

LifeWatch ERIC: mission and recent developments



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on behalf of LW-ERIC Executive Board

EUROMARINE General Assembly |
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Where the concept of ESFRIs comes from?





What are the Research Infrastructures?

What they are: Research Infrastructures (RIs) are considered to be **tools for science** and operate in the form of **facilities, resources** and **services**.

How they function: They **develop** our **technology** and provide a **thruster** for the **advancement** of **knowledge** by offering unique research services to the **users** and **stakeholders** from many states in order to **conduct top-level research** in **all** possible scientific **disciplines**: from social sciences to astronomy and from genomics to nanotechnologies.

Development implementation: RIs may be '**single-sited**' (a single resource at a single location), '**distributed**' (a network of distributed resources), or '**virtual**' (the service is provided electronically).



LifeWatch ERIC: Objective

LifeWatch is the European Infrastructure supplying e-Science research facilities for scientists

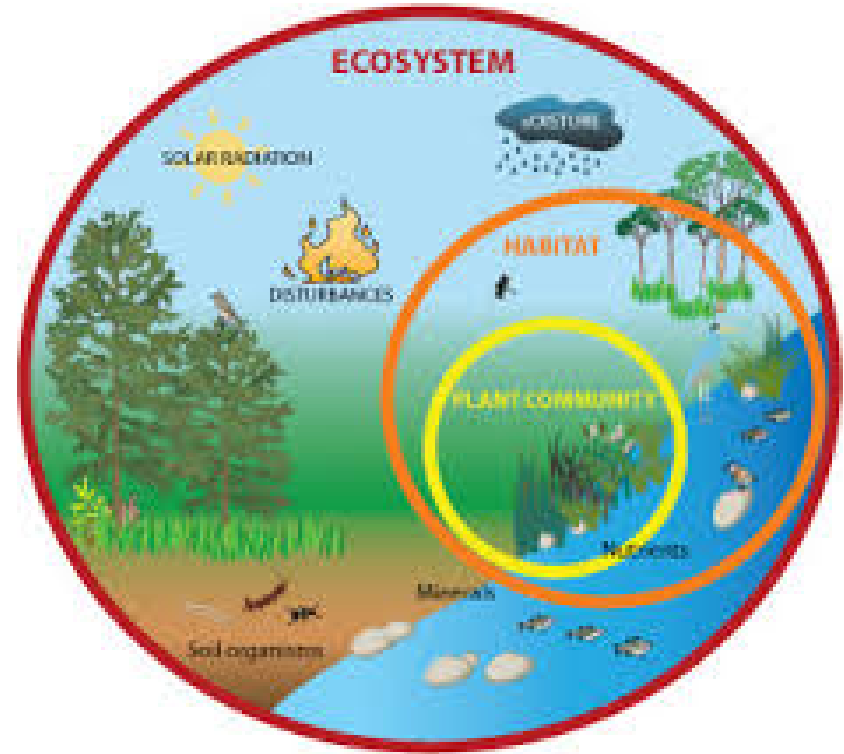
- adding knowledge and deepening understanding on Biodiversity organization and Ecosystem functions and services,
- in support of our societies to address the key planetary challenges



LifeWatch ERIC in a nutshell:

<https://www.youtube.com/watch?v=m4n-cAcgpl0&feature=youtu.be>

Aren't they complex enough?





The common theory by E.O. Wilson

Consilience: The unity of knowledge. *"Literally a 'jumping together' of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork of explanation."*

Synthetic biology: Looking for knowledge stemming out of evidence from as many disciplines in biology as possible to understand and explain the complex systems in order to sustainably use the resources of our planet.

