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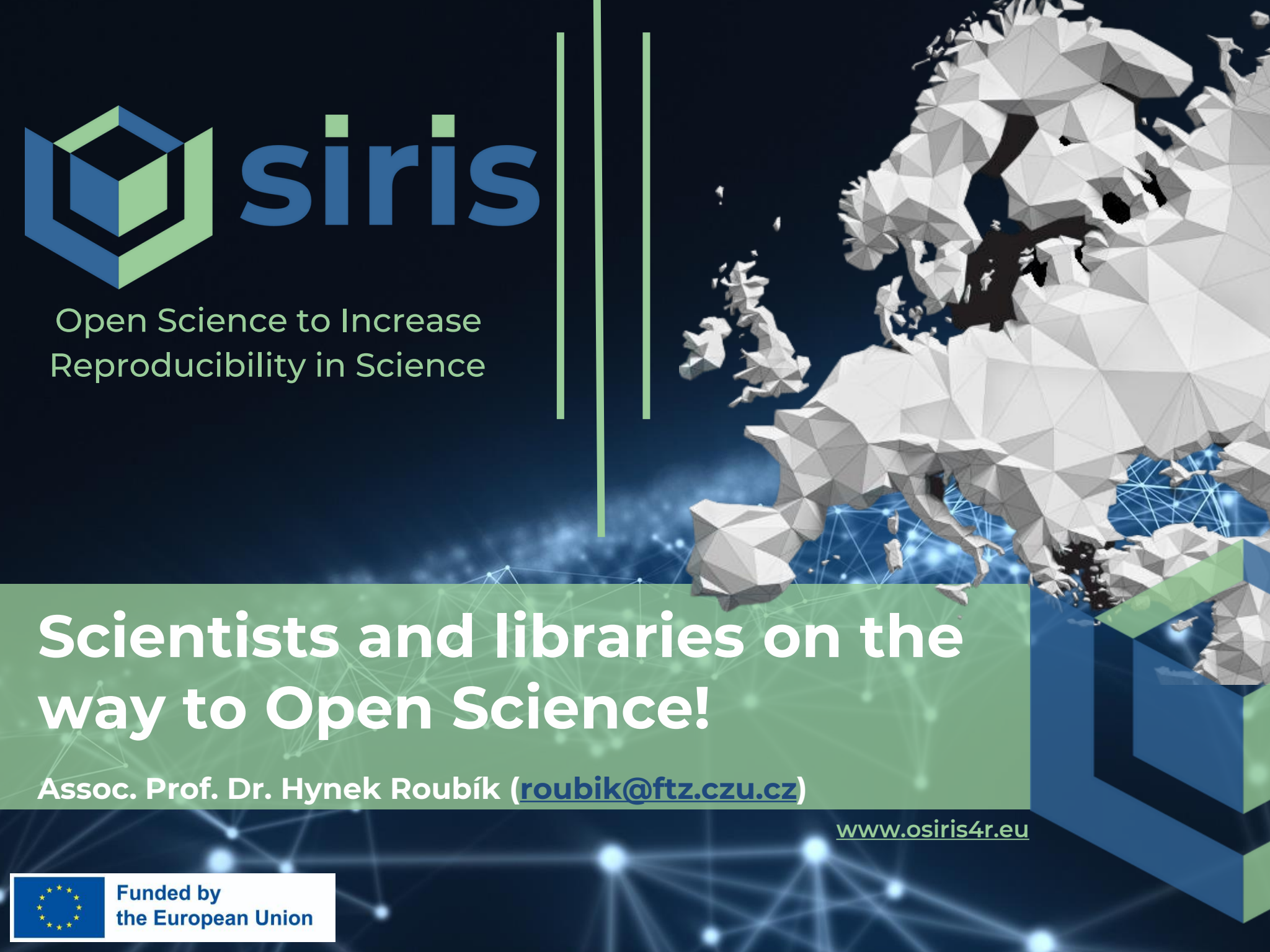
Open Science to Increase Reproducibility in Science

Vědci a knihovny na cestě k Open Science!

Assoc. Prof. Dr. Hynek Roubík (roubik@ftz.czu.cz)

www.osiris4r.eu

Funded by the European Union



Scientists and libraries on the way to Open Science!

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the European Union

Short introduction

Biogas Research Team

Biogas.czu.cz

Czech University of Life Sciences Prague

Faculty of Tropical AgriSciences

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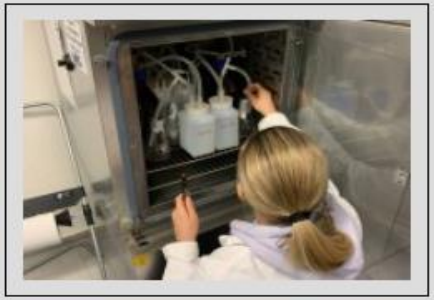
This project has received funding from the European Union's Horizon Europe research and innovation programme under the grant agreement No. 101094725.

