



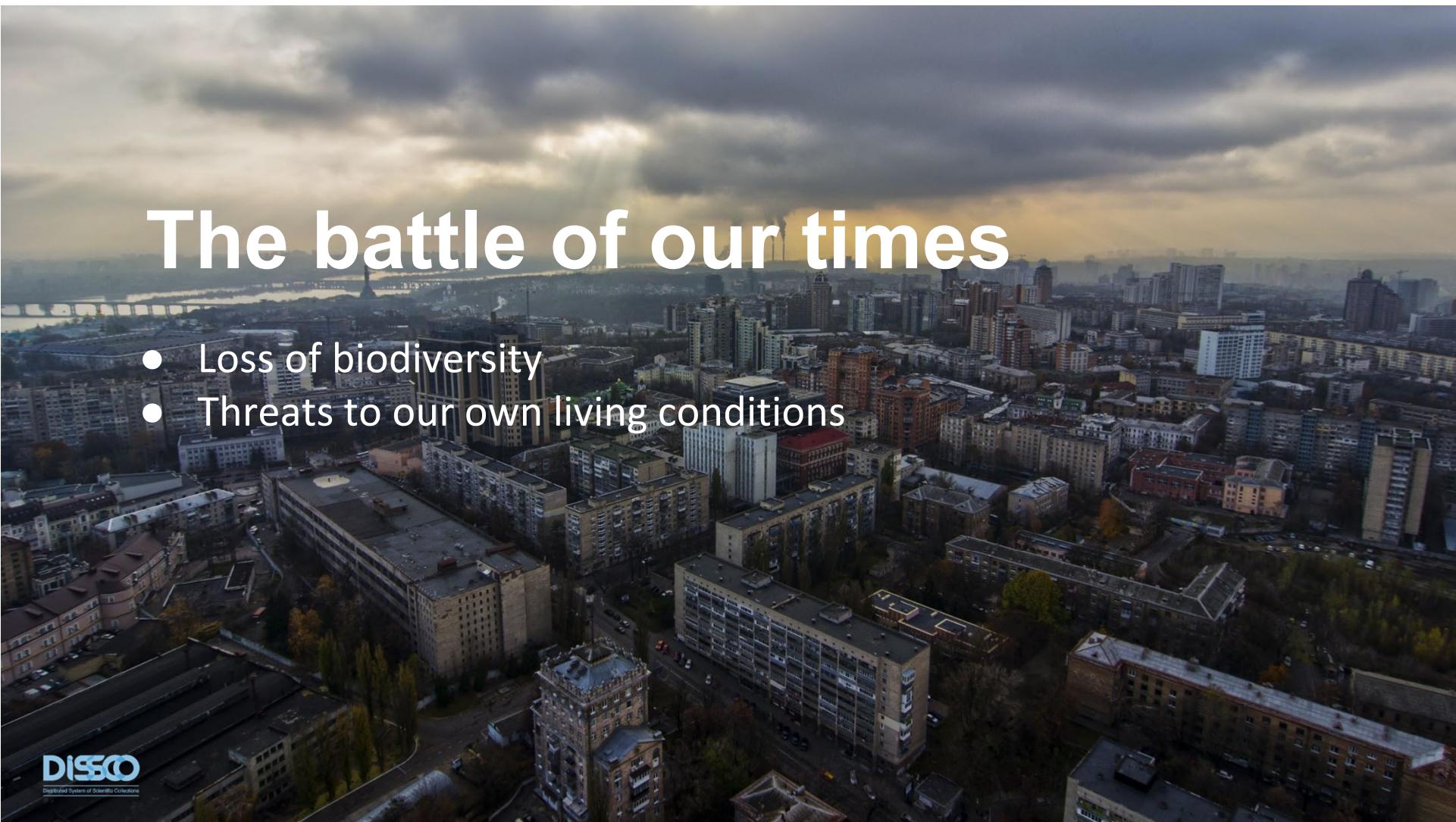
# DiSSCo

## Harnessing the power of Natural Science Collections



Distributed System of Scientific Collections

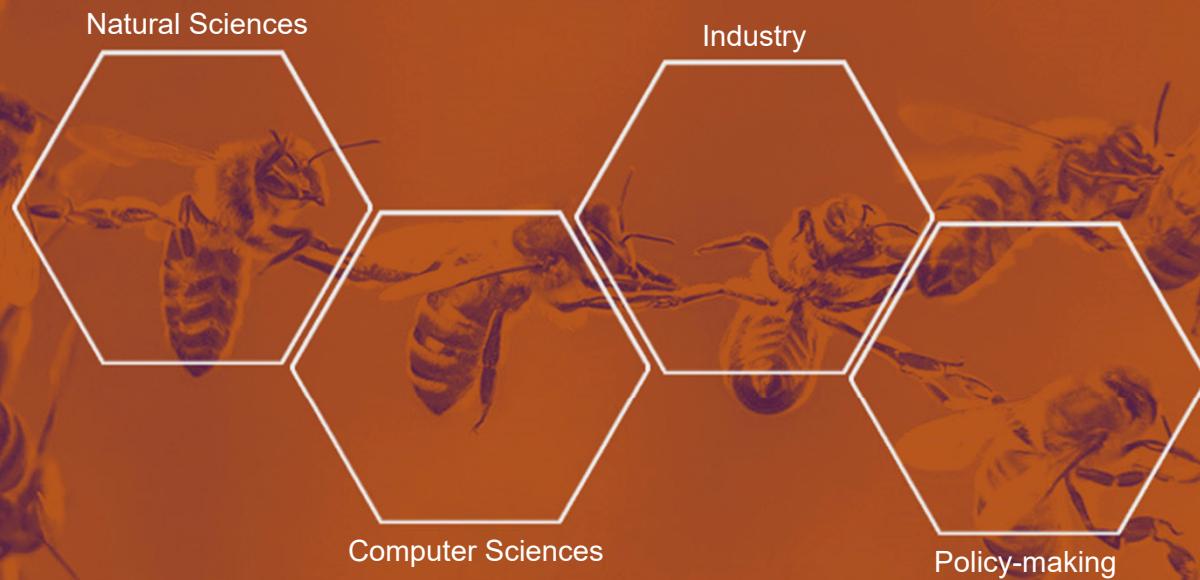
DiSSCo Coordination and Support Office



# The battle of our times

- Loss of biodiversity
- Threats to our own living conditions

- Multifaceted global challenges call for multidisciplinary solutions ...
- ... and those require access to interconnected information and tools.



- 
- Natural Science Collections (NSCs) have a vital role to play in this fight ...
  - ... but some improvement is necessary

NSCs

Natural Sciences

Industry

Computer Sciences

Policy-making

NSCs

## We need to embrace the future faster...

- Embrace the new developments: massive **digitisation** (<10% of 1.5 billion specimens is digitised, even less is published), new forms of data... everything to be able to share knowledge with others.
- Embrace better **integration and interoperability** (common policies, technical approaches and standards) so we can work together.

