Moncuit
Chief Financial Officer



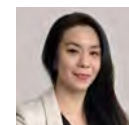
Peter H. Van Tienderen
Director of vLab & Innovations Centre

Spain

The Statutory Seat



Giovanna Caputi Iambrenghi
National Nodes Operations Manager



Hooi Sung Lim
Quality Assurance & Risk Management Officer



Cristina Huertas-Olivares
International Initiatives & Projects Manager



Javier Sáenz Reina
Finance Officer

The ICT e-Infrastructure Technical Office



José Manuel Ávila-Castuera
Agroecology Coordinator



Rocío Mantero Cejudo
Technical Assistant & QARM



Antonio José Sáenz Albanés
e-infrastructure Operations Coordinator



Javier López-Torres
Procurement & Institutional Relationship Officer



Elisa Morón-López
Project Manager



Francisco Manuel Sánchez Cano
e-infrastructure Resource Integration Coordinator


Italy

The Service Centre



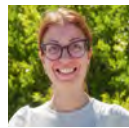
Nicola Fiore

Service Centre ICT Coordinator



Elizabeth Bamford

Communication Officer




Xeni Kechagioglou

Ontology Developer



Bénédicte Madon

Scientific Community Networking Officer



Eleonora Romano

Administrative Officer



Cosimo Vallo

Training Officer



Sara Montinaro

Chief Communication Officer



Monique Bossi

ENVRI-FAIR Project Manager



Julian Kenny

Communication Officer



Maria Teresa Manca

Training & Capacity Building Officer



Lucia Vaira

Web Portal Officer

The Netherlands

The Virtual Laboratory & Innovations Centre



W. Daniel Kissling

Scientific Coordinator



Zhiming Zhao

Technical Manager



Spiros Koulouzis

VRE Developer



Yifang Shi

Scientific Developer for Ecological Applications of LiDAR Remote Sensing



Jacco Konijn

Project Manager



Riccardo Bianchi

Developer for Cloud-based Virtual Research Environments



Joris Timmermans

Scientific Developer for Essential Biodiversity Variables Workflows

> LifeWatch ERIC Structure

Common Facilities

Distributed Centres

--> Netherlands

The **Virtual Laboratory and Innovations Centre** coordinates and manages the requirements and needs analysis, the design and implementation of the scientific case studies and the products of the LifeWatch ERIC Virtual Laboratories.

--> Belgium

--> Slovenia

--> Italy

The **Service Centre** provides the infrastructure's interface with its user communities, identifying their needs and making available the relevant services. It is also responsible for energising the active involvement of the European scientific community, for training and for LifeWatch ERIC's communication activities.

--> Spain

The **Statutory Seat** and the **ICT e-Infrastructure Technical Offices** jointly assist the functioning of the infrastructure, the former being the coordinator of all legal, administrative and institutional activities, and the latter responsible for managing the distributed ICT e-Infrastructure operations and implementation.

