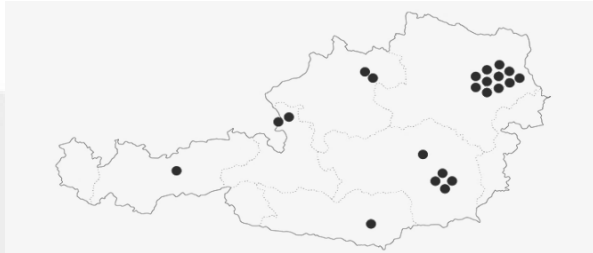


Research Data Management: Policy Development and Alignment



Paolo Budroni
Vienna University Library
Dpt. e-Infrastructures

Introductory Statement

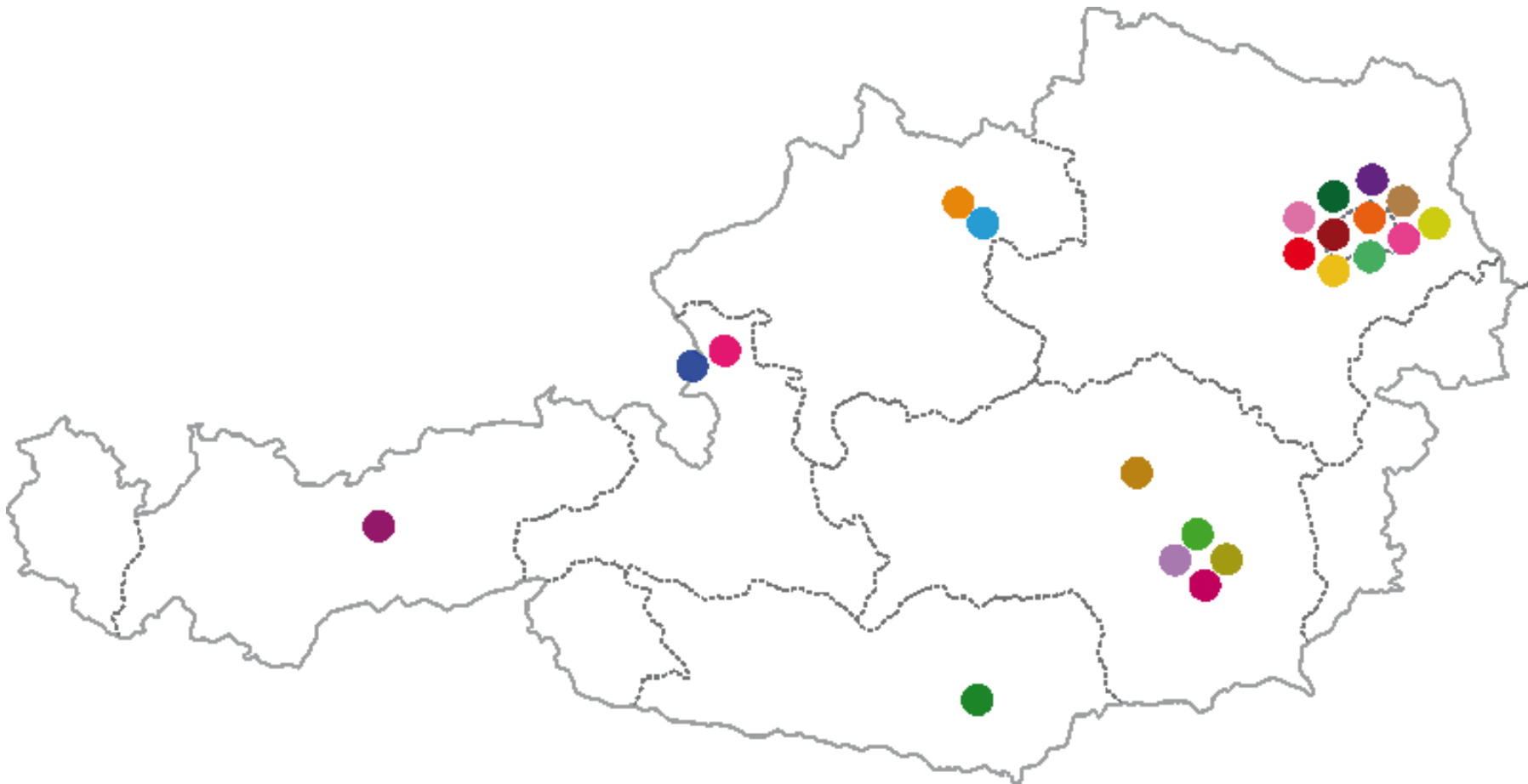
Chapter I – Open Science

Chapter II – Towards the European Open Science Cloud: what is really needed? Results from a national survey conducted in Austria

Chapter III – Understanding policies... for research data management & policy development and alignment

Chapter IV – Discussion about conclusions

Introductory Statement





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Austria

- FH St. Pölten
- Fonds zur Förderung wissen. Forschung
- Kunstuniversität Linz
- Landesbibliothek Vorarlberg
- Universität für angewandte Kunst Wien
- Universität für Musik und darstellende Kunst Graz
- Universität Wien