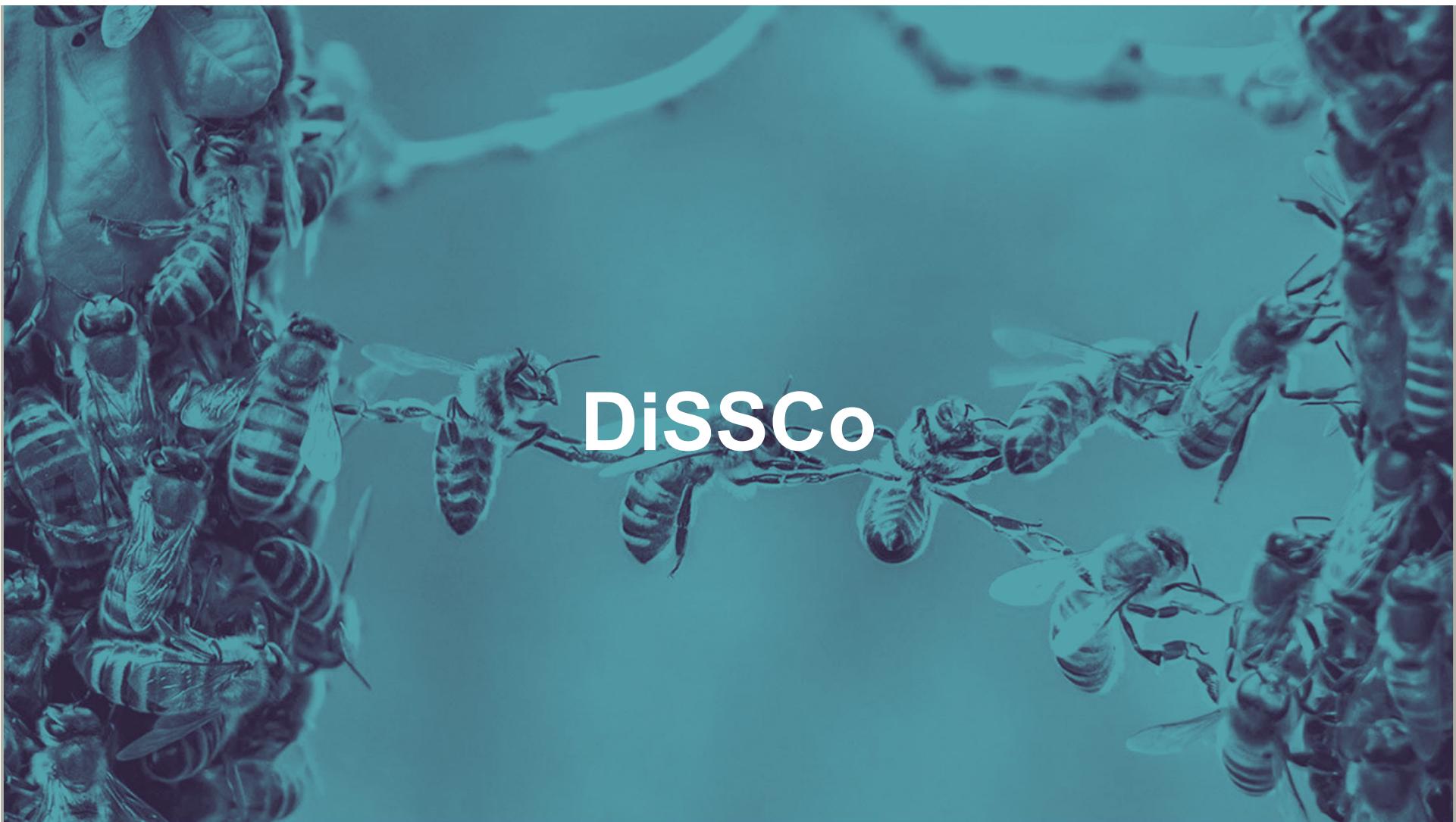
# ... because we have to give answers

January 14th 2021

The Washington Post Tags: Covid-19, Science

## How natural history museums