How will science benefit from EOSC?

- LifeWatch ERIC, WP6 leader

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Initial statements

1. Big science cannot happen without substantial Infrastructure
2. EOSC provides a huge source of Infrastructure to scientific community
3. EOSC Future builds *next-gen* Infrastructure in Europe
4. EOSC Future is build by e-Infrastructures and Science Clusters, in collaboration with the broader scientific community
5. EOSC Future is an example of investment in multidisciplinary and cross-domain research platform

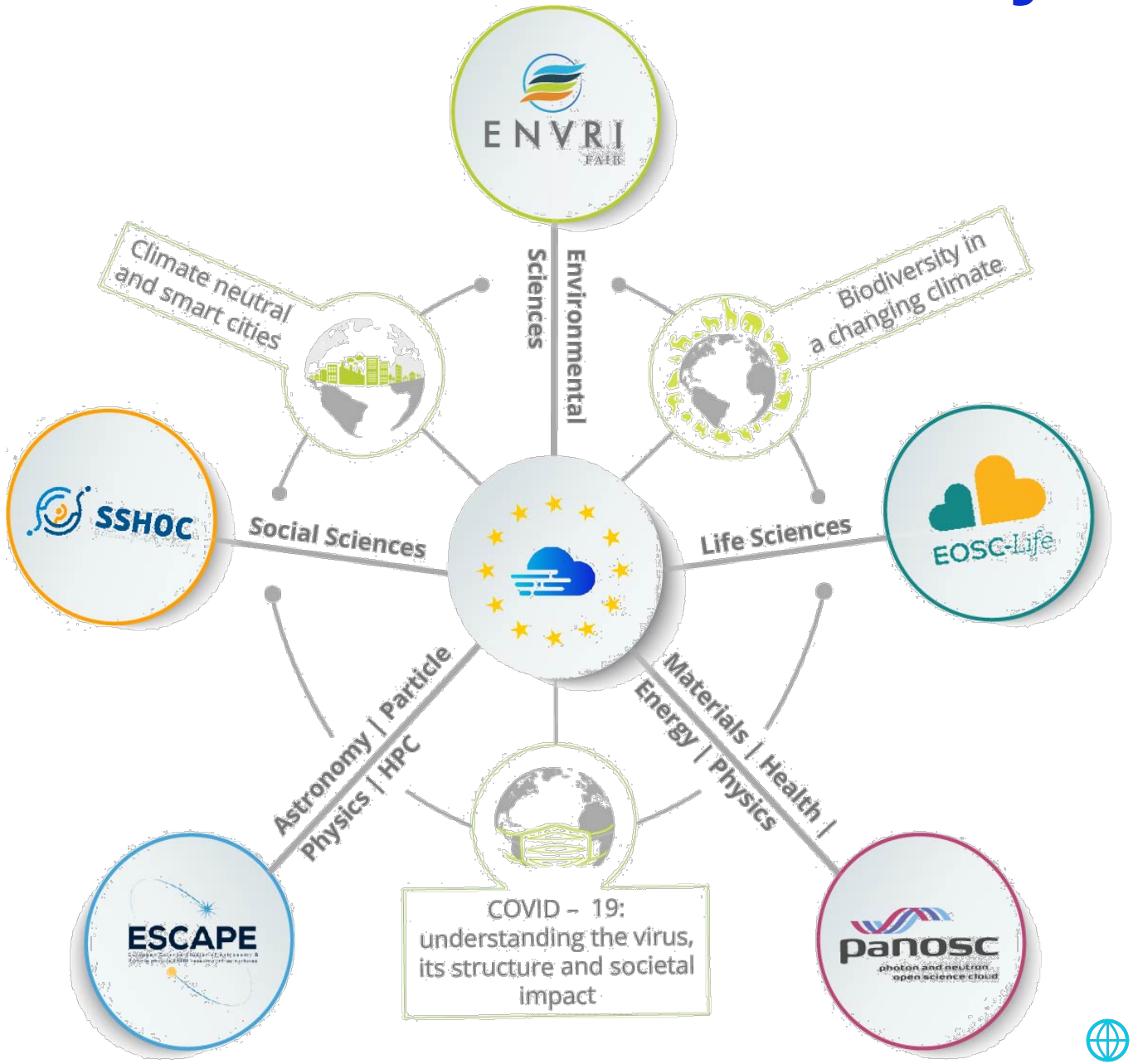
EOSC Future WP6 in a nutshell

1. Three Tasks
2. 30+ Partners (currently)
3. 654 Pms; >6.2 M€
4. 3 Deliverables (repeated)
5. 7 Milestones (repeated)

Challenges

1. EOSC Future WP6 is the space where Science Clusters and e-Infrastructures join forces
2. Different approaches, different languages, different culture
3. Huge potential through integration activities by identifying their interfaces or *trading zones*

The mechanism: Science Projects (SPs)



1.