LifeWatch ERIC: Organization



**Virtual Labs
& Innovations Centre
(Amsterdam,
The Netherlands)**



**Service Centre
(Lecce-Regione
Puglia, Italy)**



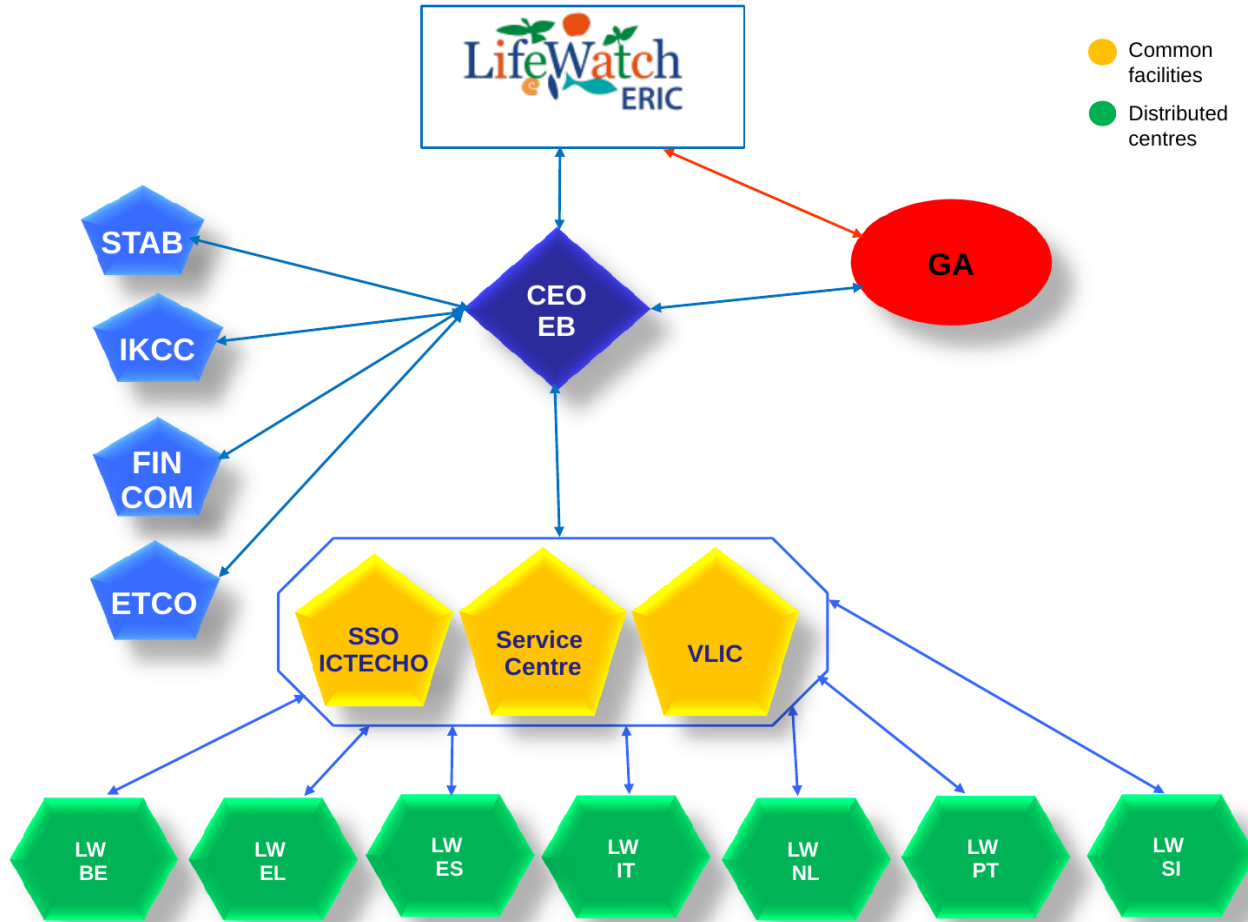
**Headquarters, Statutory Seat
& ICT e-Infrastructure
(Andalusia, Spain)**