should play a bigger role in finding the sources of wildlife pathogens





**DiSSCo**



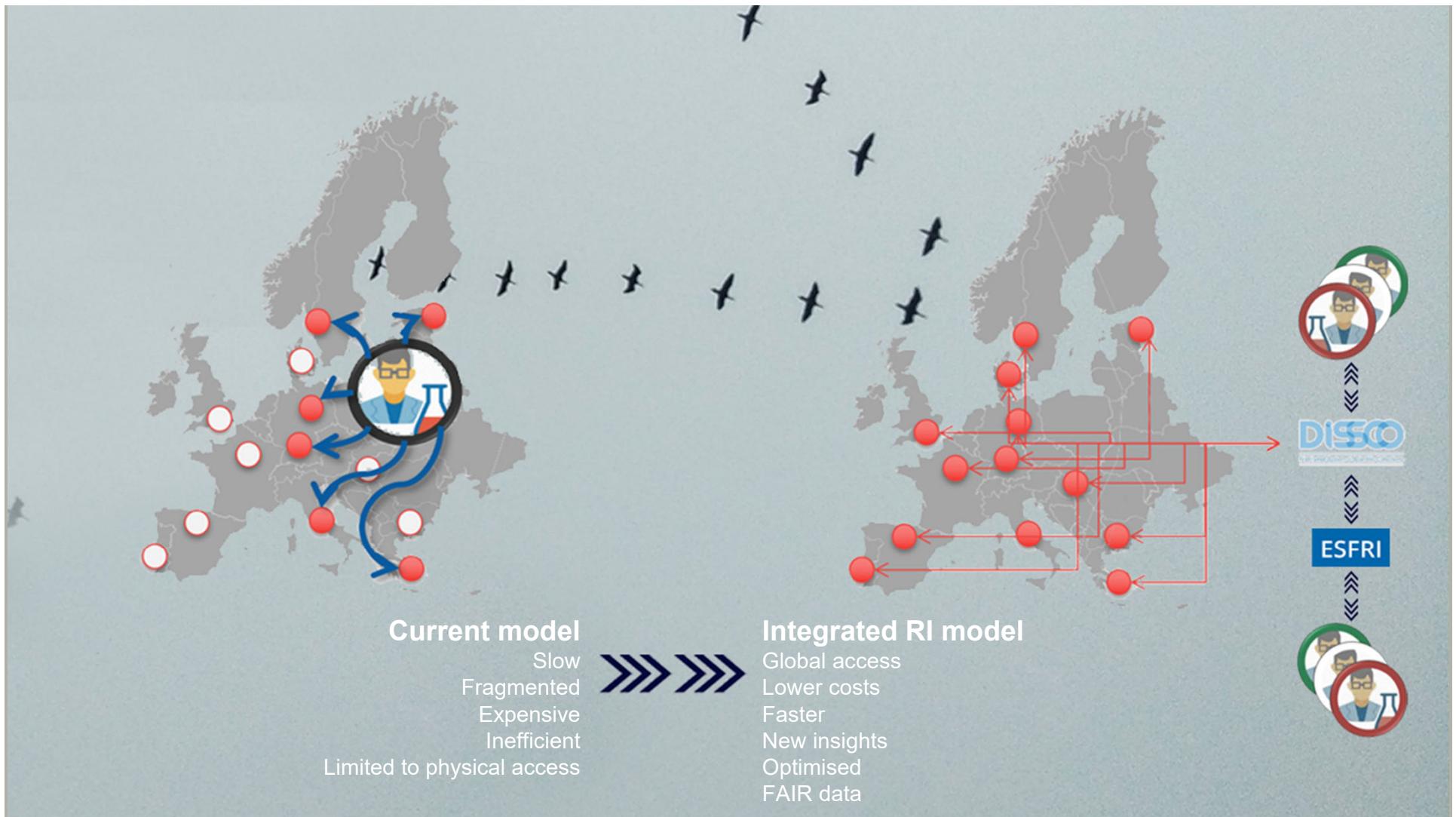
Distributed System of Scientific Collections