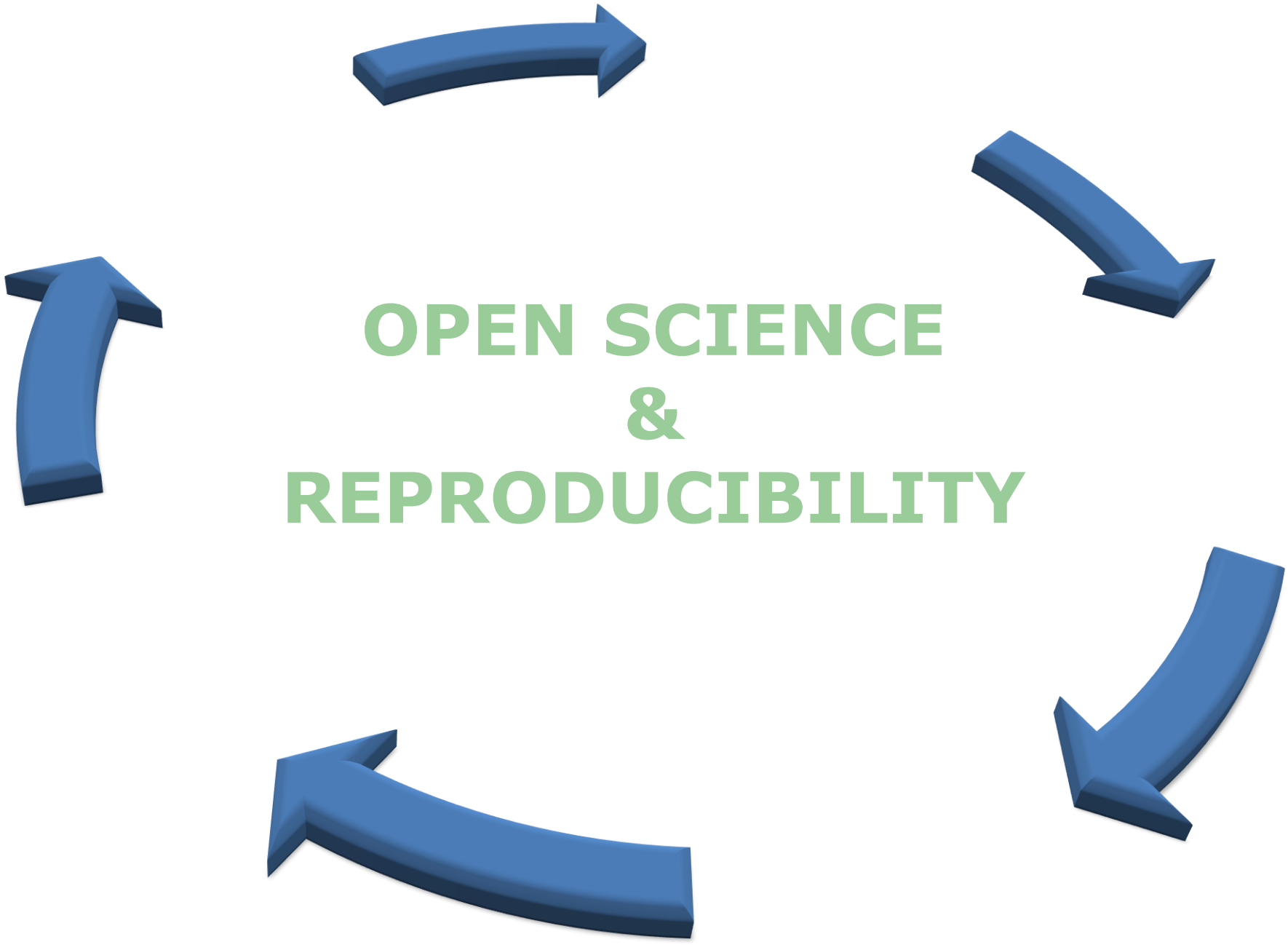
We aim to reveal current state, bottlenecks and perspectives of biogas plants.

Biogas Research Team









OPEN SCIENCE
&
REPRODUCIBILITY

Some simple examples at BRT (I.)

Biogas Research Team

Making research papers accessible to everyone

One of the simple approaches is to make our research papers accessible to everyone

This includes (when relevant) data availability.

Making resources accessible to everyone

Other simple approach is to have various **resources** available to everyone

- -photobank
- -white papers
- -popularisation
- -commentaries
- -**methodologies**
- -technical blueprints

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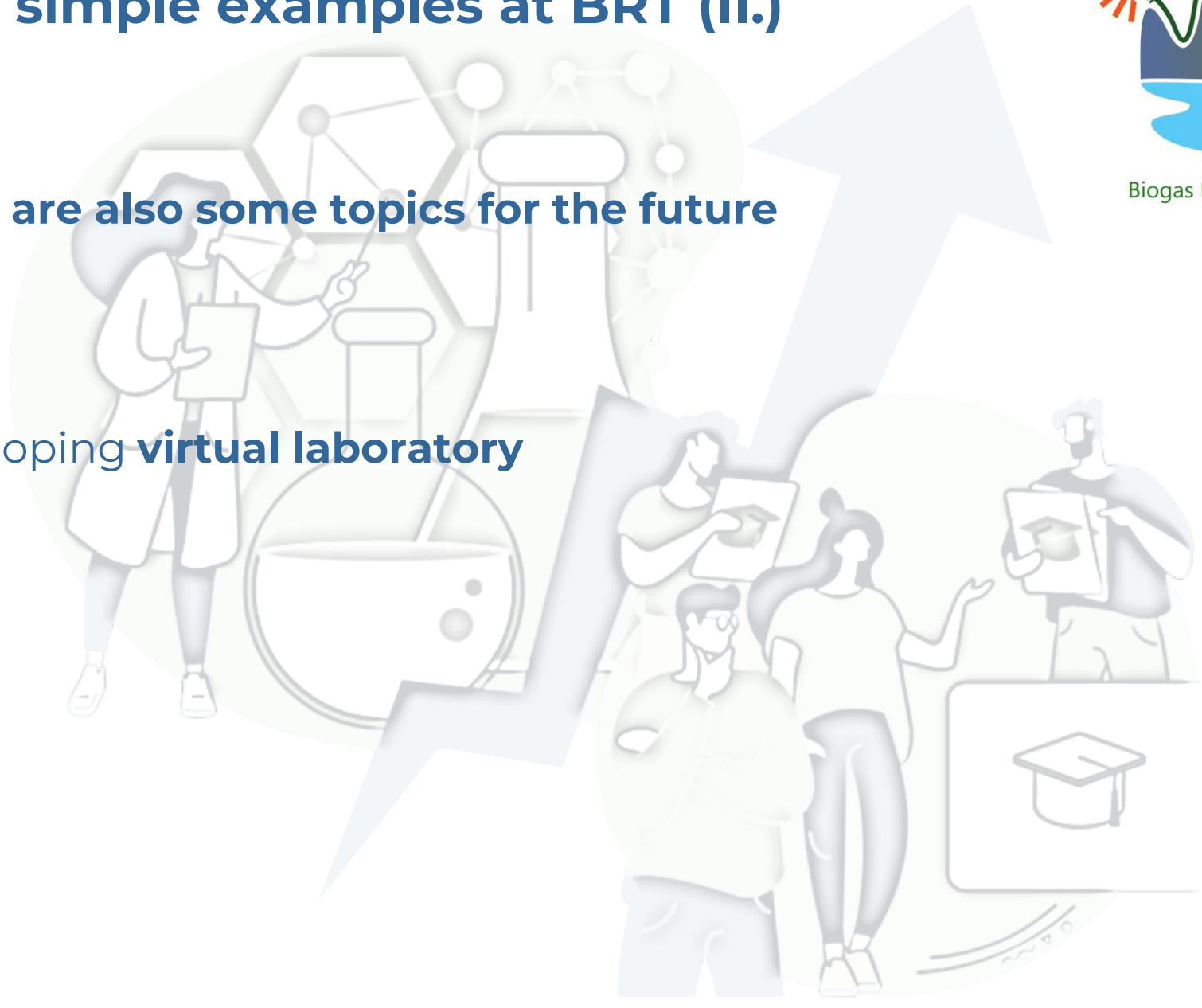
Some simple examples at BRT (II.)