--> Portugal

--> Greece

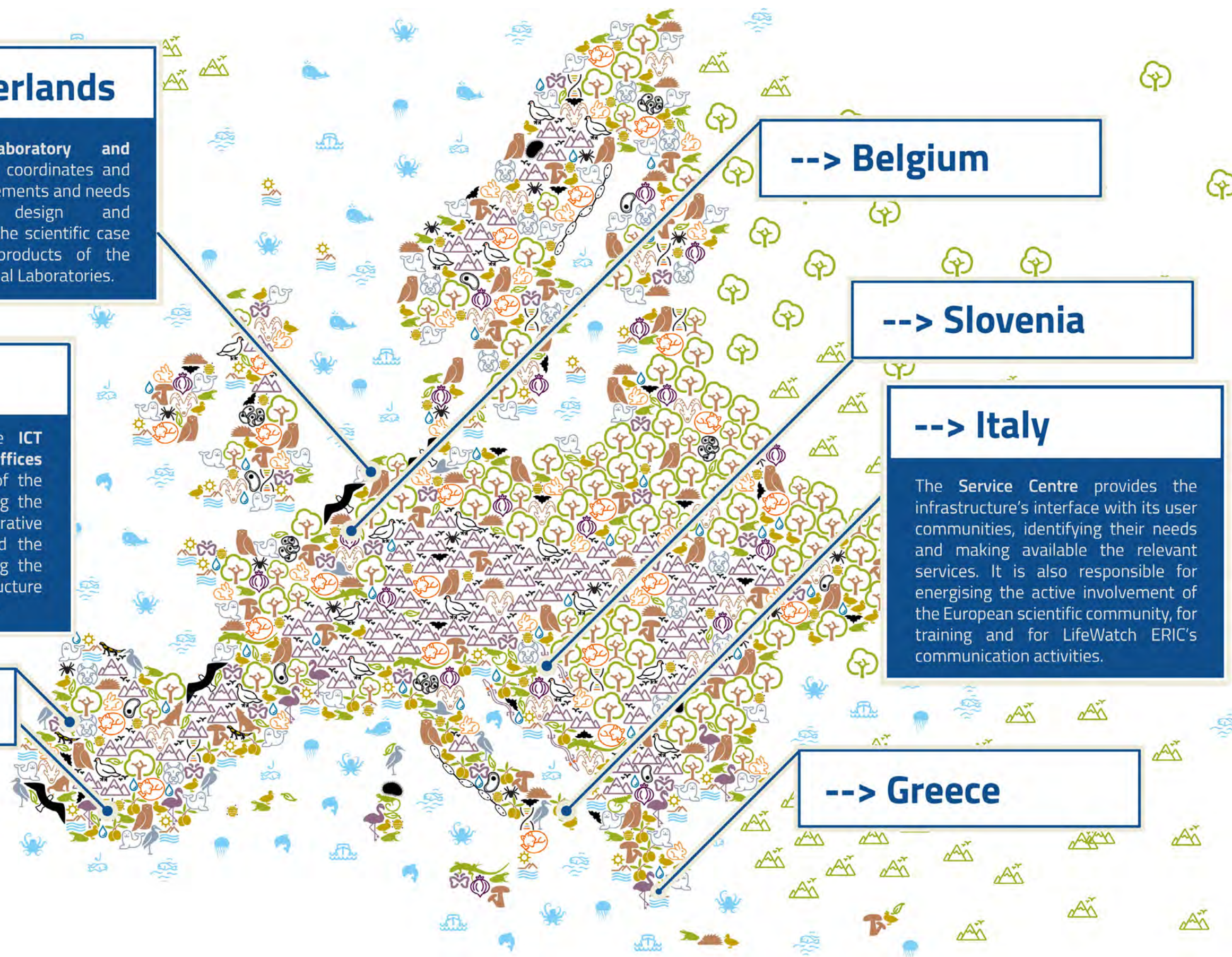


Photo by Thanos Dailianis | HCMR, LifeWatch Greece

Flabellina affinis laying eggs on a hydrozoan branch, South Aegean Sea, Greece



> Scientific & Technical Progress

A Research Infrastructure working with and for the scientific community

Right from the start of its first implementation period, LifeWatch ERIC was designed to be a **systemic solution**, meaning it unites all the separate components developed at national level. As a result, each component benefits from the attributes of the technologies involved and each becomes part of the

broader LifeWatch ERIC Infrastructure.

This **systemic holistic approach** is radically different from the **piecemeal approach** followed by several key players in the landscape. Thus far, they have been delivering one piece of software at a time, depending on the specific problems and needs of the communities they serve. This practice has led to a **patchwork solution**, with infrastructural components not organically linked to each other and therefore incompatible with any type of workflow, thematic service, VRE, etc., other than the web services themselves. Typically, the components in many RIs are provided to the user one at a time, that is, the user can use only one component, then the next and so on. Also, each of these components has its own specifications and application rules.

LifeWatch ERIC brings an innovative solution to the above issue: **its integration services** (e.g. **Tesseract** and its **VRE building platform**, including **Jupyter Notebook**, **LifeBlock**, the **Metadata Catalogue** and **EcoPortal**)

Thematic

Services



Coordinate Reference Systems



Data Management



Environmental Monitoring



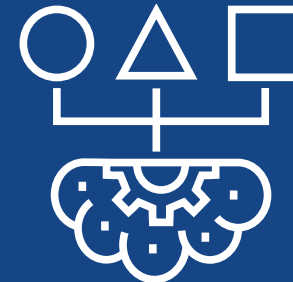
Functional Traits



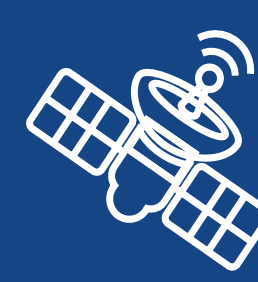
Habitats and Ecosystems



Metagenomics



Modelling



Remote and Smart Sensing



Semantics



Species Distribution and Diversity



Taxonomy

are capable of **connecting** and **integrating** both the **content** and **services** developed by the **national operators**. This means that both **content** and **services** can be used **individually** but also **in combination**, with the output of one service serving as an input for the next.

An important advantage of this solution is that the resources created by the investments of member countries as part of the LifeWatch ERIC Infrastructure are continuously being upgraded, and therefore their **value increases with time**. The option to combine multiple components has the potential to attract more users than they currently do.