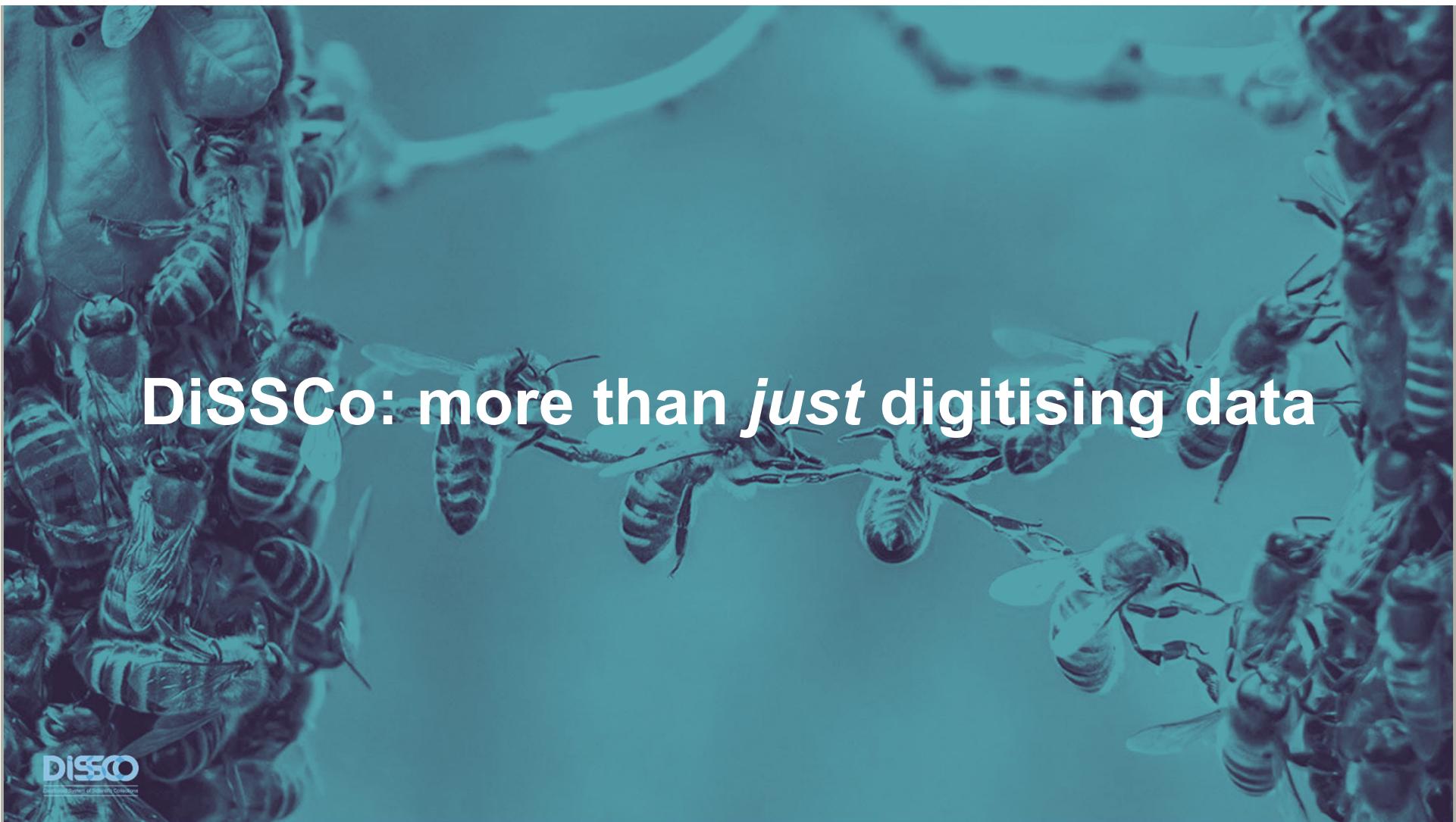
The goal: to digitally unify  
today's fragmented landscape  
of European NSCs into a single  
knowledge base under  
common curation, access  
policies and practices.