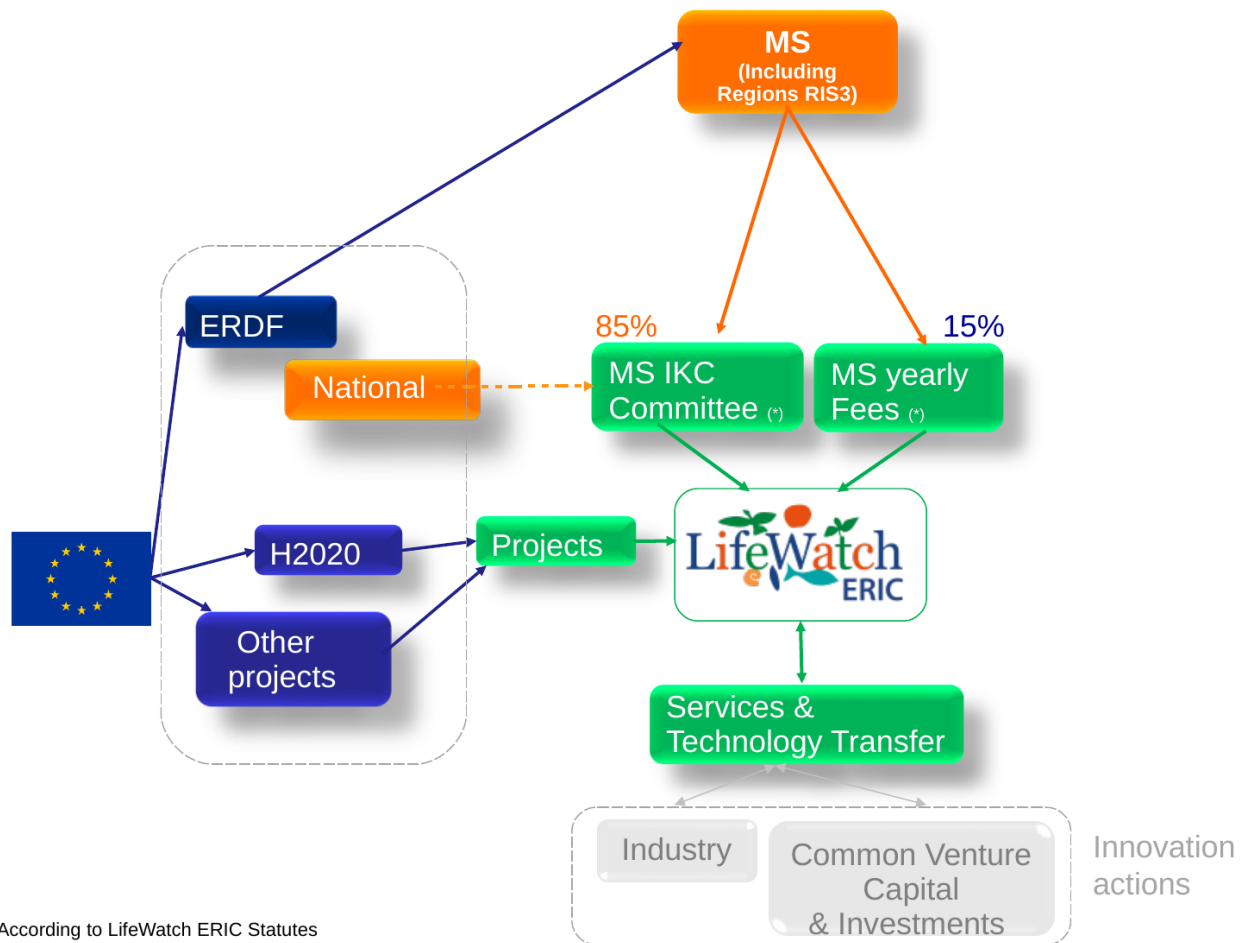
COORDINATING COUNTRY: ES
MEMBER COUNTRIES: BE, EL, ES, IT, NL,
 PT, SL
OBSERVER COUNTRIES: SK
REQUESTED ADMISSION: CY, IL, UA,
 RO

Thematic Centres are in member countries (and **REGIONS**) and develop components of the **e-Science** facilities