Biogas Research Team

There are also some topics for the future

Developing **virtual laboratory**



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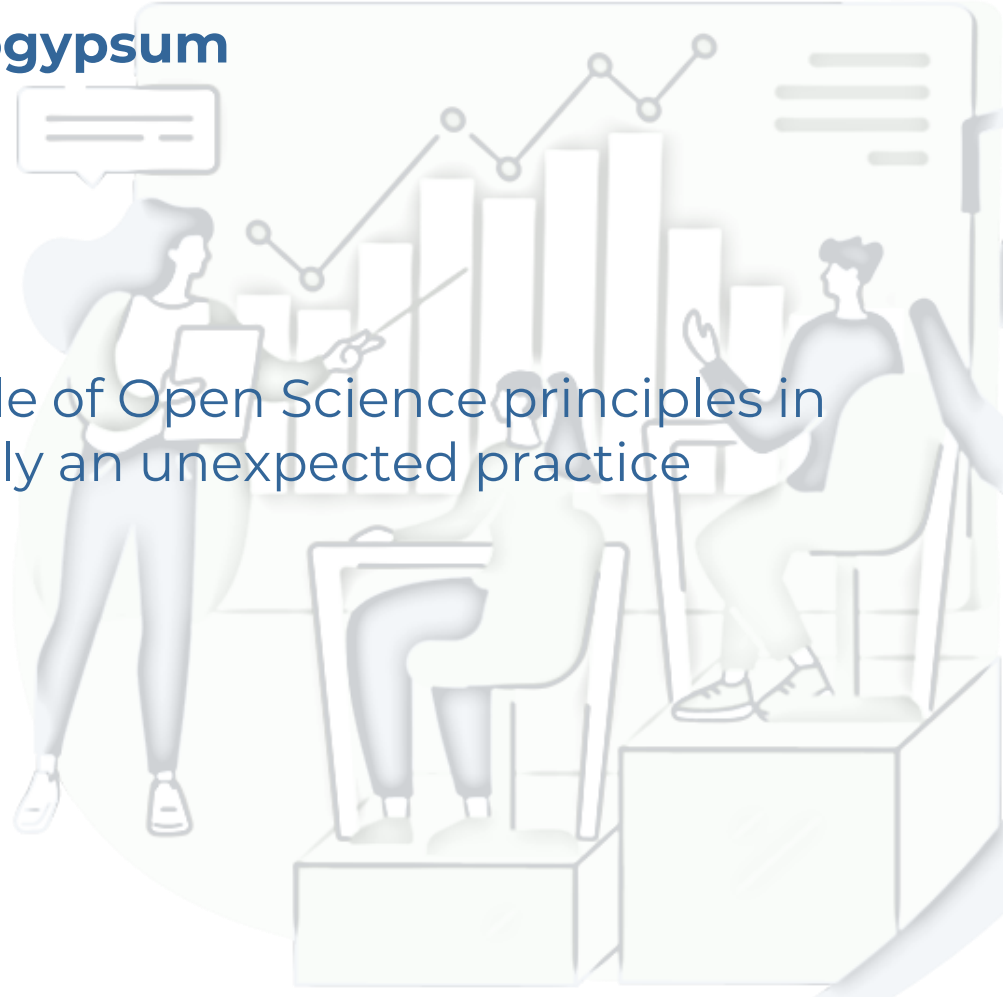
Some simple examples at BRT (III.)

Phosphogypsum



Example of Open Science principles in slightly an unexpected practice

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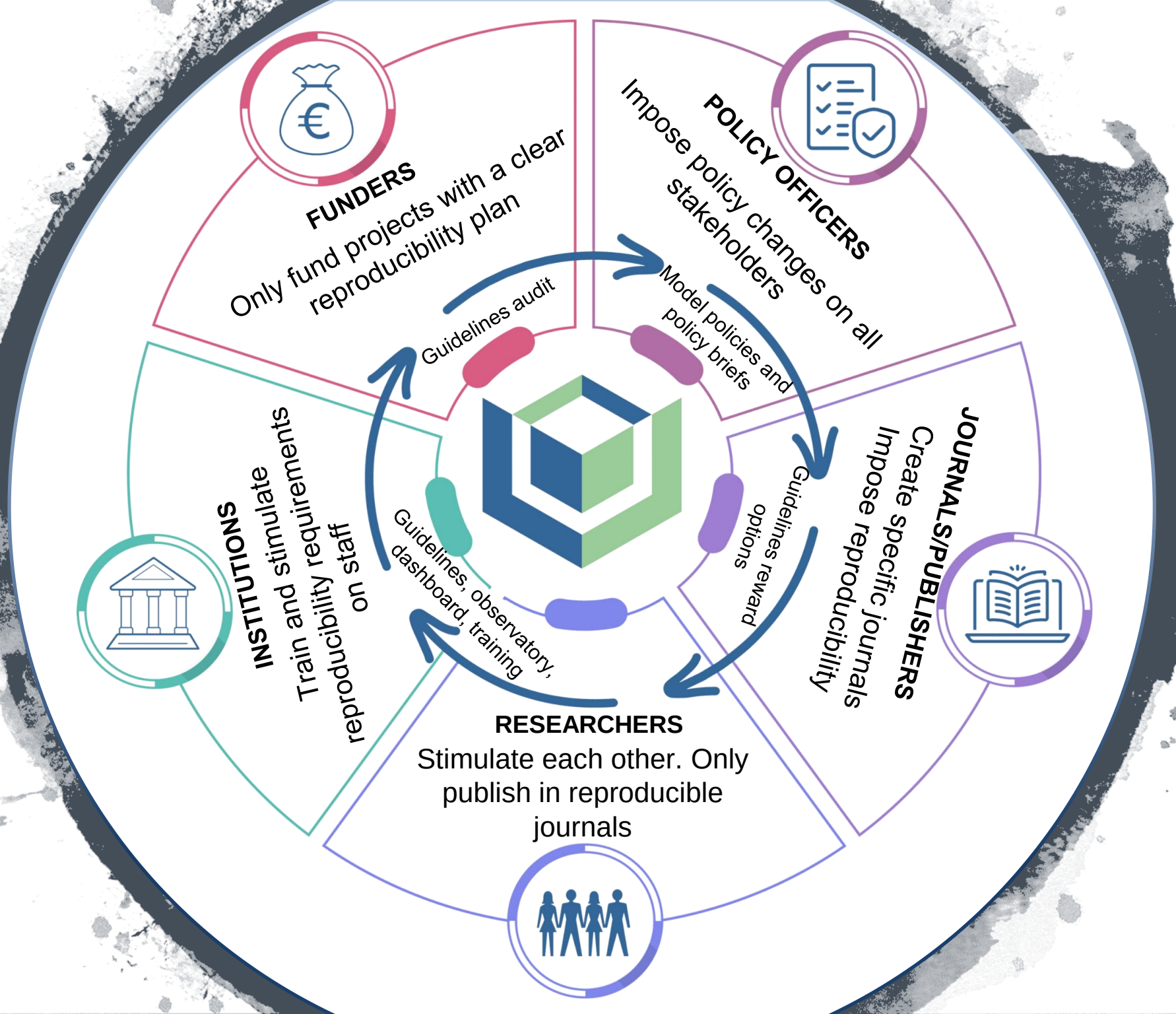
„Reproducibility is crucial to progress and impact of Research and Innovation (R&I) as it confirms or corrects the outcomes of single studies, resulting in higher quality research, more reliable and implementable outcomes, and reduction of research costs.“