170+ National Facilities,  
23 Countries  
1 European Collection

DiSSCo members

Austria - Naturhistorisches Museum Wien Belgium - Agentschap Plantentuin Meise - Royal Belgian Institute of Natural Sciences - Instituut voor Natuur-en Bosonderzoek (INBO) - Royal Museum for Central Africa, Tervuren - Flemish Research Institute for Nature and Forest - Royal Zoological Society of Antwerp - Université Libre de Bruxelles, Herbarium - University of Namur - Flanders Marine Institute Bulgaria - Institute of Biodiversity and Ecosystem Research - Bulgarian Academy of Sciences (IBER-BAS) - National Museum of Natural History, Sofia - Bulgarian Academy of Sciences (NMNHS-BAS) Czech Republic - Charles University, Faculty of Science - Institute of Botany, The Czech Academy of Sciences - Institute of Vertebrate Biology, The Czech Academy of Sciences - National Museum, Prague - Nature Conservation Agency of the Czech Republic - Masaryk University Denmark - Natural History Museum of Denmark, University of Copenhagen - Naturhistorisk Museum Aarhus - The Science Museums, Aarhus University Estonia - Estonian Museum of Natural History - Estonian University of Life Sciences - Tallinn University of Technology - University of Tartu Finland - Finnish Museum of Natural History - LUOMUS, University of Helsinki - Biodiversity Unit, University of Oulu - Biodiversity Unit, University of Turku - Digitarium, University of Eastern Finland - Kuopio Natural History Museum - Open Science Centre / Museum, University of Jyväskylä France - Muséum national d'histoire naturelle - Muséum d'histoire naturelle Philadelph-Thomas de Gaillac - Centre de coopération internationale en recherche agronomique pour le développement - Centre Informatique National de l'Enseignement Supérieur - Nancy Museum-Aquarium - Conservatoire botanique national Alpin - Institut Recherche et Développement - Sorbonne University - La Société National des Sciences Naturelles et Mathématiques de Cherbourg - Le Jardin Botanique de la Ville de Lyon - Muséum d'histoire naturelle de La Rochelle - Université de Toulouse III-Paul Sabatier - Université Lille 1 - Sciences et technologies - Université Claude-Bernard Lyon - Université Clermont Auvergne - Université de Bourgogne - Université de Montpellier - Université de Rennes - Université de Strasbourg - Université Pierre et Marie Curie - Tela Botanica Germany - Bavarian Natural History Collections - SNSB - Berlin Natural History Museum - Botanischer Garten und Botanisches Museum Berlin - Freie Universität Berlin - Centrum für Naturkunde, Universität Hamburg - Senckenberg Gesellschaft für Naturforschung - Zoological Research Museum Alexander Koenig - Museum für Naturkunde - Leibniz Institute for Evolution and Biodiversity Science Berlin - Naturkundemuseum Stuttgart Greece - Natural History Museum of Crete, University of Crete - Mineralogy and Petrology Museum, National and Kapodistrian University of Athens - Museum of Geology and Palaeontology, National and Kapodistrian University of Athens - Museum of Zoology, National and Kapodistrian University of Athens - Botanical Museum, National and Kapodistrian University of Athens - Zoological Museum of the University of Patras - Department of Geology, University of Patras - Botanical Museum of the University of Patras - Museum of Zoology of the Aristotle University of Thessaloniki - Goulandris Natural History Museum - Benaki Phytopathological Institute - Botanical Garden "Ioulia & Alexandros N. Diomidis" - Cephalonia Botanica - Focas-Cosmetatos Foundation - Collection of Micro-organisms, Agricultural University of Athens - Hellenic Collection for Pathogenic Fungi - Herbarium, Agricultural University of Athens - Hippocrates Botanical Garden of Kos - Hippocrates Botanical Garden of Markopoulos - Mycetotheca, National and Kapodistrian University of Athens - Natural History Museum of the Municipality of Amaroussion - Phytotheca, National and Kapodistrian University of Athens - Sedbank, National and Kapodistrian University of Athens - The Apollon-Delphi Botanic Garden - Hippocrates Botanical Garden of Limnos, University of the Aegean Hungary - Hungarian Natural History Museum Italy - Natural History Museum, University of Florence - National Academy of Sciences Italian National Academy of Entomology - Italian Botanical Society - Italian Geological Society - Italian Palaeontological Society - Italian Society of Biogeography - National Association of Science Museums - National Research Council (DSSTTA) Luxembourg - Musée national d'histoire naturelle (MnhnL) Netherlands - Naturalis Biodiversity Center - Natural History Museum Rotterdam - Natuur museum Maastricht - NIOZ Royal Netherlands Institute for Sea Research - Stichting De Bastei (Natuurmuseum Nijmegen) - Stichting Museon - Stichting TwentseWelle - Teylers Museum, Haarlem - NLBIF - University of Amsterdam - Utrecht University Museum - Westerdijk Fungal Biodiversity Institute - Natuur museum Brabant - Natuur museum Fryslân Norway - Natural History Museum, University of Oslo - Tromsø University Museum - NTNU University Museum - University Museum of Bergen Poland - Museum and Institute of Zoology, Polish Academy of Sciences - The University of Warsaw Portugal - National Museum of Natural History and Science, University of Lisbon (MUHNAC - Ulisboa) - Science Museum of the University of Coimbra (MUC - UC) - Natural History and Science Museum, University of Porto (MHNC - UP) - Botanical Garden of the University of Coimbra (JBUC) Slovakia - Plant Science and Biodiversity Centre, Slovak Academy of Sciences, Institute of Botany - Pavol Jozef Šafárik University in Košice - Comenius University Spain - National Museum of Natural Sciences (CSIC-MNCN) - Royal Botanic Garden of Madrid (CSIC-RJB) - Universidad de Navarra (UNAV) - Instituto Geológico y Minero de España (IGME) Sweden - Swedish Museum of Natural History - Bergius Foundation - Department of Biology, Lund University - Gothenburg Botanical Garden - Department of Biological and Environmental Sciences, University of Gothenburg - Department of Ecology and Environmental Science, Umeå University - Uppsala University, Museum of Evolution - Västervik, The Gothenburg Museum of Natural History United Kingdom - Natural History Museum London - Royal Botanic Garden Edinburgh - Royal Botanic Gardens, Kew.