Italy

- Università Ca' Foscari
- Università Iuav di Venezia
- Università di Padova

Montenegro

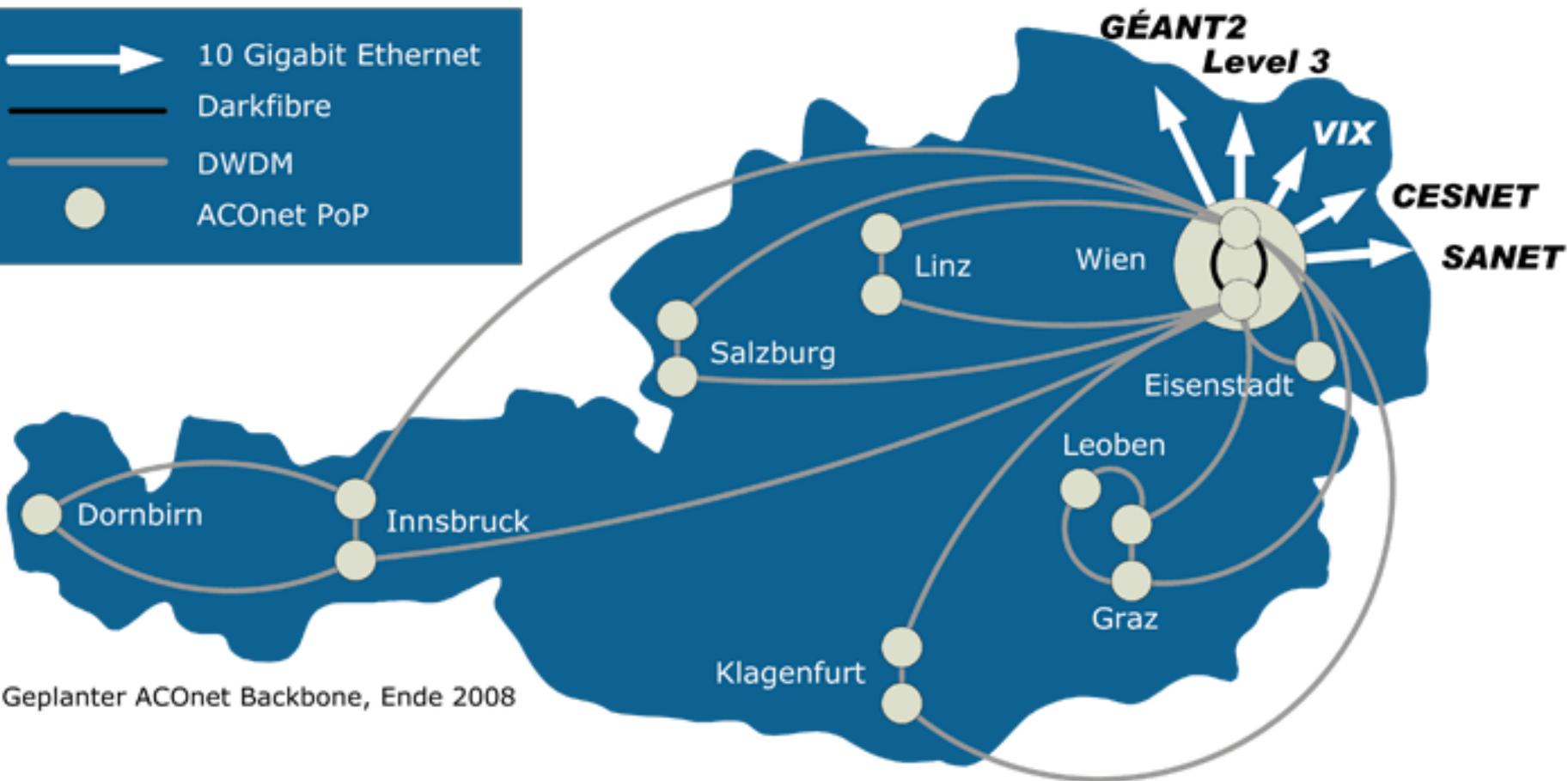
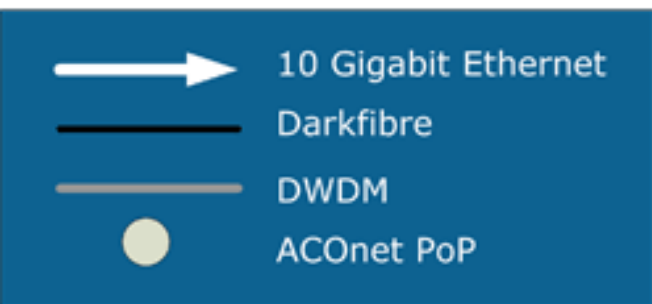
- Univerzitet Crne Gore