LifeWatch ERIC: Organigram

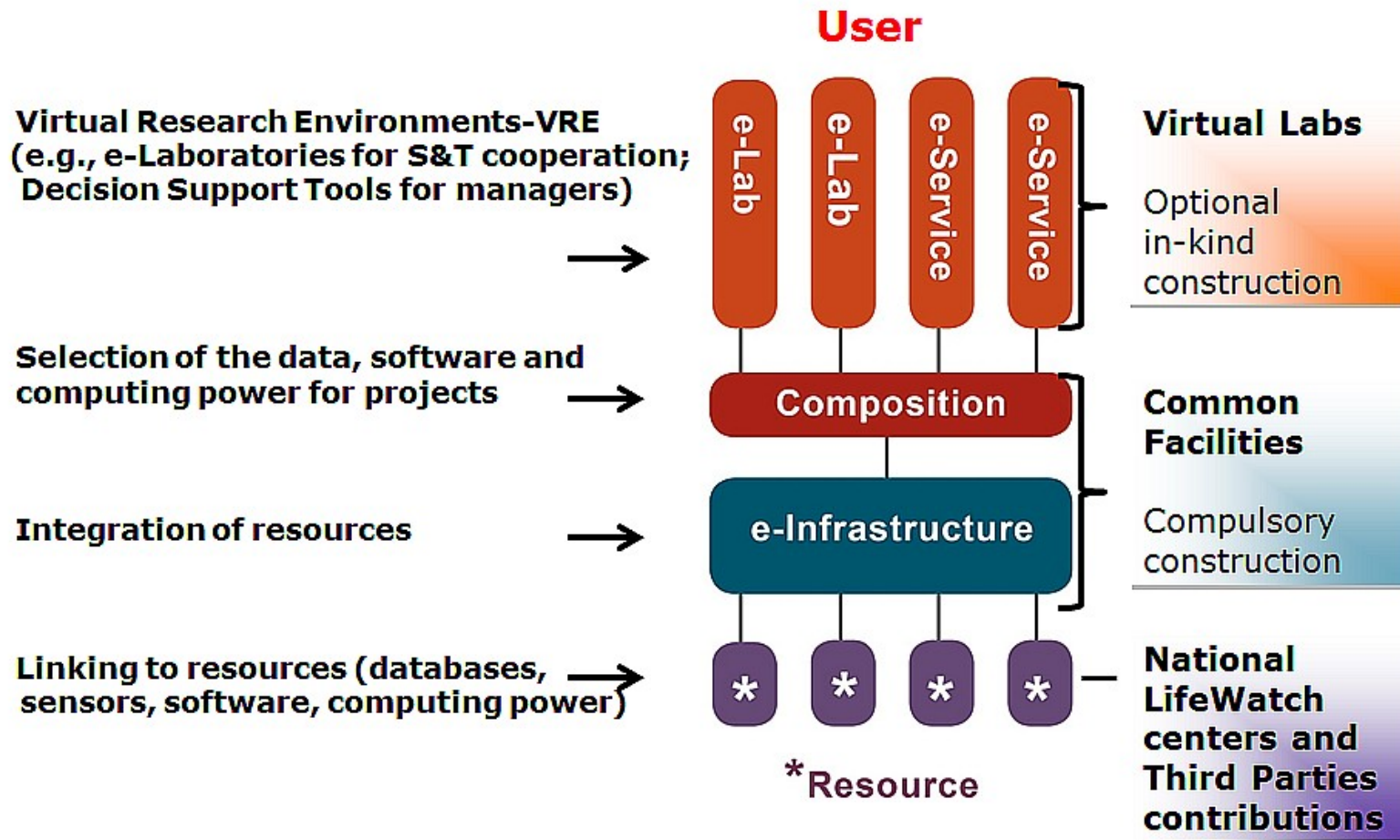


LifeWatch ERIC: Organigram



*According to LifeWatch ERIC Statutes
OJ EU (2017/C 89/01)

LifeWatch ERIC: Development



LifeWatch ERIC: Development The concept of a VRE



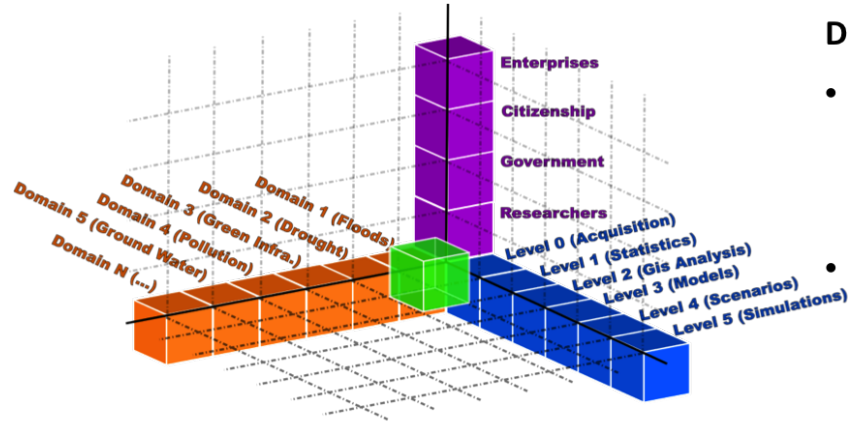
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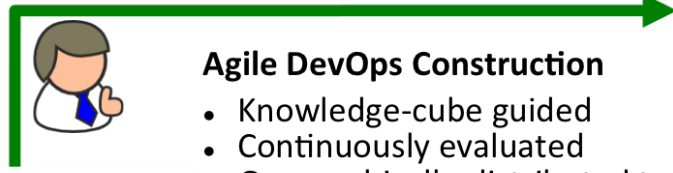


LifeWatch ERIC: Development



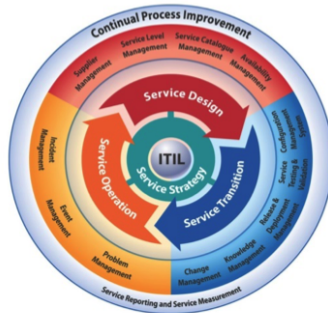
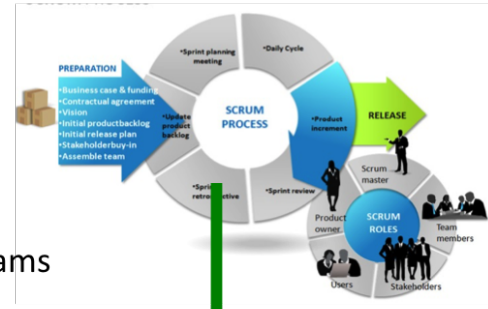
Development and Evolution Strategy