**DiSSCo: more than *just* digitising data**

- DiSSCo links data: DIGITAL OBJECT architecture
- And not just any kind of data: actionable, FAIR data

### PHYSICAL SPECIMEN



»»»  
Digitisation  
Analysis  
Computation

### DIGITAL SPECIMEN Actionable Knowledge Unit



»»»

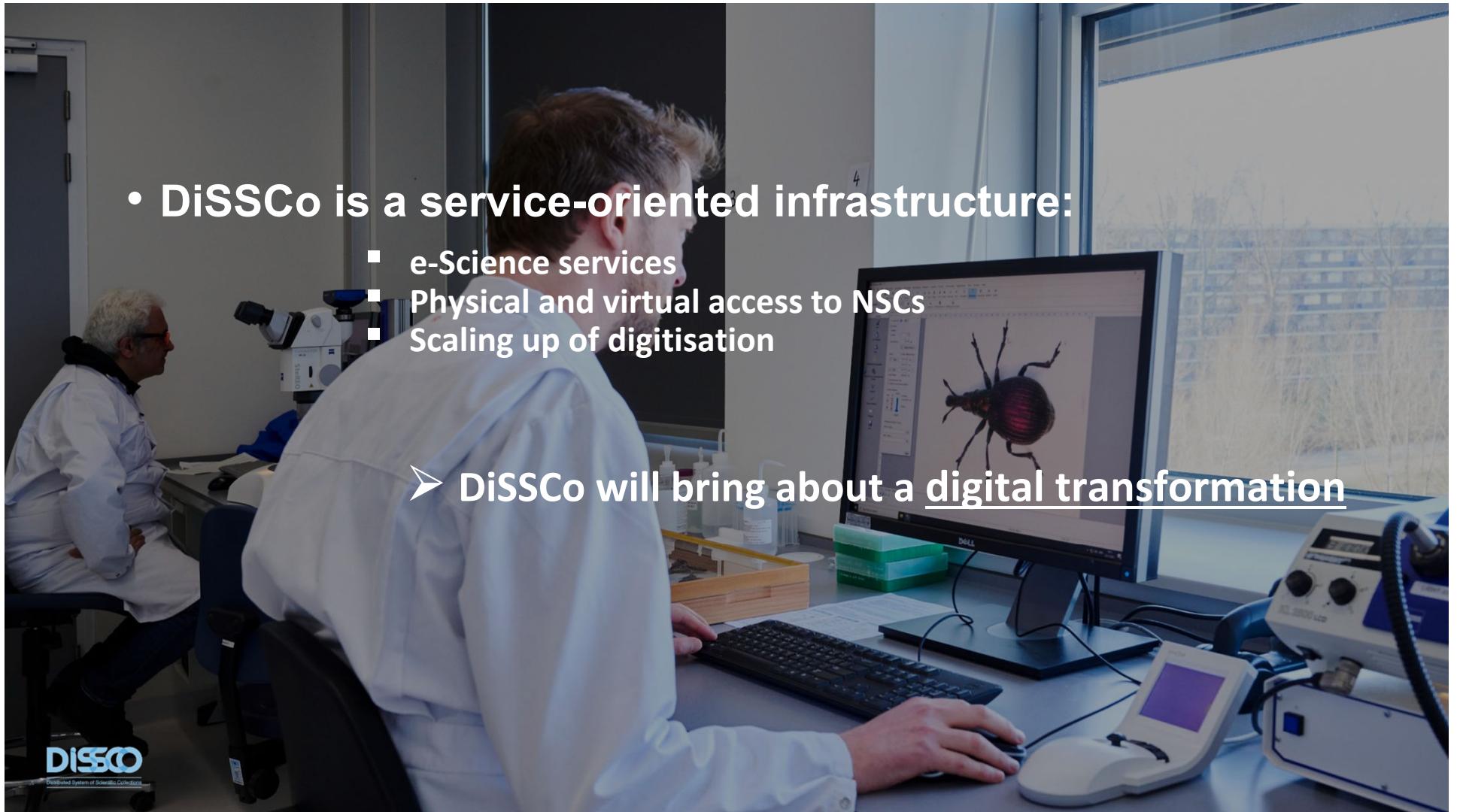
**FAIRdata**  
Findable  
Accessible  
Interoperable  
Reusable



- DiSSCo is a service-oriented infrastructure:

- e-Science services
- Physical and virtual access to NSCs
- Scaling up of digitisation