Bosnia and Herzegovina

- Univerzitet u Banjoj Luci
- Univerzitet u Sarajevu
- Univerzitet u Tuzli

Serbia

- Univerzitet u Beogradu
- Univerzitet u Kragujevcu
- Univerzitet u Nišu

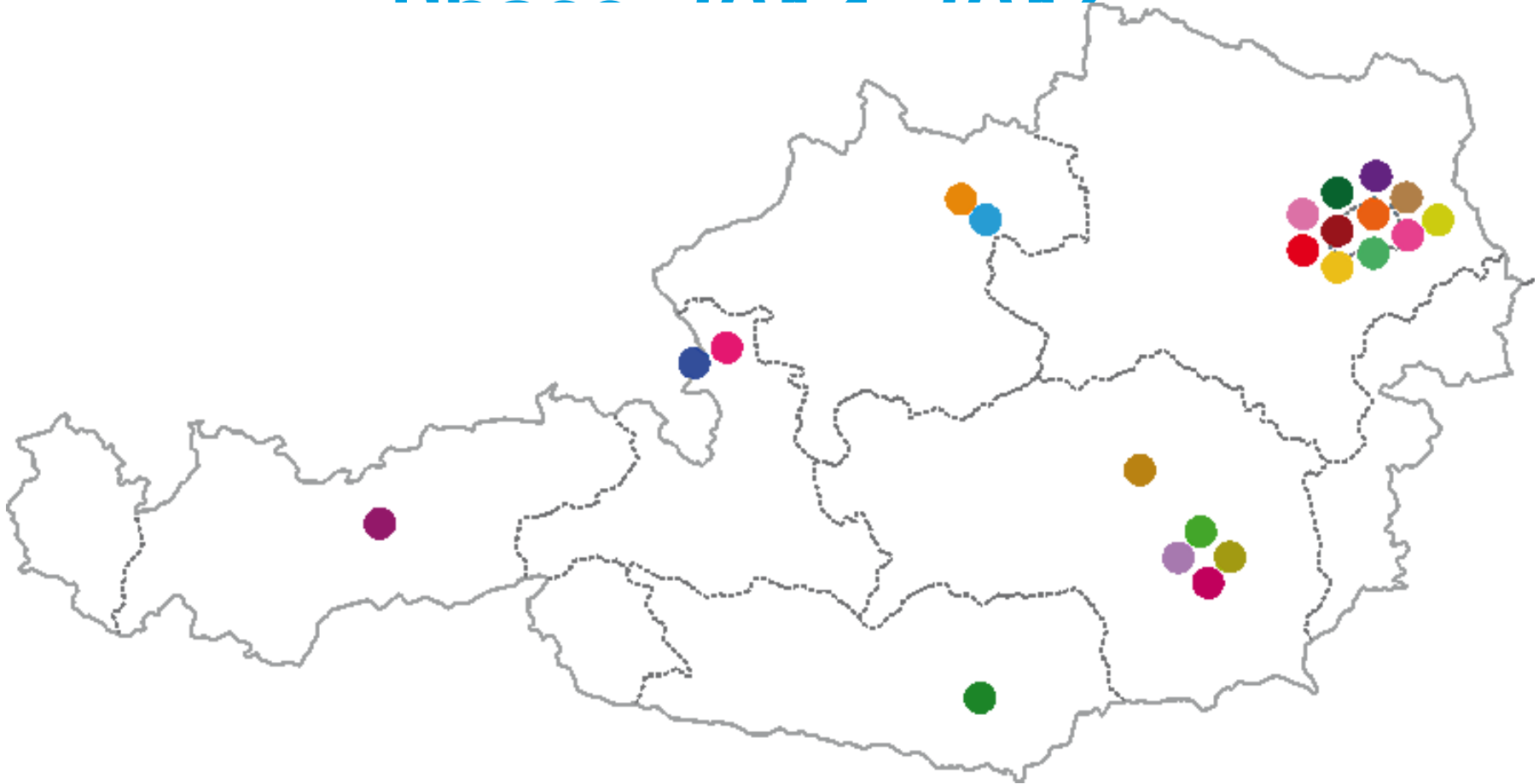


Geplanter ACOnet Backbone, Ende 2008



E-Infrastructures Austria - First

Phase 2014-2017



www.e-infrastructures.at

A background network diagram consisting of several grey circles of varying sizes connected by thin grey lines. The circles are arranged in a non-uniform pattern, with some larger circles acting as hubs and smaller ones as peripheral nodes. The lines connect these nodes, creating a web-like structure.

Paolo Budroni, paolo.budroni@univie.ac.at

University of Vienna, Library and Archive Services
Head of Department e-Infrastructures
E-Infrastructures Reflection Group, Austrian National Delegate

Chair of GA of e-Infrastructures Austria Plus
H2020 Project LEARN – WP3 Policy Development and Alignment
Member of Management Board of Open Education Austria

ICRI 2018 Organising Committee



SUSTAINABLE DEVELOPMENT GOALS



tainabledevelopment/hunger/





INTERNATIONAL COOPERATION AND DEVELOPMENT

Building partnerships for change in developing countries

European Commission > International Cooperation and Development > Policies > The Sustainable Development Goals

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POLICY

European development policy

- European consensus on development
- The 2030 Agenda for Sustainable Development

The Sustainable Development Goals

- The ACP-EU Partnership after 2020
- Policy Analysis
- Agenda for Change

Policy coherence for development

The EU approach to aid

The Sustainable Development Goals

At the Rio+20 Conference, Member States decided to launch a process to develop a set of Sustainable Development Goals (SDGs), which were to build upon the Millennium Development Goals and converge with the post 2015 development agenda.