FUNDERS
Only fund projects with a clear reproducibility plan
POLICY OFFICERS
Impose policy changes on all stakeholders
JOURNALS/PUBLISHERS
Create specific journals
Impose reproducibility
INSTITUTIONS
Train and stimulate reproducibility requirements on staff
RESEARCHERS
Stimulate each other. Only publish in reproducible journals
Guidelines audit
Model policies and policy briefs
Guidelines reward options
Guidelines, observatory, dashboard, training

Let´s check OSIRIS together

WP2: Drivers, barriers and facilitators for reproducibility of research

Here we investigate the underlying drivers and effective interventions that increase reproducibility at funding, publishing, university and researcher-level; and compile and map evidence on reproducibility practice

and

what it means to different stakeholders, thus creating a strong knowledge base.

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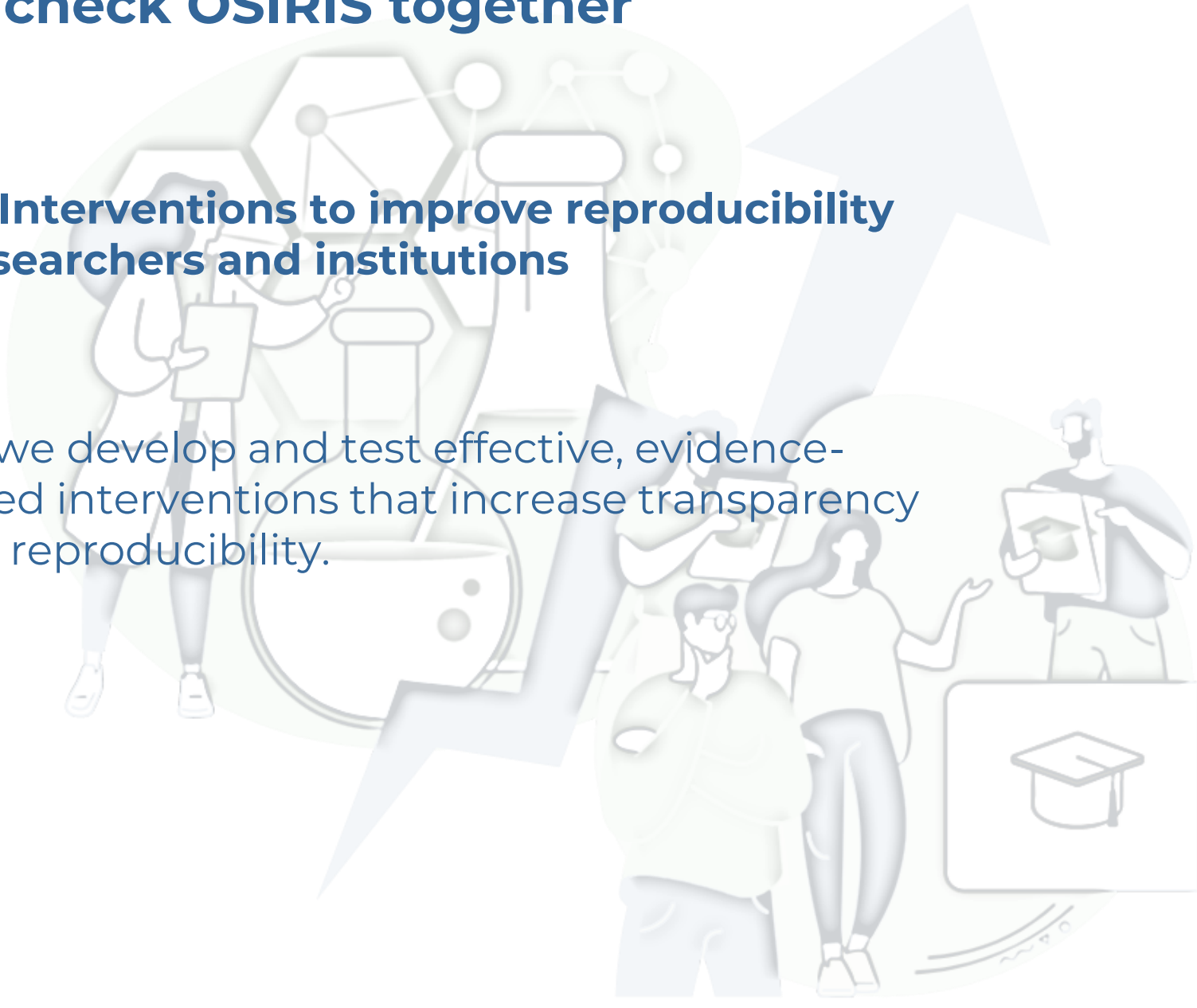
WP3: Interventions to improve reproducibility for researchers and institutions

Here we develop and test effective, evidence-based interventions that increase transparency and reproducibility.



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WP4: Interventions to improve reproducibility for funders and journals

Here we will develop and evaluate automatic systems for compliance to reproducibility that can be used by publishers and/or funders.

We will also identify guidance and policies that can be implemented by funders.