- 3D Knowledge cubes
 - Stakeholders
 - Water management domains
 - Capability levels
- The results are capability packages
 - Requirements
 - Priorities



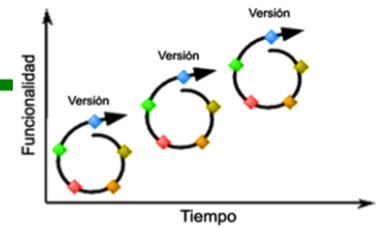
Agile DevOps Construction

- Knowledge-cube guided
- Continuously evaluated
- Geographically-distributed teams

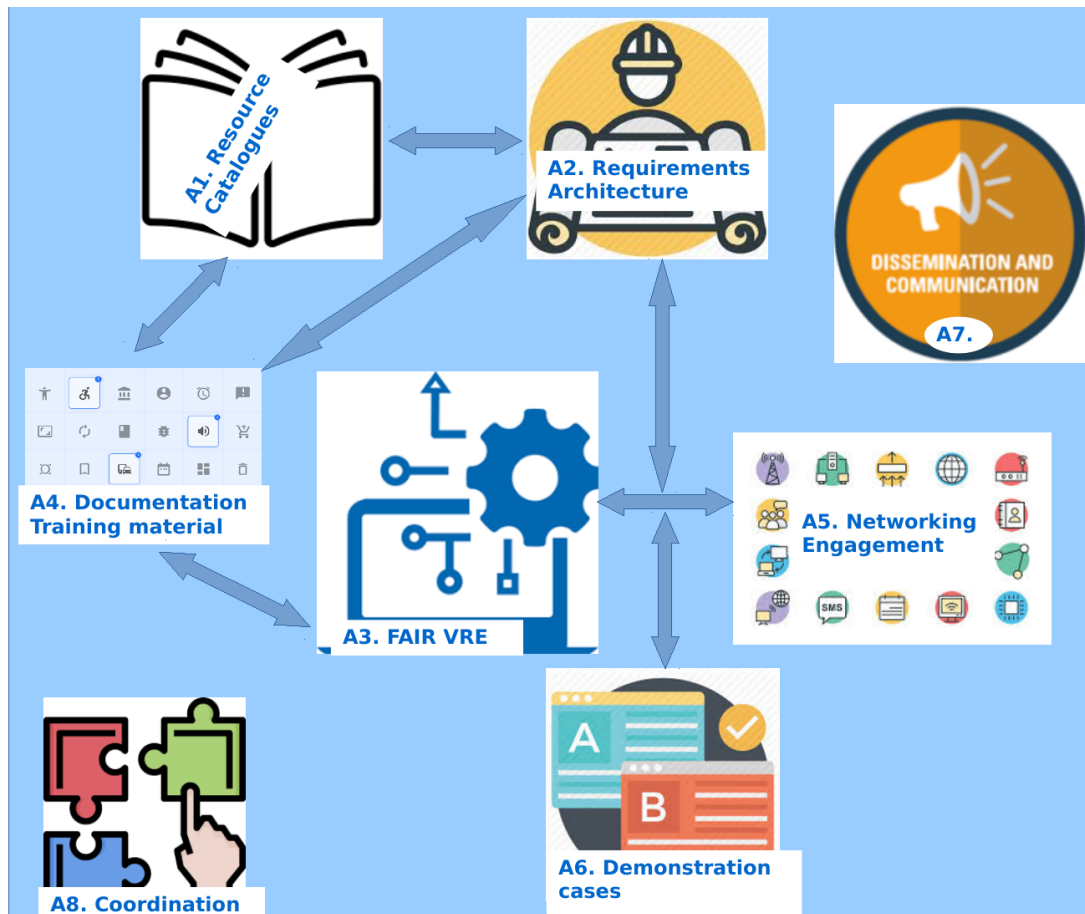


First deployment after 3 months

Every fortnight new release



LifeWatch ERIC: Recent developments - the IJI





LifeWatch ERIC: Recent developments - the IJI

So far:

1. First Dahlem Workshop completed – Seville, 14-18 October, 2019;
2. Use cases have been identified;
3. Teams have been formed;
4. Workflows have been designed;
5. A scoping paper is on the way;