On 25 September 2015, the United Nations General Assembly formally adopted the universal, integrated and transformative [2030 Agenda for Sustainable Development](#), along with a set of **17 Sustainable Development Goals** and **169 associated targets**.

The adoption of the 2030 Agenda and its Sustainable Development Goals

development cooperation. **The EU has committed to implement the SDGs both in its internal and external policies.**

USEFUL LINKS

- Sustainable Development Goals



Sustainable Development Goals (SDG)



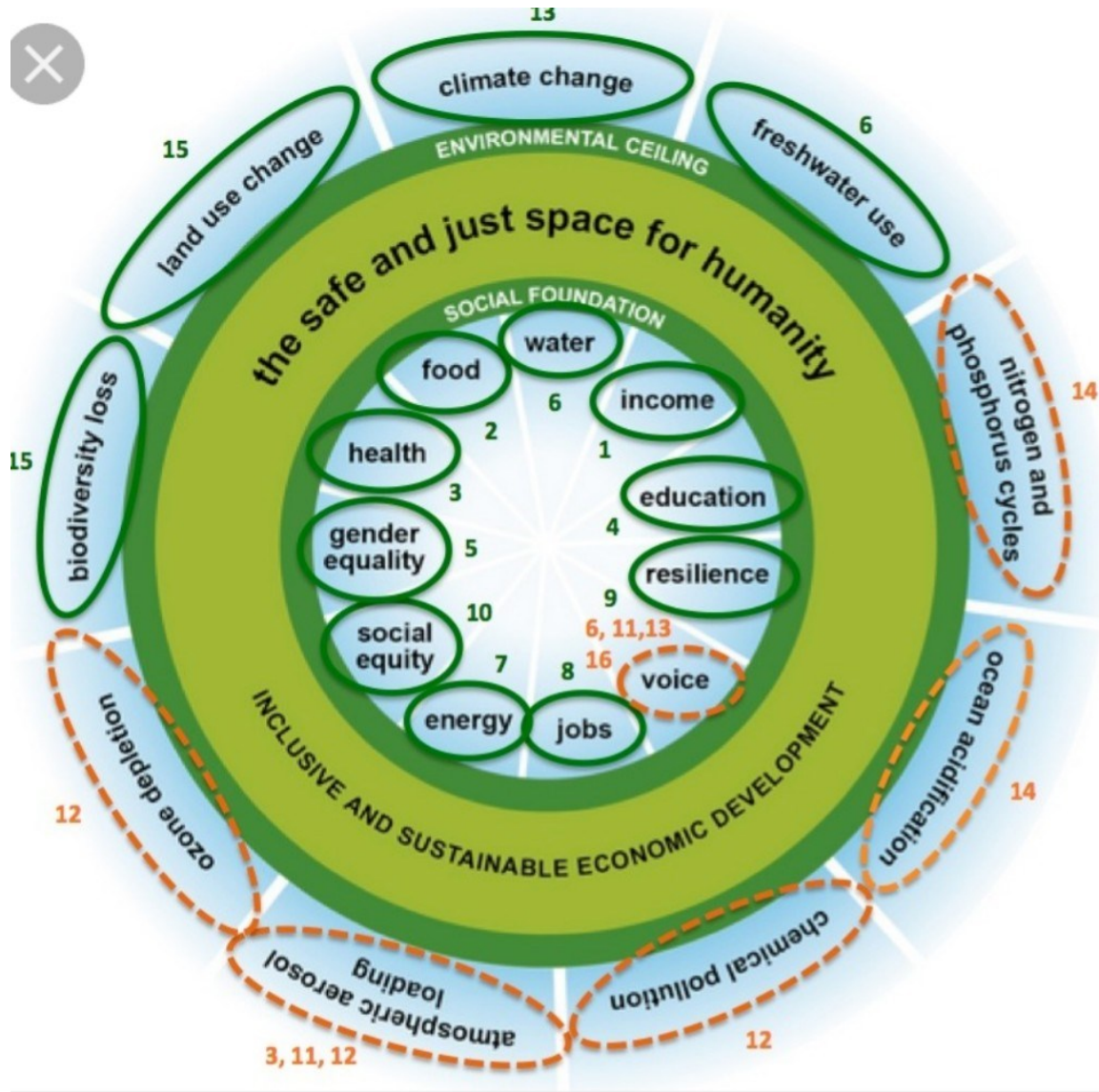
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