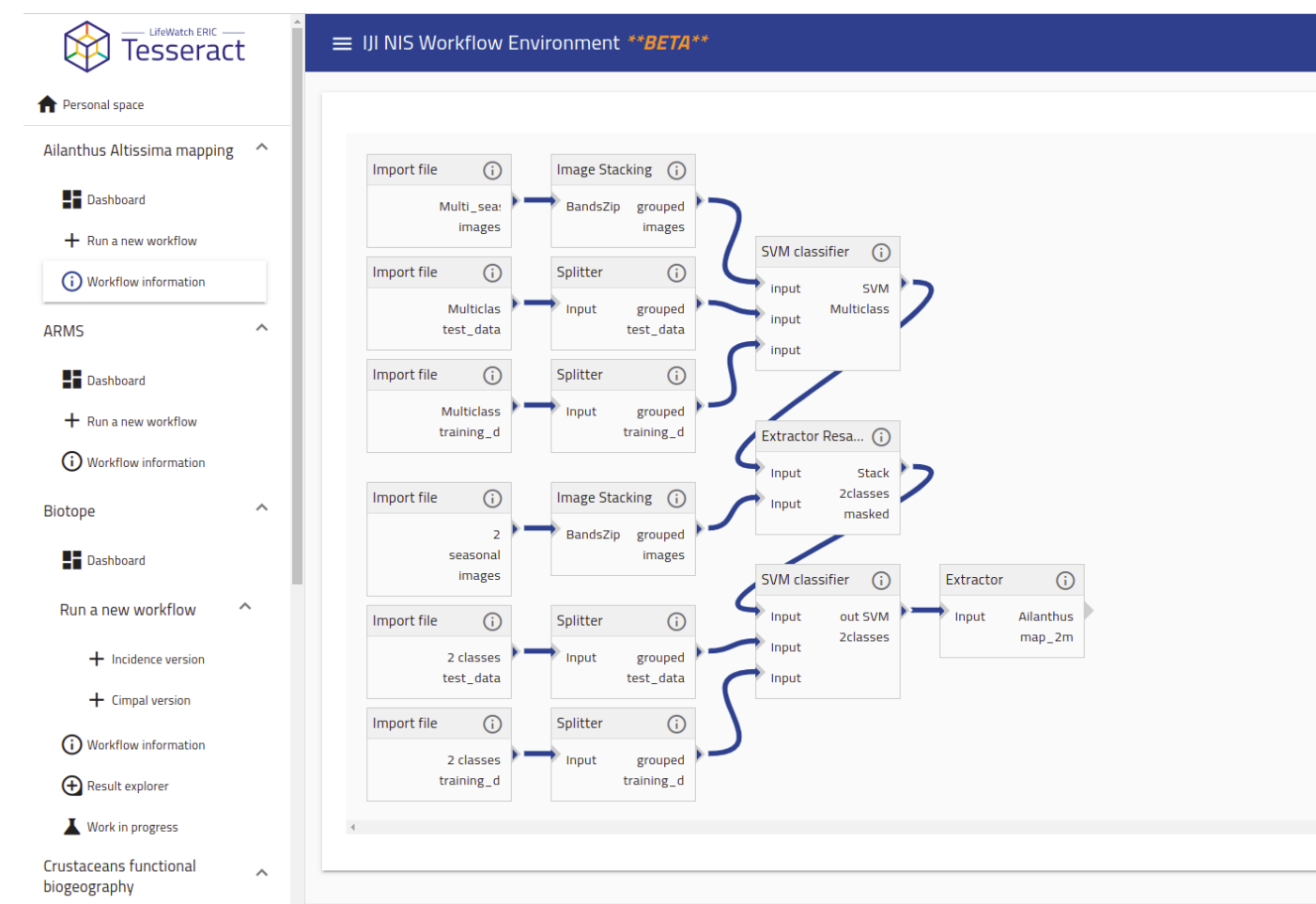
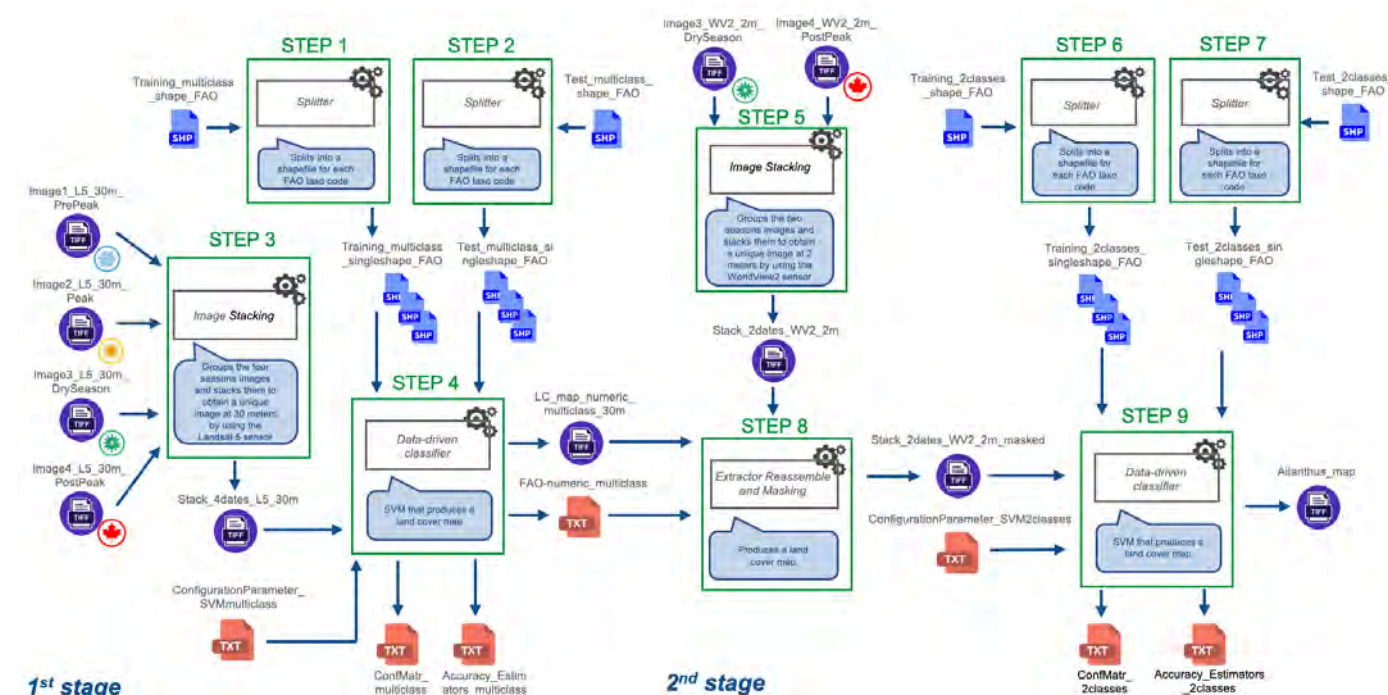
By pursuing its essential ingredients (open and FAIR data, reproducible analytics and mobilised communities) and especially through its flagship project, the **Internal Joint Initiative (IJI)**, LifeWatch ERIC has delivered a prototype of its infrastructure in terms of human capital, organisation, services and Virtual Research Environments integration, and community engagement. The **essential elements** of the **prototype** are: the **Catalogue of Resources (Metadata Catalogue)**; **Repository of Semantic Resources**

(e.g., Controlled Vocabularies, Thesauri, and Ontologies: **EcoPortal**); **FAIR-compliant Datasets** (1.502 in total); **Web Services** (113); **Thematic Services** (11); **Virtual Research Environments** (12); **Workflows** (5); **Training Resources** (25); **Research Sites** (10); and **LifeBlock** (first Research Infrastructure to use Blockchain technology).

In addition, the first **scientific results** of the work carried out by the scientific and technical community were presented at an online demonstration **workshop** and at the same time they started to be **published** in international **peer-reviewed journals**.