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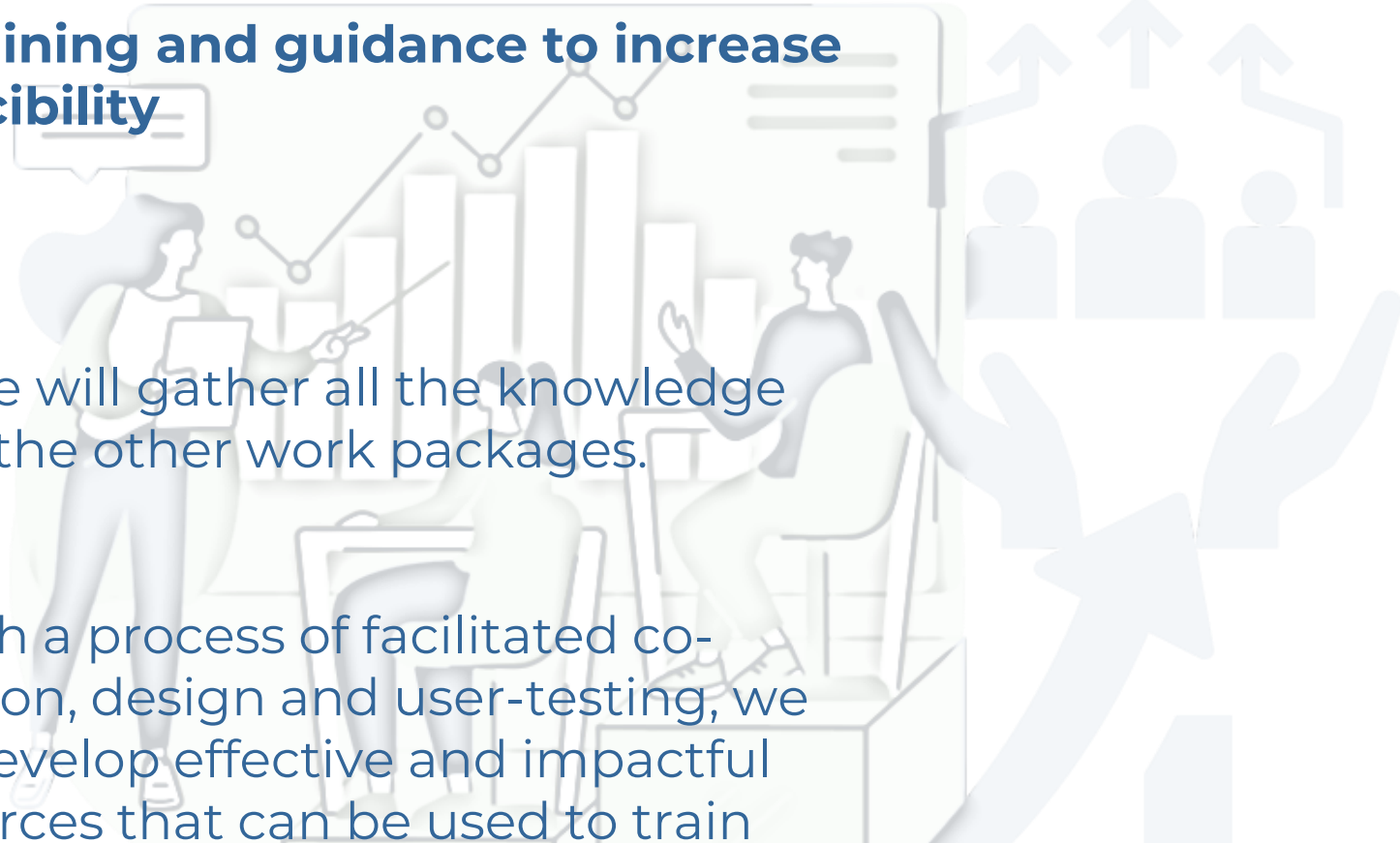
WP5: Training and guidance to increase reproducibility



Here we will gather all the knowledge from the other work packages.

Through a process of facilitated co-creation, design and user-testing, we will develop effective and impactful resources that can be used to train researchers in how they can increase the reproducibility of their research.

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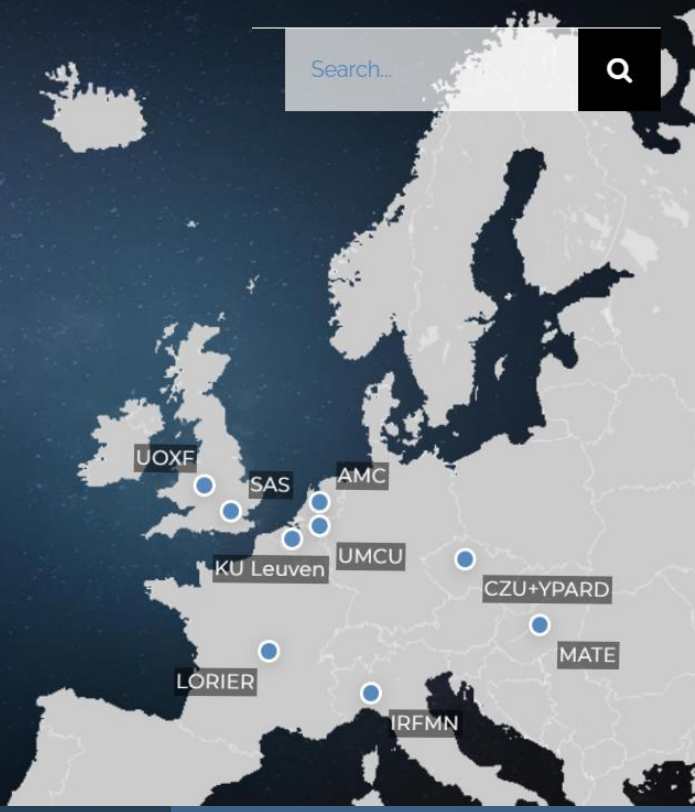