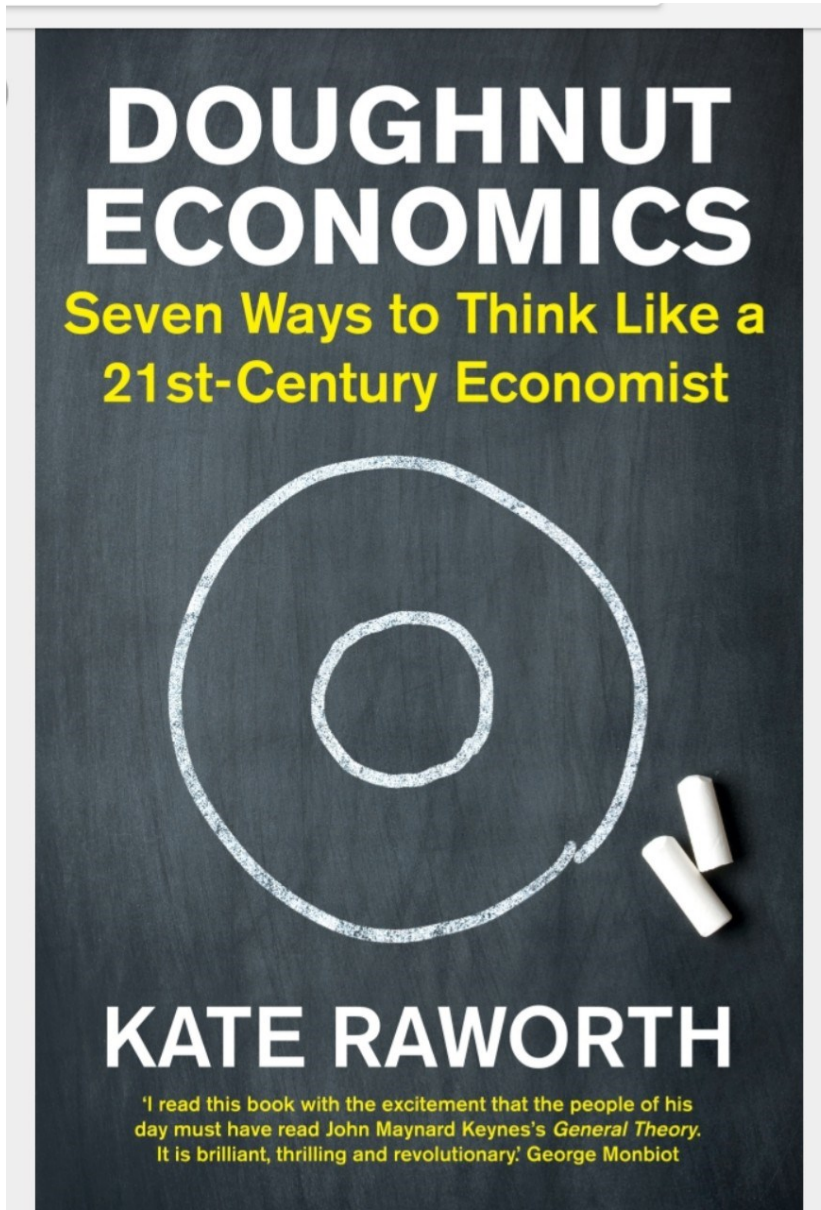


Blending, which combines EU grants with loans or other public and private funding, is increasingly supportive of actions on infrastructure which have a multiplier effect on sustainable development in partner countries.

EU actions are geared towards inclusive and sustainable growth and economic integration, building on partner countries' comparative advantages in the manufacturing or services sectors. Other targets on access to financial services and technology are consistent with existing EU policy, including its involvement in initiatives such as the Global Partnership for Financial Inclusion.