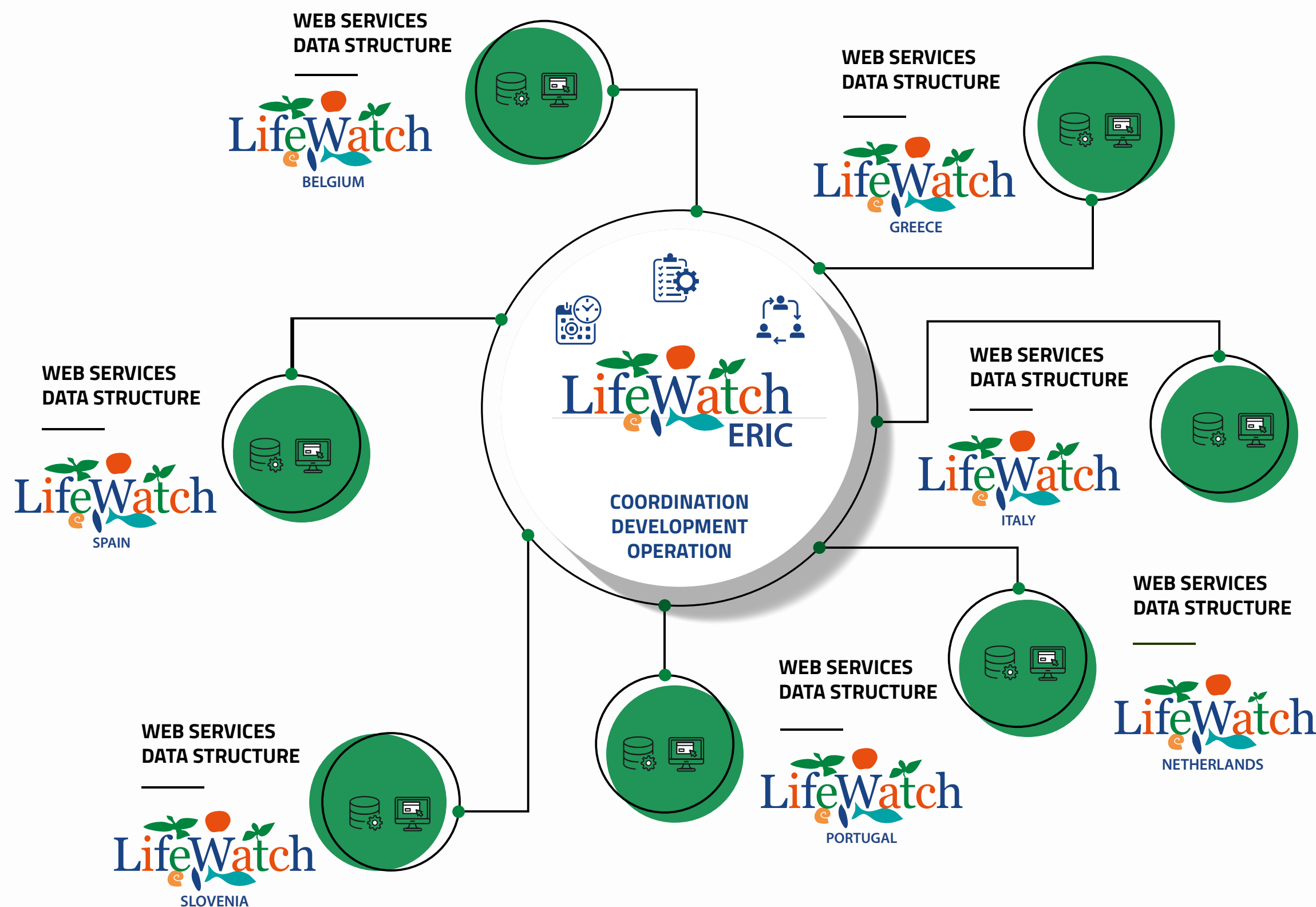
Finally, the new Strategic Working Plan for the next implementation period (2022–2026) was developed as a concerted action between the Common Facilities and National Nodes of LifeWatch ERIC.

The *Ailanthus* Workflow



> Operational Progress

LifeWatch ERIC's essential ingredients



During the last year of its first 5-year implementation period (2017–2021), LifeWatch ERIC delivered a real Research Infrastructure with Common Facilities and Distributed Centres. The **essential ingredients** for LifeWatch ERIC are: (1) coordination and management of the **reliable federated distributed e-Infrastructure**; (2) **open-access (FAIR) data**; (3) **reproducible analytics**; and (4) **mobilised communities**.

The main **challenges** identified during this first implementation period were of a **scientific, technical** and **cultural** nature, the last type being the most difficult to tackle: "to change scientists' everyday habits, by opening the LifeWatch Research Infrastructure webpage as they turn on their PCs to use their preferred

Virtual Research Environments. This change would direct most of the scientific effort from a single-core brain operation or "**brain-etics**", into high-performance brain network synthesis or "**brain-omics**". This is a cultural change LifeWatch ERIC has to push forward in our community." In parallel, LifeWatch ERIC launched its *ad-hoc* Evaluation Committee and submitted the documents needed to complete their Evaluation Report on its first 5-year implementation period.

Building on its **resilience** attributes, LifeWatch ERIC was able to continue its operations during the continuous waves of the **COVID-19 pandemic**. During 2021, LifeWatch ERIC physically participated in 58 meetings, taking part in 371 meetings overall and organising 107.