LifeWatch ERIC: Development

High Level Architecture of LifeBlock

Decentralized
Transparent
Immutable

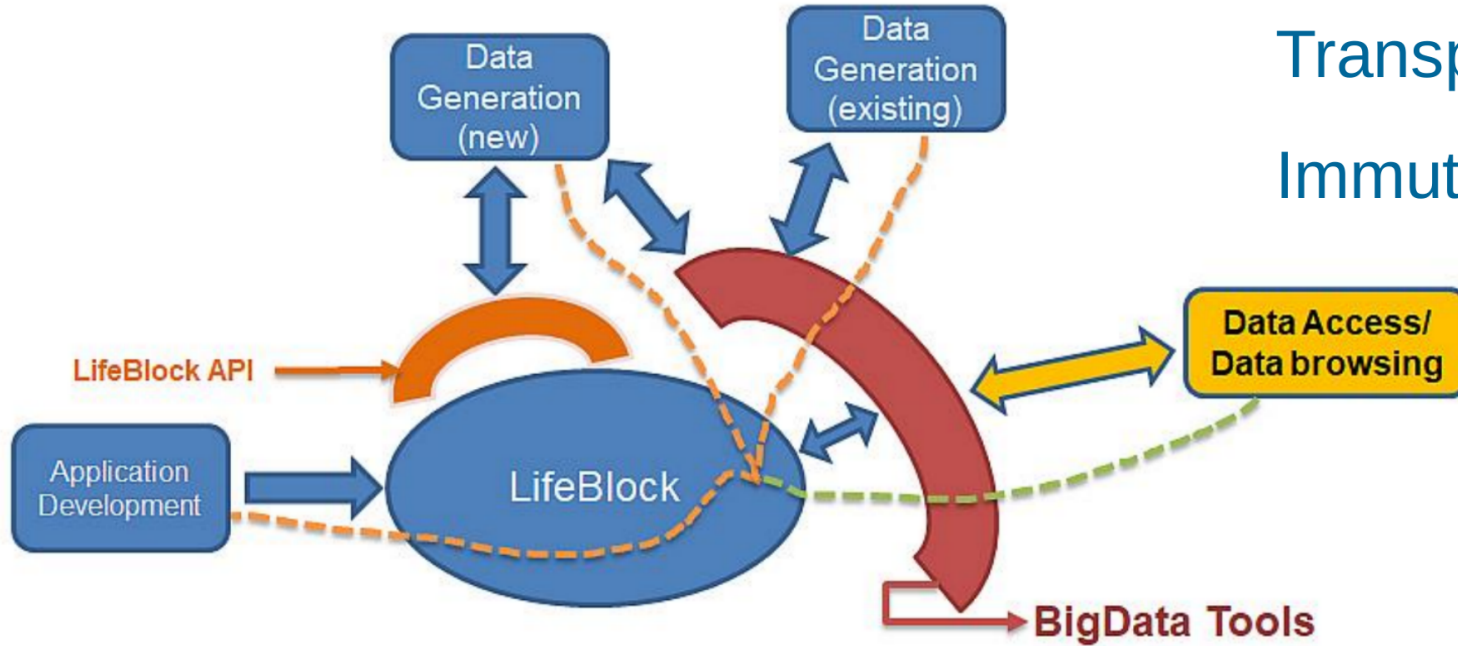


Figure 3. High level Architecture of LifeBlock, LifeBlock Blockchain platform

One stop-over access, a single authentication system, docker technology

The logo for LifeBLOCK features the word "Life" in a blue serif font, with the letter "i" in orange. The letter "e" is green and has a small orange circle above it. The word "BLOCK" is in a blue sans-serif font. The letter "B" is filled with a blue grid pattern. There are green leaves and an orange circle above the "e" and "B", and a green leaf and an orange circle below the "e" and "B".