→ DATA

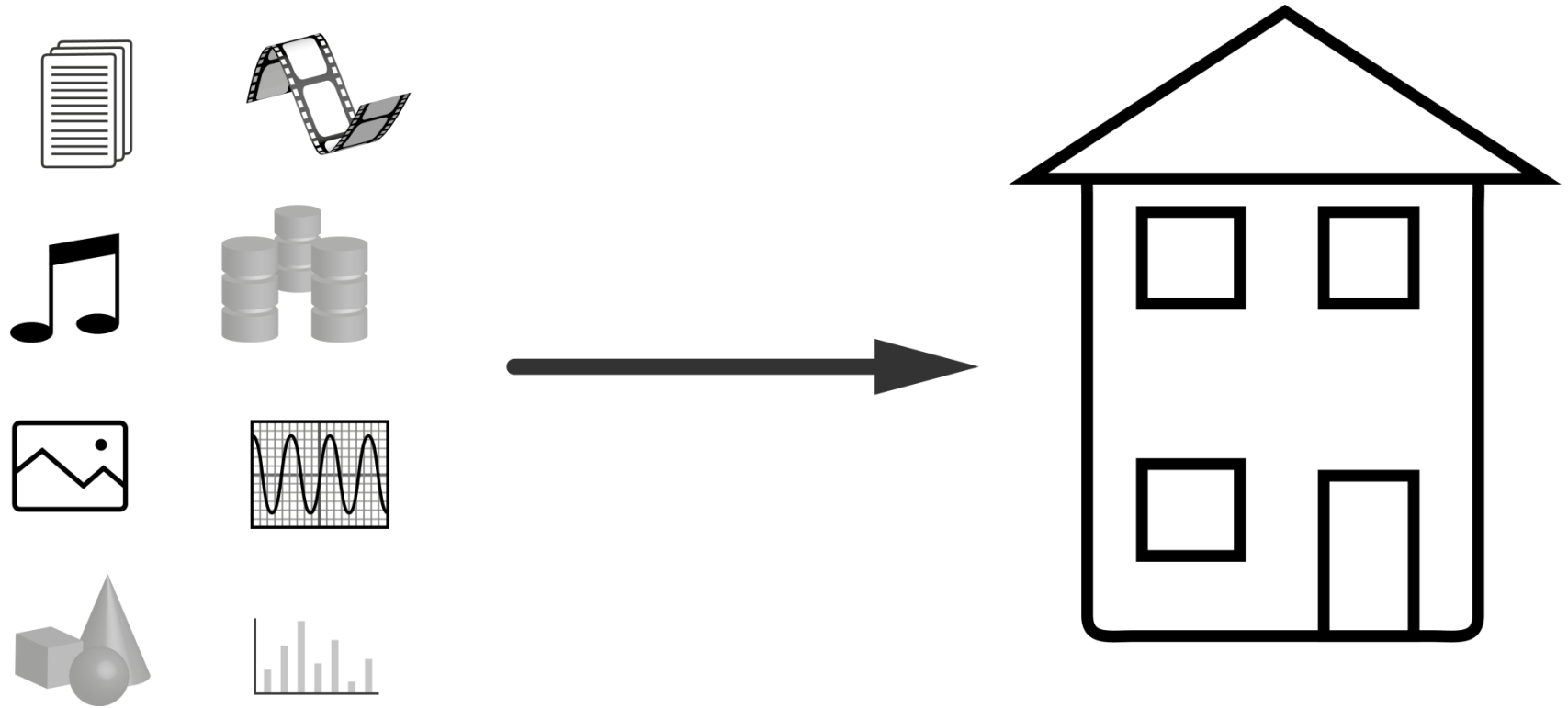




Create to regenerate
→ **Regenerative by design**

Design to distribute
→ **Distributive by design**

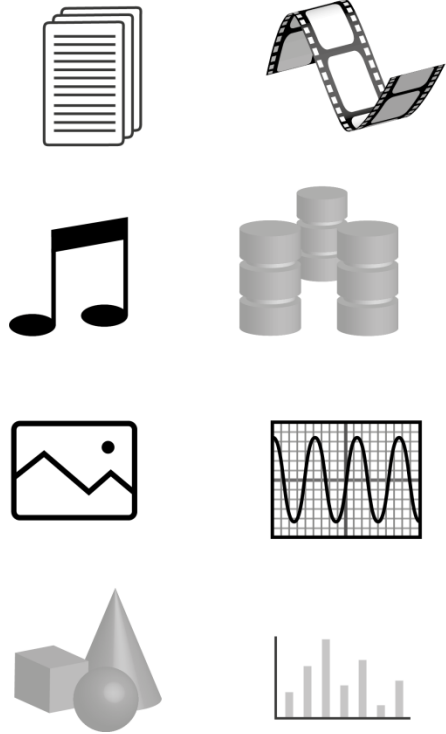
A digital eco-system of connected services is needed



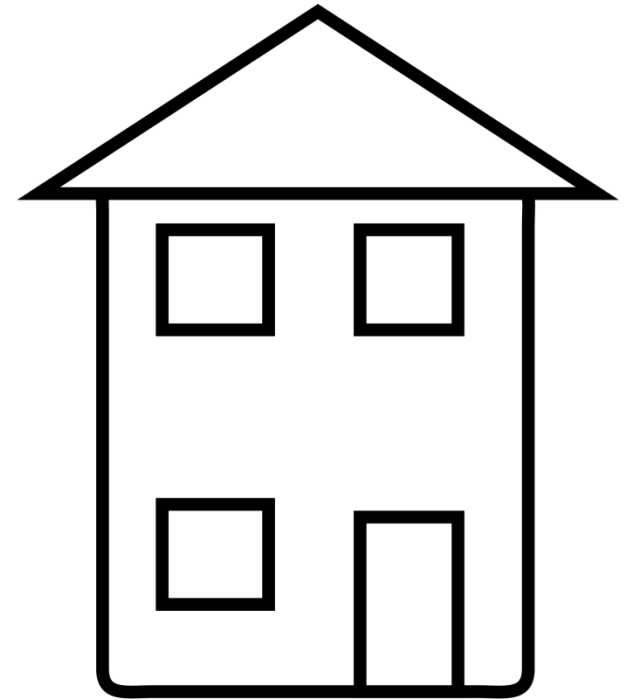
Graphic: Raman Ganguly, University of Vienna

Common understandable rules, good governance models, policies

A digital eco-system of connected services is needed.
Common understandable rules, good governance models,
policies



Graphic: Raman Ganguly, University of Vienna



Create to regenerate
→ **Regenerative by design**
Design to distribute
→ **Distributive by design**

Infrastructure Commons
The European
e-Infrastructure Reflection Group (e-IRG)
and the Infrastructure Commons
www.e-irg.eu



e-IRG vision and mission



Vision: *e-IRG is a strategic body to facilitate integration in the area of European e-Infrastructures and connected services, within and between member states, at the European level and globally*