Photo by Leontien De Wulf | VLIZ, LifeWatch Belgium

Herring gulls on Ostend beach, Belgium



> Dissemination & Outreach Progress

Connecting with our community

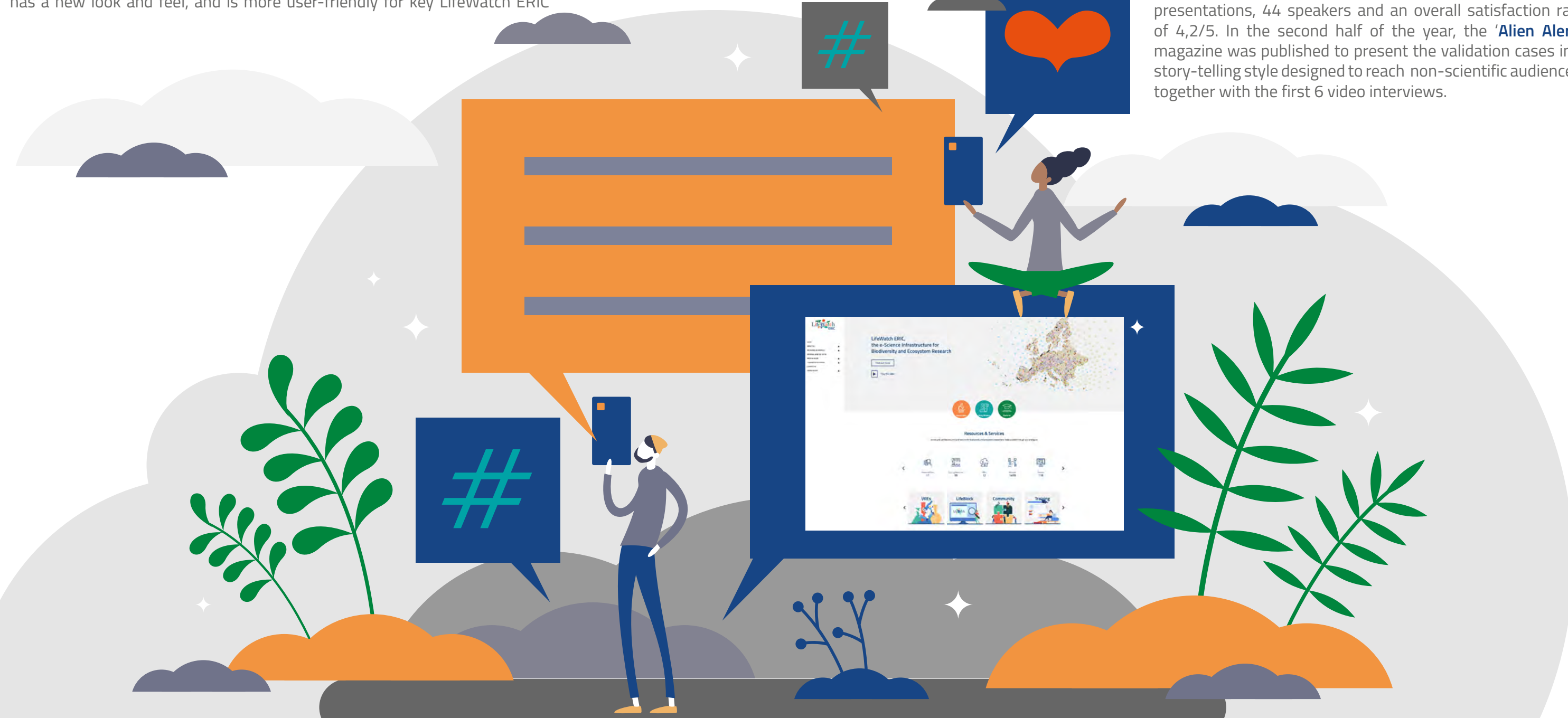
Dissemination and communication in 2021 involved a greater number of activities than originally foreseen in the Strategic Working Plan. In April 2021, the Communication Team hired another member of personnel, which increased its capacity and meant that one member of staff could specifically take care of IJI-related communication.

Overall, 2021 follows the positive trend observed in previous years, showing considerable improvement both in qualitative and quantitative terms. The major feat was the **new webportal**, which has a new look and feel, and is more user-friendly for key LifeWatch ERIC

Stakeholders, who now have immediate access points to tailored pages. LifeWatch ERIC's online presence was complemented by extensive activities on its social media, growing followers on all its channels (**Facebook +48,26%**, **Twitter +33,30%** and **LinkedIn +226,35%**) and the **newsletters** marking **35,33%** more subscribers.

The good results brought about by communications activities are linked to the continuous strategic work carried out by Communication Team, with the active involvement of member states: a task force in charge of coordinating, ensuring consistency and multiplying all efforts in this field. One of the Communication Team's tasks is to ensure the dissemination of activities undertaken by the Common Facilities and National Nodes, as well as provide the tools needed for their realisation, or ensure support in event participation across the European Research Area. LifeWatch ERIC has been working hard to strengthen ties and engage in shared initiatives with European H2020 projects, reaching out to several key stakeholders, including **DOORS**, **BiCIKL**, **ERIC Forum** and **ENVRI-FAIR**. It is particularly relevant to mention the two schools organised during the year, the **ENVRI Community International Winter School on Data FAIRness** and **ENVRI Community International School 2021 "Services for FAIRness"**.

Last but not least, communication activities pertaining to the Internal Joint Initiative started with the **e-Science for NIS Workshop on 20–21 May 2021**, as its first participatory event, reaching 272 registrants, 52 presentations, 44 speakers and an overall satisfaction rate of 4,2/5. In the second half of the year, the **'Alien Alert!'** magazine was published to present the validation cases in a story-telling style designed to reach non-scientific audiences, together with the first 6 video interviews.