LifeBLOCK

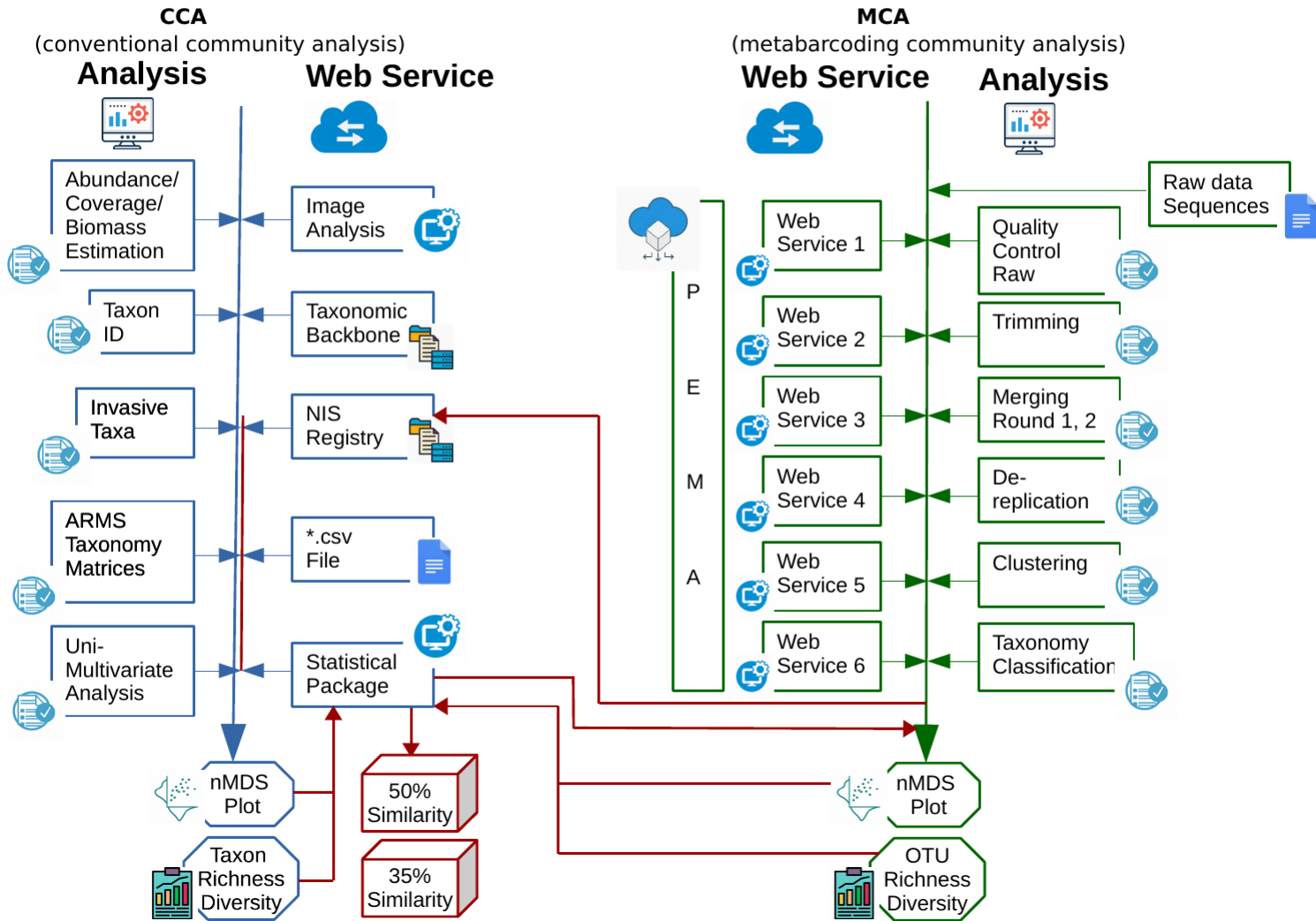
**A tool for engaging, tracking,
accounting and securing Biodiversity &
Ecosystem Research distributed
resources worldwide**

The logo for LifeWatch ERIC features the word "LifeWatch" in a blue serif font, with the letter "i" in orange. The letter "e" is green and has a small orange circle above it. The word "ERIC" is in a blue sans-serif font. There are green leaves and an orange circle above the "e" and "W", and a green leaf and an orange circle below the "e" and "W".

LifeWatch
ERIC

Workflows : Analyses & Services

Use case 4: ASSEMBLE+ ARMS



[Dashboard](#)[New workflow +](#) Dark theme

Create new workflow



LifeWatch ERIC: Challenges - Scientific

Modelling Biodiversity on Earth:

- Mapping of diversity, biomass, productivity and socio-economics (including Ecosystem Services)
- Patterns, processes and consequences from change
- Prognosis under certain scenarios



LifeWatch ERIC: Challenges - Infrastructure

VRE: Virtual Research Environment

- e-Services (electronic services)
- vLabs (virtual laboratories)
- Computational capacity and storage unlimited space