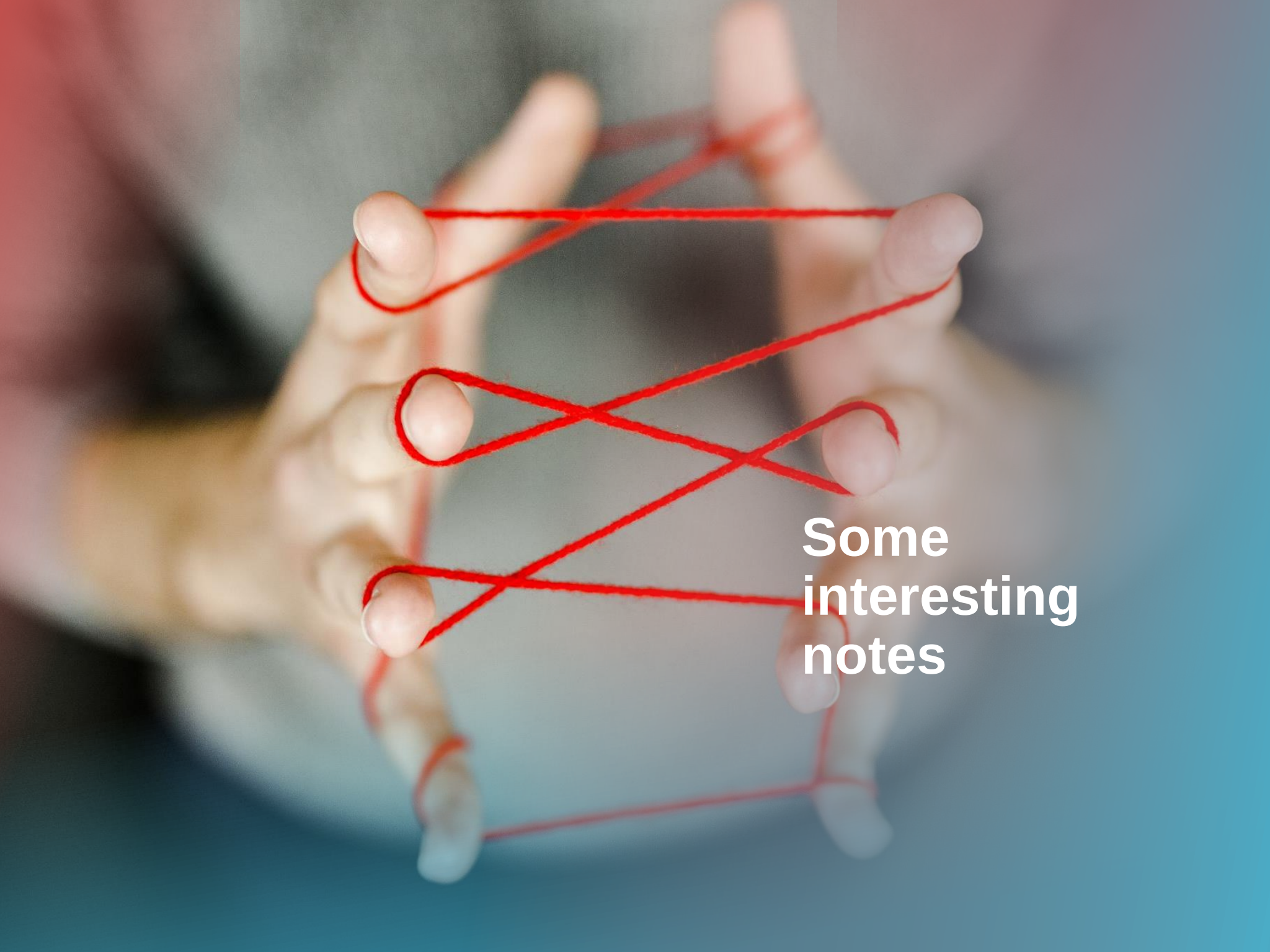
Some
interesting
notes

Introducing OSF

Open science is at the heart of the OSIRIS project.

We use the Open Science Framework (OSF), a free and open-source project management tool, to develop, collaborate on, document, share and disseminate all our protocols, study materials and methodology documents.

This makes the OSIRIS research transparent and contributes to the reproducibility of our research and the FAIRness of our data.

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Advancing Open Science Practices

What is reproducibility, and why is it crucial?

Tools and strategies for creating reproducible research workflows.

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Thinking about ideal Open Science university...?

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What do we want?

What do we expect?

Where are we heading?

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Ideal Open Science University for all (I.)

Open Access to Research

Transparent research practices

Open data repositories

Collaborative environment (encouraging)

Strong community engagement

Open source software and tools

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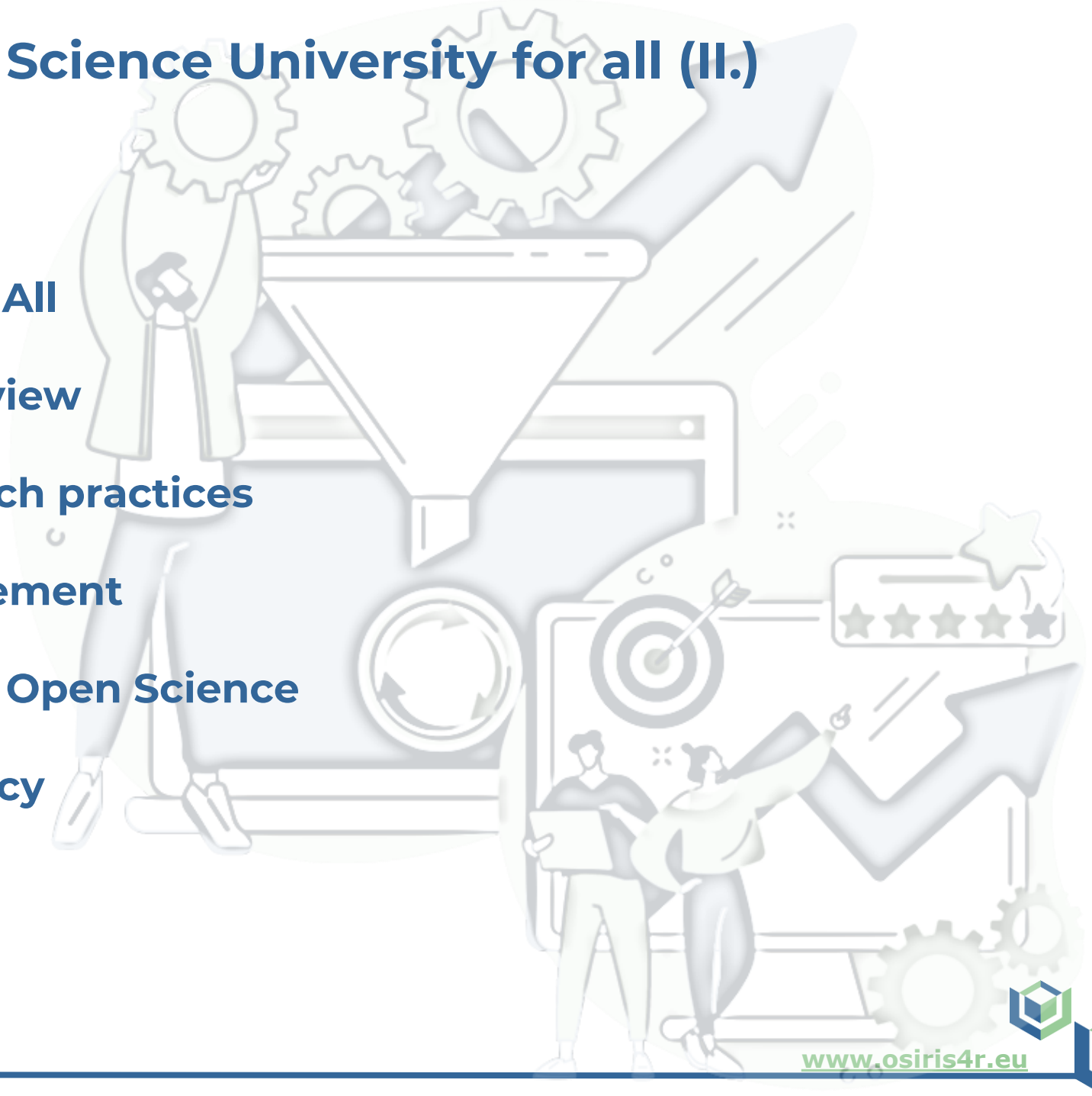
Ideal Open Science University for all (II.)