> Training Progress

LifeWatch ERIC as a training provider

2021 was an important year for the training activities of LifeWatch ERIC, internally and externally. Ample progress was made with regard to enhancing the internal structure and tools, as well as consolidating the ERIC position as a training provider and point of reference in the Research Infrastructure network. These advancements can be observed at various levels:

- **Qualitative improvement of the platforms** that provide and support remote and on-site training activities: following the technological advancements made in 2020, the continuous enhancement of the **Training Catalogue** and **Platform** consisted in 2021 of qualitative upgrades both of the training contents offered as well as the graphic interfaces and layouts, in order to maximise user experience;
- The strengthening of **LifeWatch ERIC's contribution to the training** components of various **European projects**: after the experience in the training and skills work package of ENVRI-FAIR, in 2021 LifeWatch ERIC started its work in the training and skills work package of EOSC Future, bringing to the project its technical know-how regarding the design and development of FAIR Training Catalogues and materials for the development of the EOSC Future Knowledge Hub, and consolidating its position as a point of reference for this specific expertise;
- Implementation of **training events** jointly organised by ENVRI-FAIR and LifeWatch ERIC: in 2021, in the midst of the ENVRI-FAIR project, LifeWatch ERIC contributed to the organisation and delivery of a number of events, the most important being **ENVRI Week**, **ENVRI Community International Winter School on Data FAIRness**, **ENVRI Community International School 2021 "Services for FAIRness"**, and a **Policy Workshop**; and
- The completion of the first edition and launch of the second **M.Sc. curriculum on e-Biodiversity and Ecosystem Sciences (EBES)**: in 2021 the first intake of Master's students completed their courses and a new intake started the second edition of this Master's. In this same year, LifeWatch ERIC also continued its efforts towards enlarging the number of universities that are partners in this programme.

the ENVRI community International Summer School

Services for FAIRness



> Dialogue with other ERICs, RIs and International Organisations

Expanding our network

In 2021, LifeWatch ERIC went on a marathon to develop dialogue with other ERICs, Research Infrastructures and International Organisations and Networks. The main activities carried out are summarised below in chronological order:

- Participation of LifeWatch ERIC in EGI Advanced Computing for EOSC (EGI-ACE)
- Presentation of LifeWatch ERIC in the Ministry of Agriculture, Rural Development and Environment of Cyprus
- High-level meeting between EMSO ERIC and LifeWatch ERIC
- High-level meetings between JERICO RI and LifeWatch ERIC
- Participation of LifeWatch in the EOOS (EuroGOOS) Operations Committee (OC) meeting
- High-level meeting between LifeWatch ERIC and the Joint Research Centre (JRC)
- Participation of LifeWatch ERIC in the event: "*1st ESFRI Open Session*", organised as part of the 75th ESFRI Plenary Meeting
- Preparatory meeting with the Deputy Minister of Education and Science, Republic of Bulgaria, regarding Bulgaria's accession to LifeWatch ERIC
- Participation of LifeWatch ERIC in the Catalogue of Life (CoL) Steering Committee meeting
- Participation of LifeWatch ERIC in the "*Eurofleets International Workshop*"
- Participation of LifeWatch ERIC in the event: "*JERICO-Week session with other RIs*"
- Participation of LifeWatch ERIC in the meeting: "*FENIX/HPC and EOSC Future*"
- High-level dialogue between LifeWatch ERIC and DiSSCo RI, online
- Moderation of the event: "*EuroGOOS Marine RIs Session*" by LifeWatch ERIC

- Participation of LifeWatch ERIC in the event: *"Virtual workshop hosted by the OECD and Science Europe: Research Infrastructures mobilisation in response to COVID-19: lessons learned"*
- Participation of LifeWatch ERIC in the EOSC Association event: *"EOSC TF FAIR Metrics & Data Quality: (Drafters group) 1st Plenary meeting"*
- Participation of LifeWatch ERIC in the meeting on the drafting of the *"White paper on Marine RIs in Europe"*
- Strategic LifeWatch ERIC - AquaNIS meeting
- Participation of LifeWatch ERIC in the meeting: *"EC Ocean Observation event planning with co-organisers EC DG MARE, EMODnet, EMB, EuroGOOS, CMEMS/MOI"*
- Participation of LifeWatch ERIC in the event: *"ESFRI Science Clusters' Long Term Commitments Open Science"*
- High-level meeting between LifeWatch ERIC and Harvard University (Medical School) and Massachusetts General Hospital (Department of Pathology) on the Micro-CT Imaging vLab and its future development, under the new landscape (AI) and funding opportunities in the EU and USA

- Participation of LifeWatch ERIC in the event *"World Association of Marine Stations (WAMS) Conference"*, online
- High-level meeting between LifeWatch ERIC and OpenAIRE e-Infrastructure
- High-level meeting between LifeWatch ERIC and AnaEE
- Participation of LifeWatch ERIC in the event: *"Green transition for competitive and sustainable Research Infrastructures"*
- High-level meeting between LifeWatch ERIC and AdvanceServices Ltd
- Participation of LifeWatch ERIC in the event: *"ESFRI Days"*, organised by the Slovenian Presidency
- Participation of LifeWatch ERIC in the event: *"JSC Event update developments EOSC"*



> Projects

At the heart of the European Research Area

In 2021, LifeWatch ERIC actively participated in and contributed to 14 projects, among which 10 beginning this year.



ENVRI-FAIR

The overarching goal of the ENVRI-FAIR project is to connect the Environmental Research Infrastructure (ENVRI) community to the European Open Science Cloud (EOSC). Participating Research Infrastructures (RIs) of the environmental domain cover the subdomains of Atmosphere, Marine, Solid Earth and Biodiversity/Ecosystems and thus address the Earth system in its full complexity. LifeWatch ERIC chairs the Biodiversity and Ecosystem subdomain WP and co-chairs the WP on Training.



ResInfra EU-LAC

Towards a new EU-LAC partnership in Research Infrastructures (ResInfra EU-LAC): this project aims to promote collaboration among Research Infrastructures from the EU and countries from Latin America and the Caribbean. The resulting framework of cooperation will promote joint research actions and facilitate access to high level scientific instruments, methods and data, as well as the exchange of best practices regarding Research Infrastructure management.