Mission: *Support coherent, innovative and strategic European e-Infrastructure policy-making and the development of convergent and sustainable e-Infrastructure services*

Objectives of e-IRG (1/2)



Sustain e-IRG as the main European advisory body on e-Infrastructures

- producing strategic and **policy reports**, analyses and recommendations;
- actively **stimulating discussion** with and between all stakeholder groups;
- **informing** and influencing **policy makers** (national, European and international)
- documenting the state of the art and **landscape** in the field of e-Infrastructures;
- promoting a **user-driven approach** in e-Infrastructure policy making;
- proposing **synergies** and future cooperation between projects and/or initiatives;
- monitoring the impact of e-IRG recommendations in the European research infrastructure landscape.

e-IRG will continue its policy of **independence and openness**, providing opportunities for all stakeholders to debate their views, and offer perspectives, analyse and propose approaches and consolidate ways forward

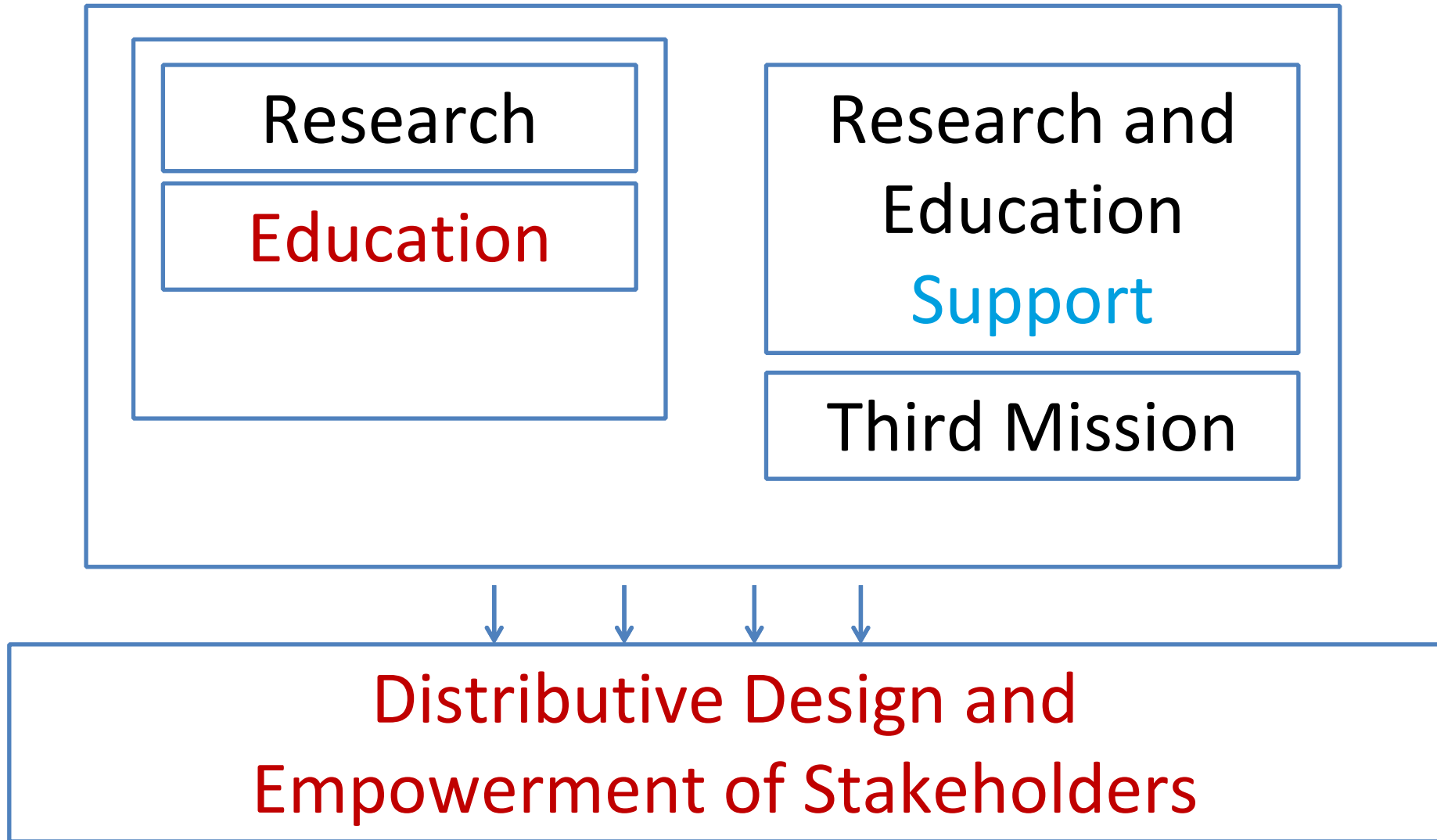
Objectives of e-IRG (2/2)



Maintain and further develop e-IRG in its role as the **facilitator** and **coordinator** of European e-infrastructure collaboration

- Facilitate the **collaboration** between all actors in the field of pan-European e-Infrastructures – networking, high-throughput and high-performance computing, and in particular data management and related processes and services
- Stimulate work and strongly facilitate the international **coordination** of e-Infrastructure activities and the presentation of all different components to users as integrated e-Infrastructure services.
- Foster innovation in the **data area**, including stimulating the interaction between data producers (e.g. Research Infrastructures), e-Infrastructure providers and leading-edge users
- Cooperate with **ESFRI, ESFRI RI projects and other pan-European research infrastructures**, as well as with the **long tail of Science** in the effect possible

Data → Services → Governance →



A network diagram with several grey circular nodes of varying sizes connected by thin grey lines. The nodes are arranged in a non-regular pattern, with one large central node on the right and several smaller nodes around it.