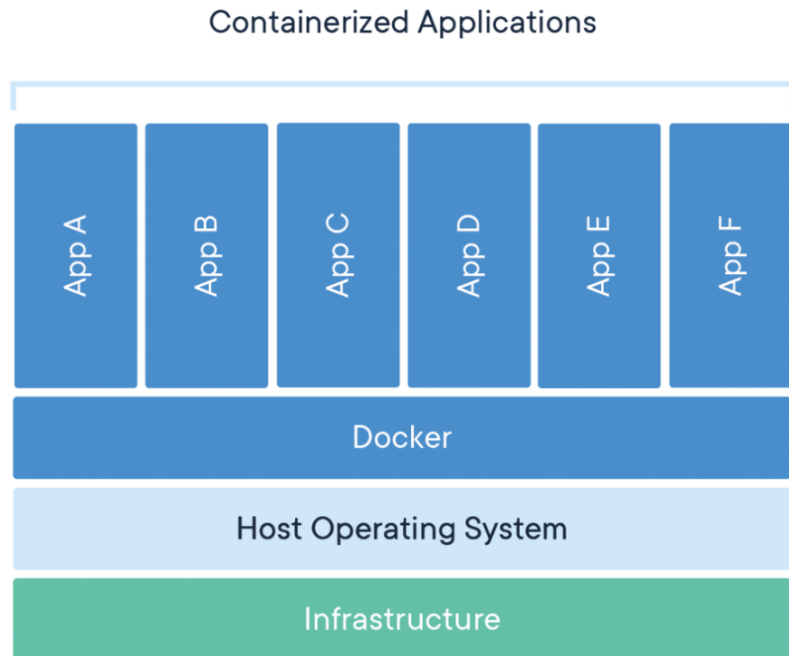




LifeWatch ERIC: Challenges - Infrastructure

VRE: Virtual Research Environment

- “Incubation chambers” for tech developed in Projects
- Transparency in scientific research practice



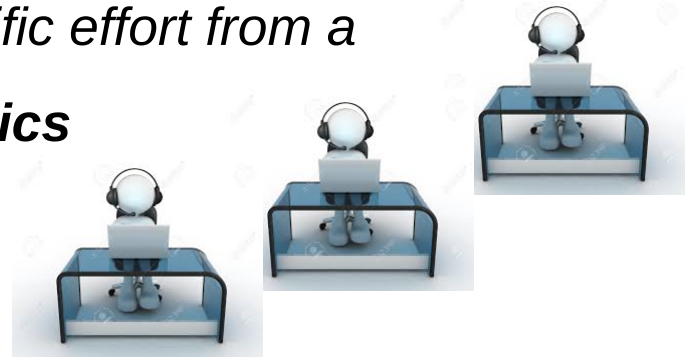


LifeWatch ERIC: Challenges - Culture

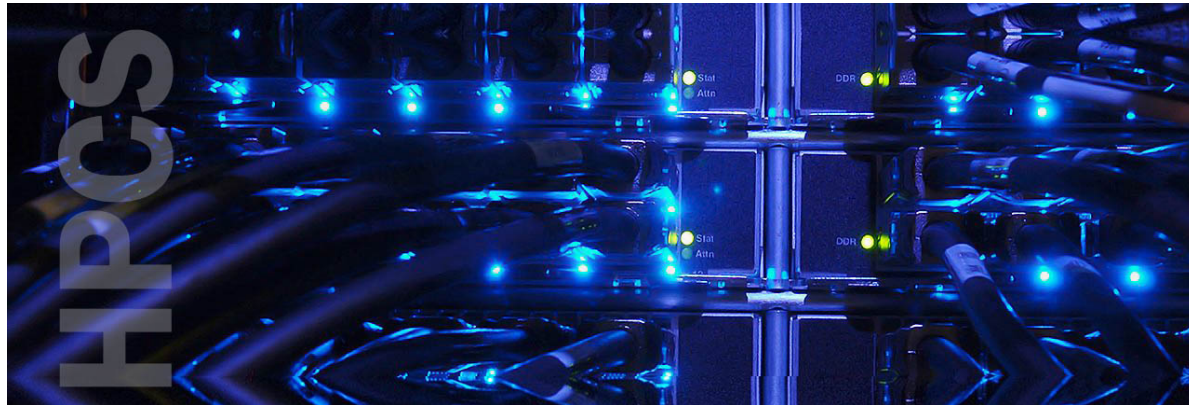
*“...to **turn scientists’ attitude** from working in isolation in a **single-core PC and with licensed software** into using and benefiting from an **ecosystem of web services publicly available** on the web site of the **LW RI** with huge **data management effort and support, storage capacity and computational power**, which provides them not only with the capability to scale up their research interests and **work on global hypotheses** but it ensures **transparency, repeatability and attribution** for their endeavor.”*

LifeWatch ERIC: Challenges - Culture

*"...This change would direct most of the scientific effort from a single-core brain (SCBs) operation or **brain-etics***



*to high-performance brain network synthesis (HPBNs) or **brain-omics**."*





LifeWatch ERIC: Our next priorities

- **Develop** LW ERIC **common facilities** in a fully **operational** mode;
- Construct and operate the urgently needed **distributed and federated infrastructure** in order to **integrate, organically link** and make all the **web services** developed by the national biodiversity centers available through a single stop-over spot;
- **Bring back** and unite the much **fragmented scientific** and other type of **biodiversity and ecosystem functioning user communities** to their natural home, the LifeWatch ERIC Research Infrastructure; ***LifeWatch ERIC week!***



Thank you all for your attention!

Questions?

<http://www/lifewatch.eu>

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