➤ DiSSCo will bring about a digital transformation



# DiSSCo e-Services





**DiSSCo's current development stage**



Distributed System of Scientific Collections

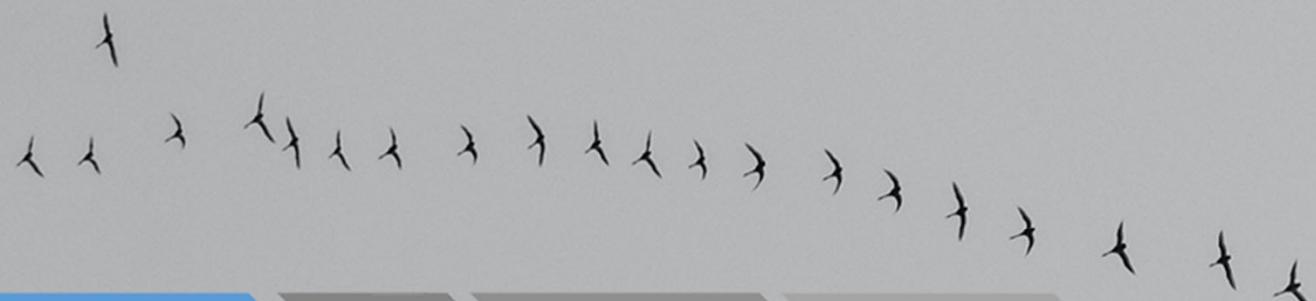
**Proposal**  
Phase  
2015 - 2018

**Preparatory**  
Phase  
2019 - 2022

**Transition**  
Phase  
2023

**Construction**  
Phase  
2024 - 2025

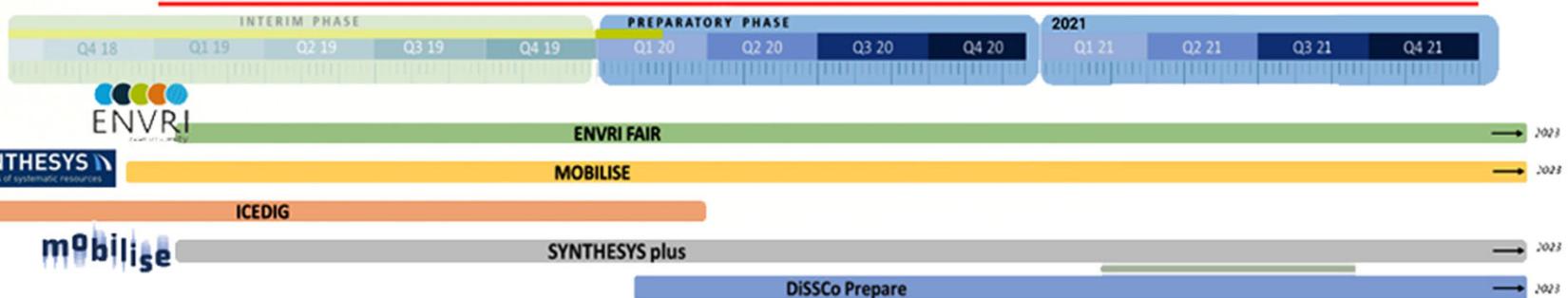
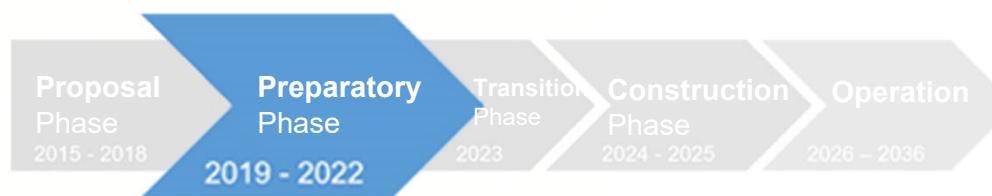
**Operation**  
2026 – 2036