Education for All

Open peer review

Ethical research practices

Public engagement

Incentives for Open Science

Policy advocacy

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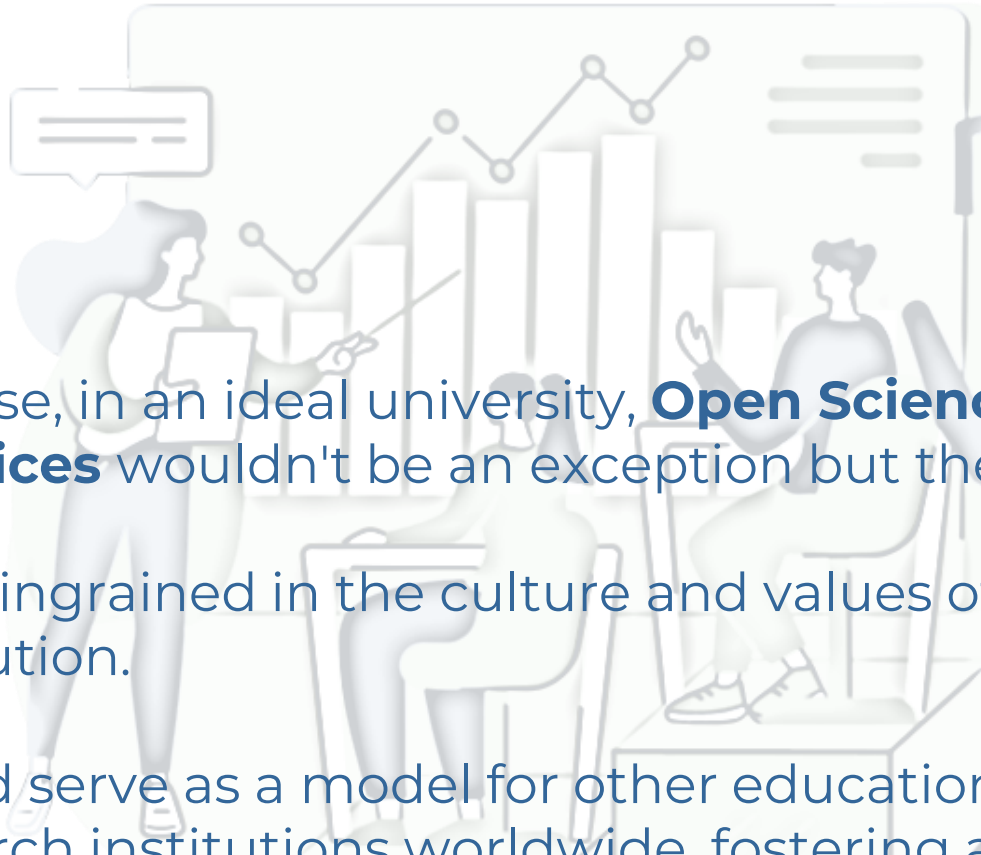

Of course, in an ideal university, **Open Science practices** wouldn't be an exception but the norm.

Deeply ingrained in the culture and values of the institution.

It would serve as a model for other educational and research institutions worldwide, fostering an environment of openness, collaboration, and ethical research.

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Practically – what do we want? What do we need?

Research funding
Research facilities (i.e. more living labs)
Administrative assistance
Strong libraries (with strong capacities)
Training (WS, courses, training on replicable research methods etc)
Mentorship programs (mentorship for ECR)
OA support
DMP support
Publication and Dissemination support
Recognition and Awards

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What do we want?

What do we expect?

Where are we heading?

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What do we want? **Simplicity**

What do we expect? **Simplicity**

Where are we heading? **???**

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Open Access and Reproducibility Policy for [Research Group Name]

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Open Access and Reproducibility Policy for [Research Group Name]

1. Introduction

The [Research Group Name] is committed to conducting research that adheres to the principles of Open Access and Reproducibility. This policy outlines our commitment to transparency, accessibility, and the highest standards of research integrity.

6. Conclusion

The [Research Group Name] is dedicated to advancing research practices that promote transparency, accessibility, and reproducibility. This policy reflects our commitment to these principles, ensuring that our research contributes to the broader scientific community and society as a whole.

Interested to receive the full Open Access and Reproducibility Policy for you?

No worries, drop me an email (roubik@ftz.czu.cz).