ENVRI_SP1: Dashboard on the state of the environment

ENVRI_SP2: Climate Change Impact on Biodiversity and Ecosystems in Europe - Assessing the impact of Non-Indigenous Invasive Species (NIS) in European ecosystems

ENVRI_SP1: Scientific impact

1. Understand the impacts of a changing climate on biodiversity, environment and societies
2. Improved understanding of our earth system
3. New interdisciplinary analyses
4. Innovative algorithms and methods
5. Novel approaches for sharing, analysing and reusing imaging data
6. Innovative access management

ENVRI_SP1: Technical impact

1. Continuous, trusted working environment and networking opportunities to the research community
2. Long-term open data archive, high performance storage and computing services, sustainable use of data
3. Cross-Europe AAI, high performance storage, computing, archiving, simulation and analysis services (for a Minimum Viable Ecosystem)
4. Open data and a virtual research space for open science
5. Make open data a publication in its own right

1.ENVRI_SP1: Dashboard on the state of the environment

- Environmental Data and services
  - Policy
  - Science
  - Industry
  - Public

ENVRI FAIR

Environmental boundary conditions: Observe short / long term developments -> Inform society

-> Dashboard on the state of the Environment <-

1.ENVRI_SP1: Dashboard on the state of the environment

1.Objectives:

2.1. Develop and launch a dashboard

- Set up analytical workflows for different environmental disciplines
- Integrate their outputs

- 2. Connect the analytical framework to the EOSC portal
  - By means of the ENVRI-Hub
  - Mobilise and empower a larger community of researchers and potential data providers

1.3. Demonstrate and promote the benefits and potentials of web-based science using EOSC

ENVRI_SP2: Strategic impact

1. Offers a prototype which makes available a suite of web services of multidisciplinary and cross-domain origin
2. Engages a vast scientific community, once again both multidisciplinary and cross-domain, working on the impacts of major drivers on the marine biodiversity and ecosystems in the EOSC ecosystem
3. New services added to the EOSC portal, with a proper integration
4. Creates a FAIR virtual research environment (VRE) to achieve both the scientific goals and the community engaged

ENVRI_SP2: Scientific impact

1. Understand the impacts of a changing climate on biodiversity, environment and societies
2. Bring a suite of multidisciplinary and cross-domain communities which currently work primarily in isolation from each other
3. These communities come to work together on a major environmental problem with lots of consequences: environmental, social, economic.
4. Make sure that both the data and the analytical pipelines are FAIR-compliant and therefore they can guarantee a FAIR operation of the web services.
5. Perhaps, this is the most challenging part of the SP and maybe of all the SPs.

1. ENVRI_SP2: Impact of Non-Indigenous Invasive Species (NIS) in European ecosystems. Approaches

1. Combined metabarcoding with species occurrences data coming from EMBRC (ASSEMBLE+) and environmental data from multiple resources (e.g. multiple sources: COPERNICUS, ICOS, EMSO, EuroARGO, etc.). These data don't go much back in time and so only statistical models can be applied
2. Species occurrences from OBIS + environmental data. Because of the vast quantities of data, we may be able to apply mechanistic models - if not, statistical models will take over.

1. ENVRI_SP2: Impact of Non-Indigenous Invasive Species (NIS) European ecosystems

1. Objectives:

2. Integrate data from different scientific disciplines in the marine subdomain (e.g. chemistry, physics, biodiversity, ecosystems, genomics, socio-economics) into an analytical framework in order to advance our knowledge on the impact of NIS on European marine biodiversity and ecosystems
3. Connect the analytical framework and federate access to relevant data infrastructures at the EOSC portal in order to mobilise and empower a larger community of researchers and potential data providers
4. Demonstrate and promote the benefits and potential of web-based science using EOSC

Thank you for your attention