ERIC FORUM Implementation project (ERIC FORUM)

This project brings together 20 established European Research Infrastructure Consortia (ERICs) and 3 ERICs still in the preparatory phase, to strengthen their coordination and enhance their collaboration. The strategic approach of the ERIC Forum will contribute to addressing critical challenges and developing best practices.



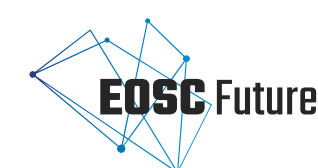
ALL-Ready

ALL-Ready addresses the multiple challenges that agricultural systems are facing today, including climate change, biodiversity loss, dwindling resources, and degradation of soil and water quality. Open Innovation Arrangements, in particular Living Labs, and Research Infrastructures, are capable of showing the way to strengthen farming systems' sustainability and resilience.



RItrainPLUS

This project brings together Research Infrastructures, core facilities, business management Schools and European universities, in a new innovative concept to transform the access and empowerment of human resources for national and international scientific facilities in Europe. It will transform the skills-base to drive the professionalisation, efficiency and long-term value creation of European Research Infrastructures and Core Facilities.



EOSC Future

EOSC Future is an EU-funded H2020 project that is implementing the European Open Science Cloud (EOSC), giving European researchers access to a wide web of FAIR data and related services. It will build on the existing baseline for the European Open Science Cloud to deliver a platform with a durable set of user-friendly components that are designed for the long haul.



Biodiversity Community Integrated Knowledge Library (BiCIKL)

The EU-funded H2020 project will catalyse a culture change in the way biodiversity data is identified, linked, integrated and re-used across the research cycle, aiming to cultivate a more transparent, trustworthy and efficient research ecosystem. It is building the Biodiversity Knowledge Hub (BKH) – a single knowledge portal to interlinked and machine-readable FAIR data (Findable, Accessible, Interoperable and Reusable) using unique stable identifiers on specimens, genomics, observations, taxonomy and publications.




DOORS

DOORS (Developing Optimal and Open Research Support for the Black Sea) is an EU research project that will link citizens, science, and industry for critical Black Sea regeneration, stimulating a new wave of 'blue economy' opportunities. LifeWatch ERIC contributes to the project's core pillars: the System of Systems, the Blue Growth accelerator and Knowledge Transfer and Training, and also participates in communicating DOORS to stakeholders and the wider public.



SMARTFOOD

The project (funded by ERDF Spain, Andalusia) focuses on the monitoring of the impact of agricultural and fisheries systems on biodiversity and ecosystems, contributing to three main social challenges: (1) Food safety and quality, agriculture sustainable production, sustainability of natural resources, marine and maritime research; (2) Climate change and resources and raw material efficiency; and (3) Digital economy and society.




SUMHAL

The project (funded by ERDF Spain, Andalusia) implements a strategy for the conservation of biodiversity in sustainable natural systems of the western Mediterranean area. Its main objective is to combine the results of the fieldwork with Virtual Research Environments for the storage, management, analysis and dissemination of the conservation status of Andalusian biodiversity ecosystems.



SmartEcoMountains

The project (funded by ERDF Spain, Andalusia) aims at the creation of a Thematic Centre to expand our knowledge on the functioning of the Sierra Nevada ecosystems in global change scenarios, as well as designing management procedures for the adaptation of the Sierra Nevada ecosystems to global changes.



INDALO

The project (funded by ERDF Spain, Andalusia) studies biodiversity in the various representative ecosystems of Andalusia, and analyses their evolution to detect and understand the consequences of Global Change. It will orient the future of Andalusian R & D & I in terms of biodiversity and ecosystems towards the use of the LifeWatch ERIC e-infrastructure, as well as stimulate the link between Andalusian R & D & I and the EU, in addition to attracting the private sector.



EnBiC2-Lab

The project (funded by ERDF Spain, Andalusia) aims to develop a Virtual Research Environment which will offer a multi-perspective view of the impact of climate change. It will be based on the integration of databases and services of areas such as water, soil, air, fauna and flora with innovative tools such as Supercomputing and Big Data.



LifeWatch-Alborán

The project (funded by ERDF Spain, Andalusia) aims to promote the sustainable use of the endogenous resources of the city of Malaga, by facilitating the management of terrestrial and marine biodiversity as well as by increasing scientific awareness among citizens in this matter. The project has a particular focus on conservation of territorial capital and conservation of cultural heritage.

> Financial Statements

Investing in science

The abridged balance sheet and profit and loss accounts as of December 2021 are available below.

Abridged Balance Sheet as of 31 December 2021

Assets	2021	2020
Non-current assets	58.431,08	51.120,56
Intangible assets	304,95	555,07
Tangible assets	58.126,13	50.565,49
Current assets	10.748.088,83	4.954.903,67
Inventories	107.563,49	237.676,25
Advance to suppliers	107.536,49	237.676,25
Accounts receivable	806.089,34	435.035,49
Users and others accounts receivables for the Association's own activity	702.060,20	351.504,00
Other receivables	104.029,14	83.531,49
Current investments	40.081,80	270,19
Prepayments for current assets	-	97.830,71
Cash and cash equivalents	9.794.354,20	4.184.091,03
Total Assets	10.806.519,91	5.006.024,23

Equity & Liabilities	2021	2020
Equity	2.990.481,71	3.731.702,39
Profit/(Losses) from previous years and other	3.731.702,40	3.739.570,04
Profit/(loss) for the period	(741.220,69)	(7.867,65)
Total equity	2.990.481,71	3.731.702,39
Non current liabilities	7.444.703,50	1.076.381,71
Provisions	48.581,13	33.166,27
Other long-term debts	7.396.122,37	1.043.215,44
Current liabilities	371.334,70	197.940,12
Trade and other payables	371.334,70	197.940,12
Other trade payables	222.012,66	105.161,16
Personnel (salaries payable)	19.873,92	6.388,68
Accounts payable to Public Administrations	129.448,12	86.390,28
Total Equity & Liabilities	10.806.519,91	5.006.024,23