## A research infrastructure in the making...

# DiSSCo



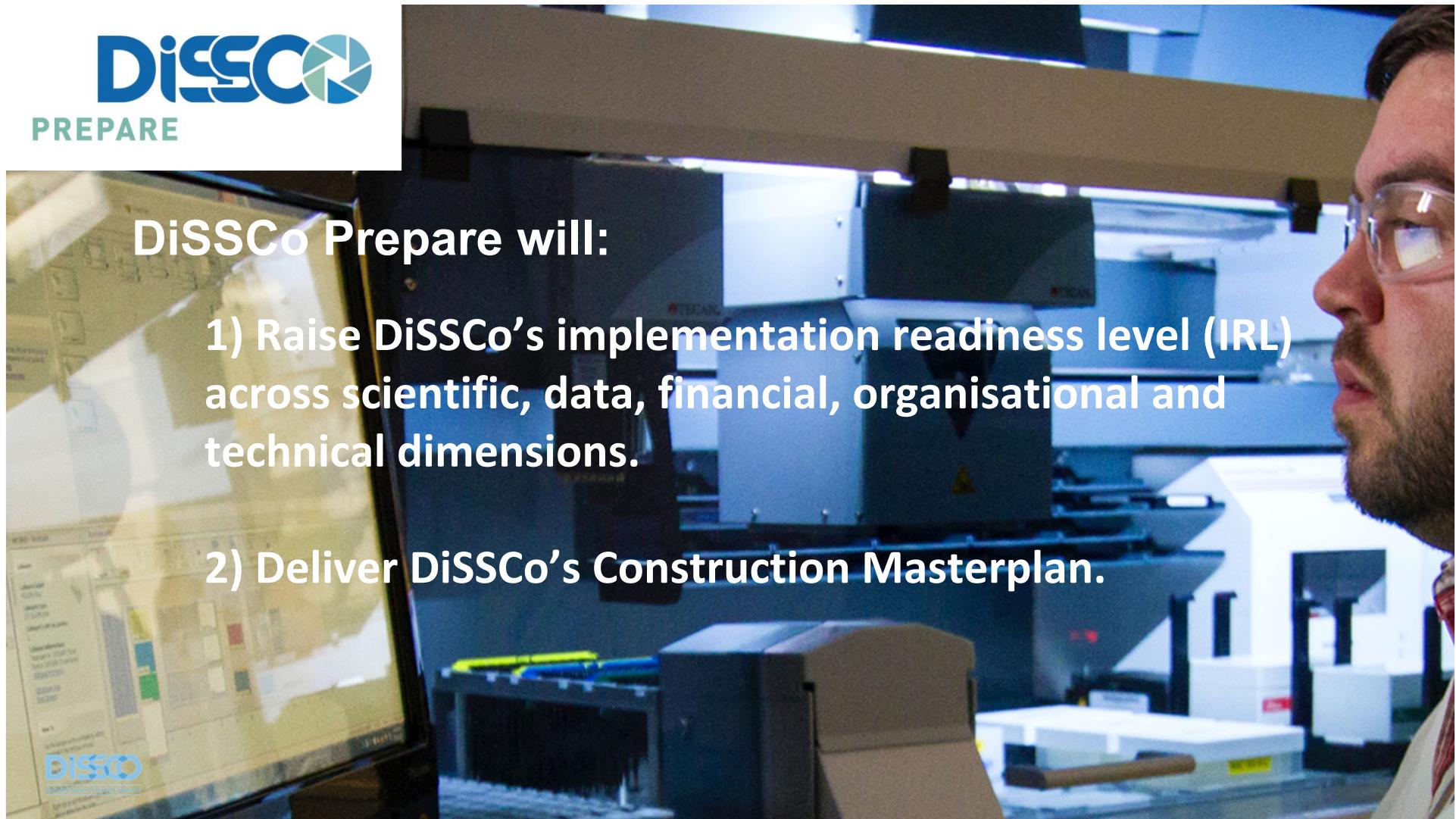
... with a masterplan

**DiSSCo**  
PREPARE



## DiSSCo Prepare will:

- 1) Raise DiSSCo's implementation readiness level (IRL) across scientific, data, financial, organisational and technical dimensions.
- 2) Deliver DiSSCo's Construction Masterplan.





# DiSSCo's governance and funding path

# Governance



**Governance  
Structures**

**Proposal  
Phase**  
2015 - 2018

**Preparatory  
Phase**  
2019 - 2022

**Transition  
Phase**  
2023

**Construction  
Phase**  
2024 - 2025

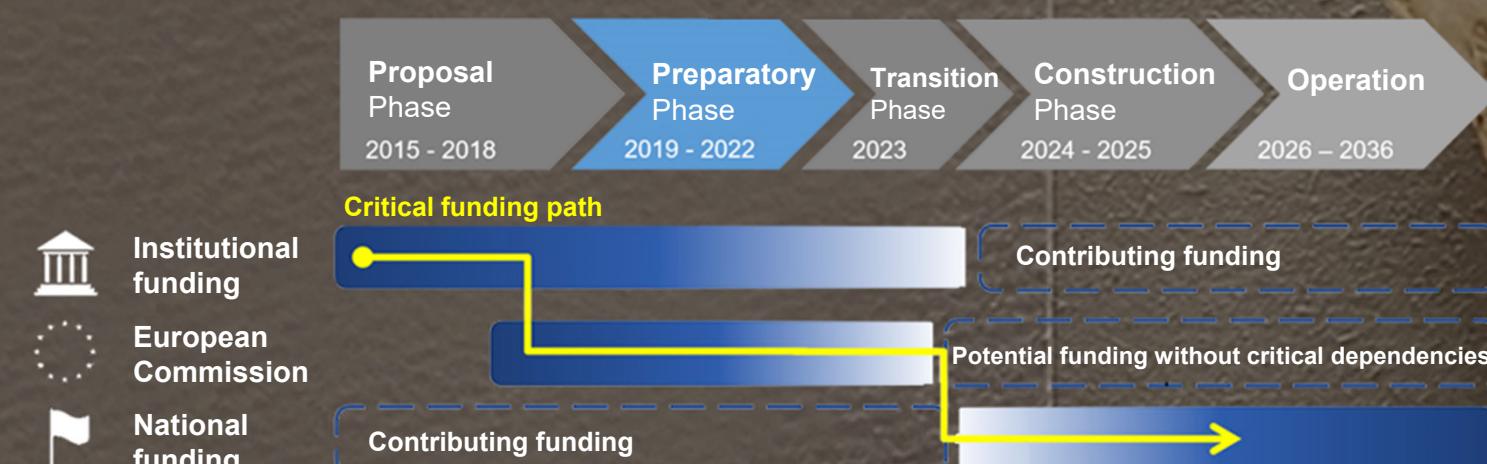
**Operation**  
2026 – 2036

**Single Project  
Governance**  
(Steering  
Committee)

**Interim General  
Assembly**  
(Partners)

**General Assembly**  
(Funders/National  
Governments)

# Critical funding path





# DiSSCo's communications

# Distributed System of Scientific Collections

1,5 billion specimens. 5,000 scientists. 170+ institutions. 23 countries  
... in 1 European collection.



DiSSCo

## A world-class research infrastructure

The Distributed System of Scientific Collections is a new world-class Research Infrastructure (RI) for Natural Science Collections. The DiSSCo RI aims to create a new business model for one European collection that digitally unifies all European natural science assets under common access, curation, policies and practices that ensure that all the data is easily Findable, Accessible, Interoperable and Reusable (FAIR principles).

DiSSCo represents the largest ever formal agreement between natural history museums, botanic gardens and collection-holding universities in the world.

BiCIKL

Expression of Interest for the 1st BiCIKL Open Call for projects

24 June 2022. The first BiCIKL Call for



Distributed System of Scientific Collections

# Thank you!