-the OARP will be included
-the presentation and
-the recommended links

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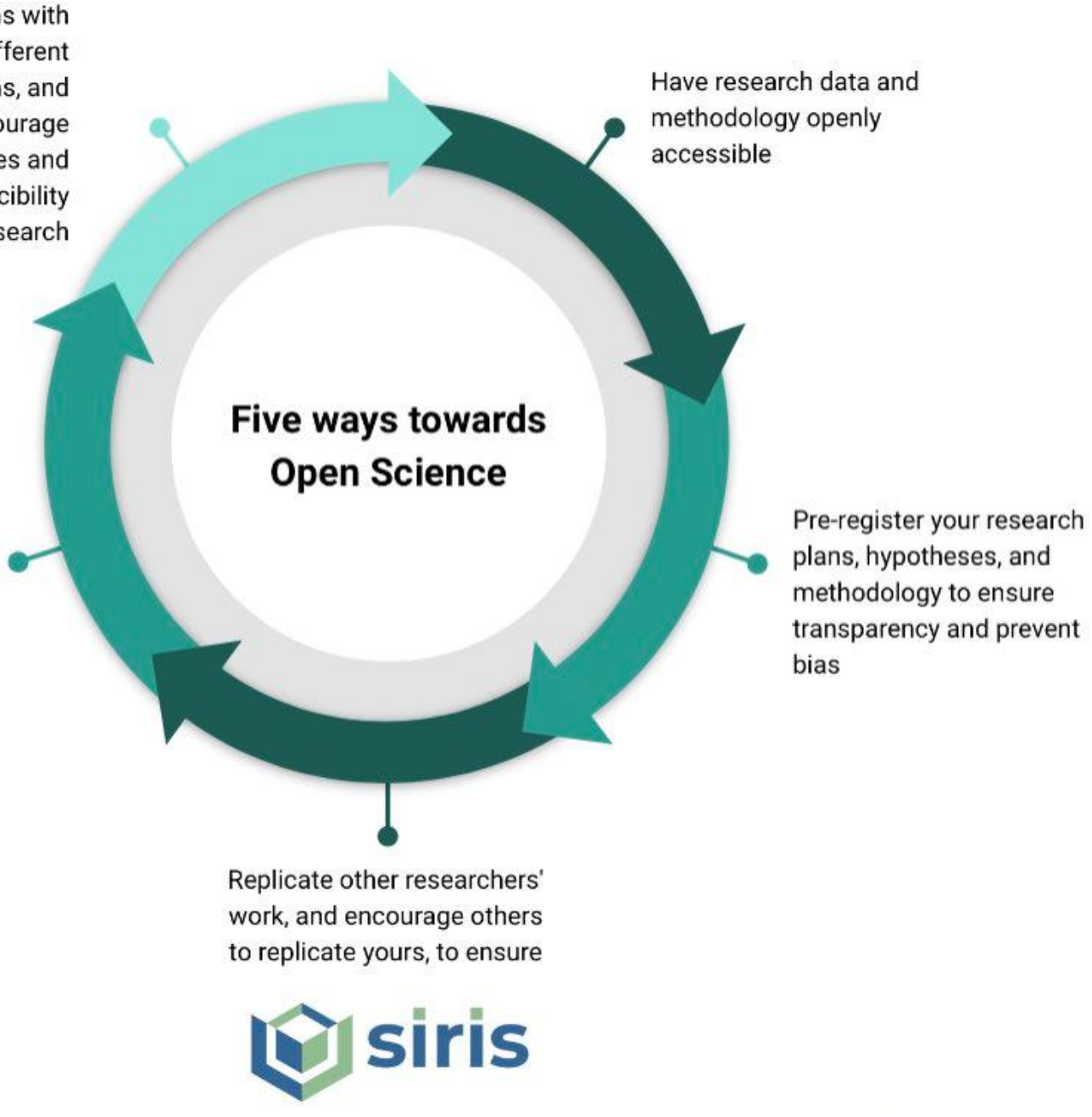
Foster collaborations with researchers from different disciplines, institutions, and backgrounds to encourage diverse perspectives and increase the reproducibility of research
Have research data and methodology openly accessible
Five ways towards Open Science
Be transparent about your conflicts of interest, funding sources, and any limitations or potential biases in your research
Pre-register your research plans, hypotheses, and methodology to ensure transparency and prevent bias
Replicate other researchers' work, and encourage others to replicate yours, to ensure
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Time for some debates

Time for some debates

What do we need as researchers from Open Science officers?

What are the **practical needs** of researchers?

Why do we want **Open Science**?

What are **your** experiences with Open Access and Reproducibility?

What are the **risks** of Open Science?

How about the **funding?**

Time for some debates

The **pros** and **cons** of preprints

The role of **copyright** in Open Science

The difference between the Global South and Global North

Why are still some researchers afraid of Open Science?

Why is **reproducibility** so important?

What would be the ideal **academia**?

THANK YOU FOR YOUR ATTENTION!

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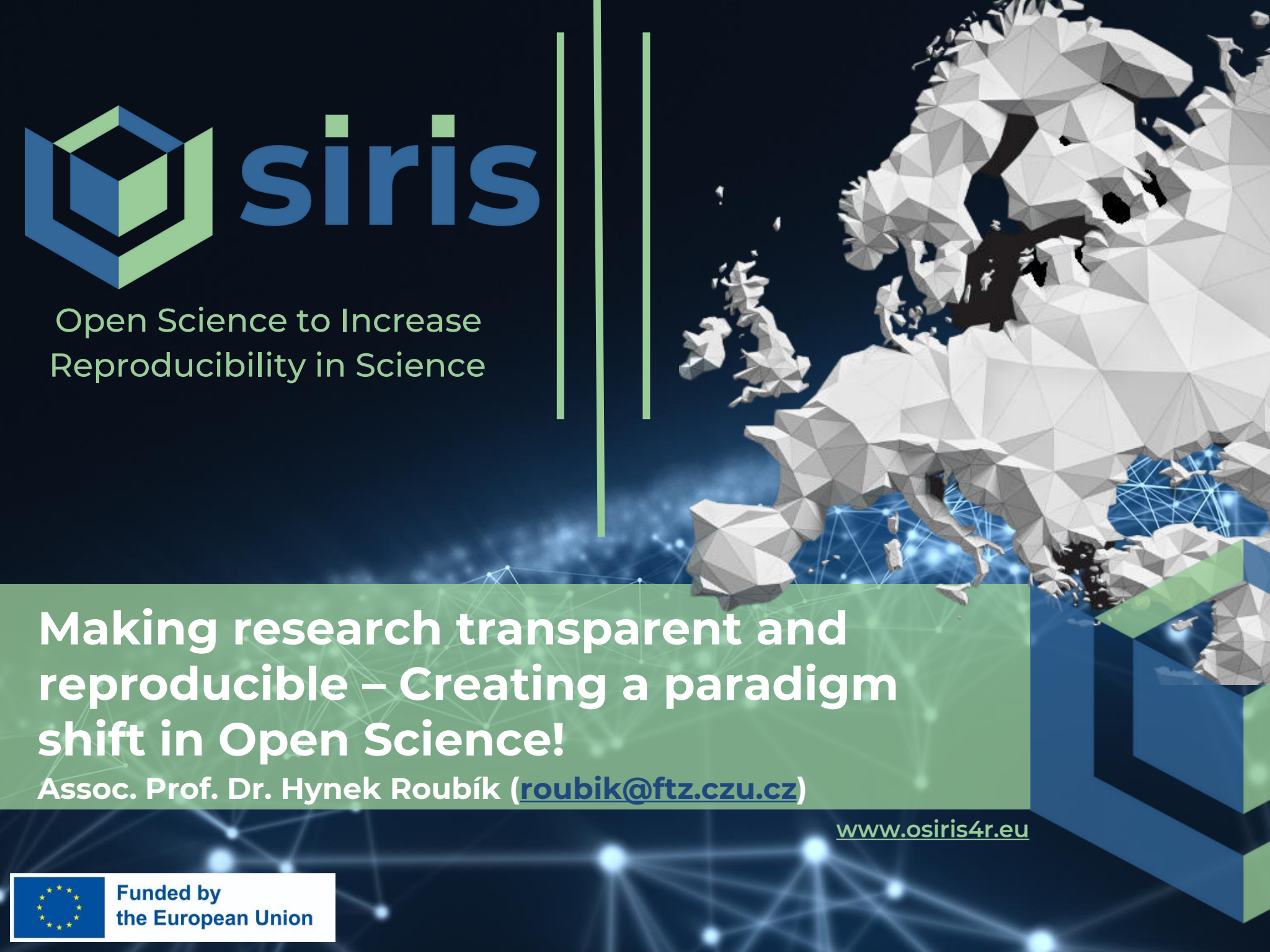

Making research transparent and reproducible – Creating a paradigm shift in Open Science!

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