Abridged Profit and Loss Account as of 31 December 2021

Operating Profit/(loss)	2021	2020
Association’s own activity income	2.776.818,71	2.256.648,13
Operating grants taken to income	2.776.818,71	2.256.648,13
Operating expenses	(3.520.524,02)	(2.263.824,70)
Personnel expenses	(1.815.485,96)	(1.200.062,92)
Depreciation and amortisation	(20.022,37)	(34.441,18)
Other operating expenses	(1.685.015,69)	(1.029.320,60)
Other results	3.146,06	(197,76)
Operating Profit/(loss)	(740.559,25)	(7.374,34)
Finance income	-	3,35
Finance costs	(661,44)	(496,66)
Net Finance Cost	(661,44)	(493,31)
Consolidated Profit/(loss) before taxes	(741.220,69)	(7.867,65)
Income tax	-	-
Profit/(loss) for the period	(741.220,69)	(7.867,65)



> LifeWatch ERIC Looking Ahead

Moving towards the second quinquennium

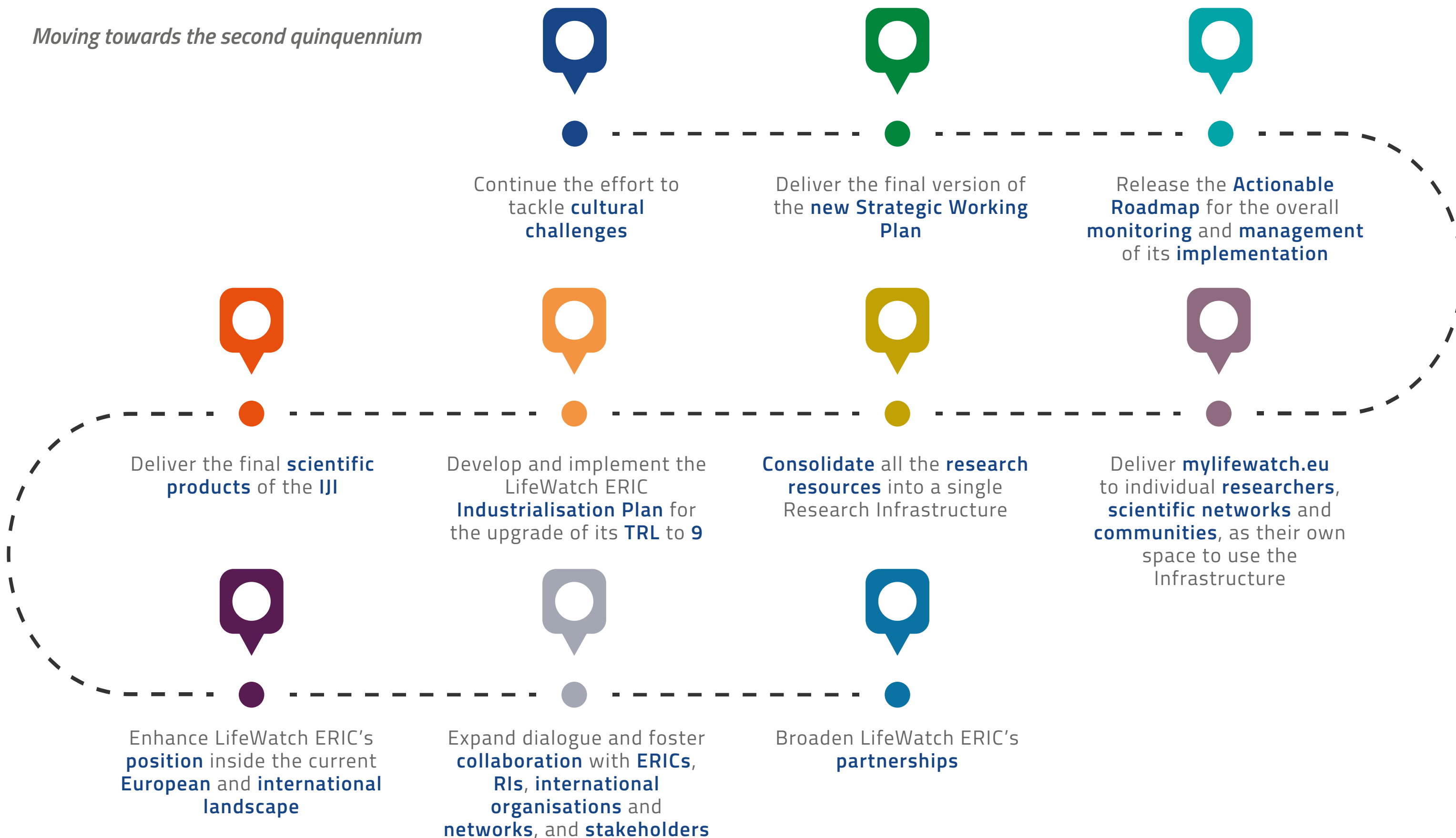


Photo by Raquel Vasconcelos | LifeWatch Portugal

View of Madeira's biodiversity, Portugal



> Acknowledgements

LifeWatch ERIC is grateful to its members and representing entities for their support of its operations and achievements:

LifeWatch ERIC

Statutory Seat

Plaza de España,
SECTOR II-III
41071 Seville (Spain)

Tax Identification Number
N9101001G

This report was approved by the LifeWatch ERIC General Assembly in 2022 and is available on the LifeWatch ERIC website in the Documents section www.lifewatch.eu/official-documents. The limited number of hard copy versions of the 2021 Activities Report is printed on 100% recycled paper.



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info@lifewatch.eu