Chapter I

Enabling Open Science

About Open Science

Open Science is the movement to make scientific research, data, and dissemination accessible at all levels of an enquiring society

The European Open Science Cloud

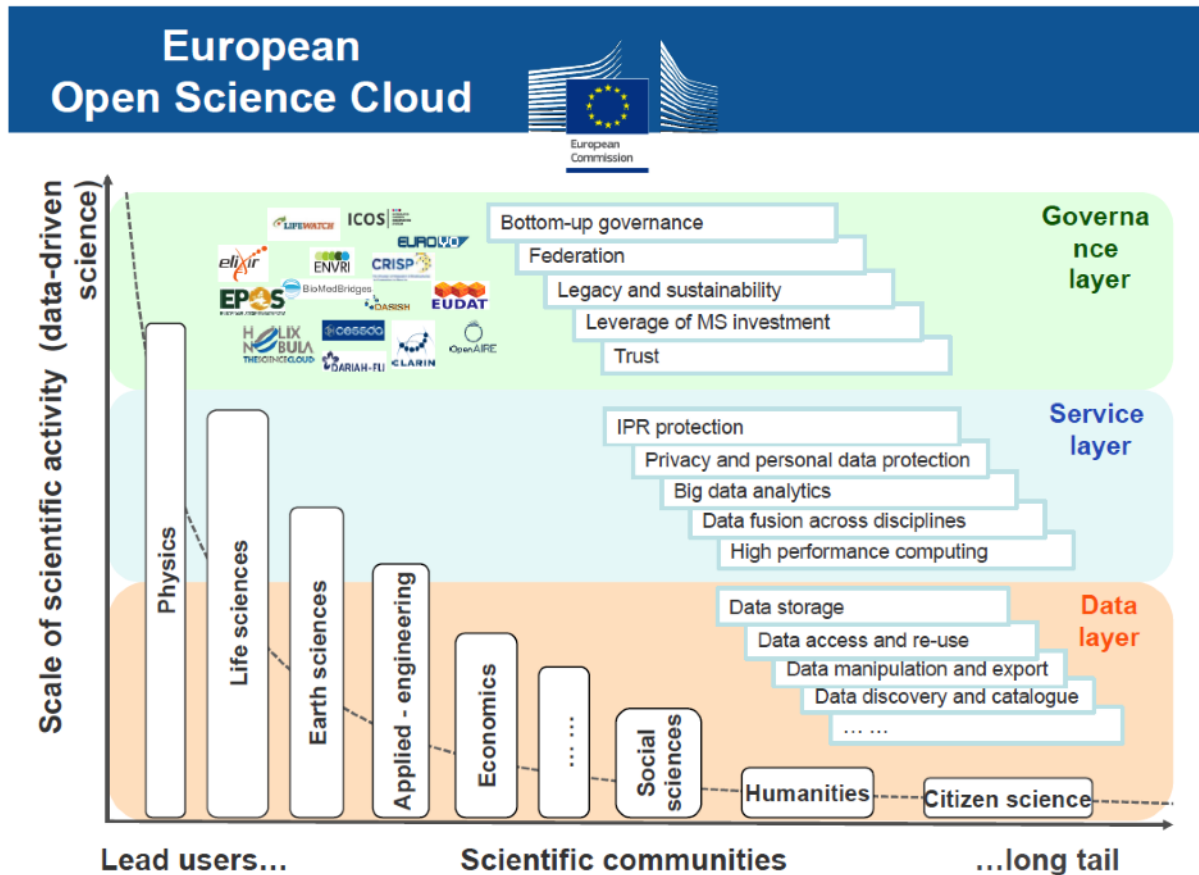


European Open Science Cloud/1

The European Commission is promoting the European Open Science Cloud. The EOSC **is not an actual cloud service**, but it is a kind of **reengineering** of existing e-infrastructures **based on scientific data**. The EOSC will be a federated environment for the sharing and re-use of scientific data, based on **existing and emerging elements** in the Member States, **with lightweight international guidance and governance** and a large degree of freedom regarding practical implementation. See:

<http://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud>

European Open Science Cloud



Source: "Open Science policy: Results of the consultation on 'Science 2.0: Science in transition' and possible follow up." Presented by J.C. Burgelman, June 3 2015 at e-IRG workshop.

Implementation of the EOSC at a research institution

The introduction of the EOSC at a local level at a Research Institution (RI) implies the definition and description of all criteria to be applied at the three layers of the EOSC:

1. Governance Layer
2. Service Layer and
3. Data Layer

Example of criteria assigned to the three layers



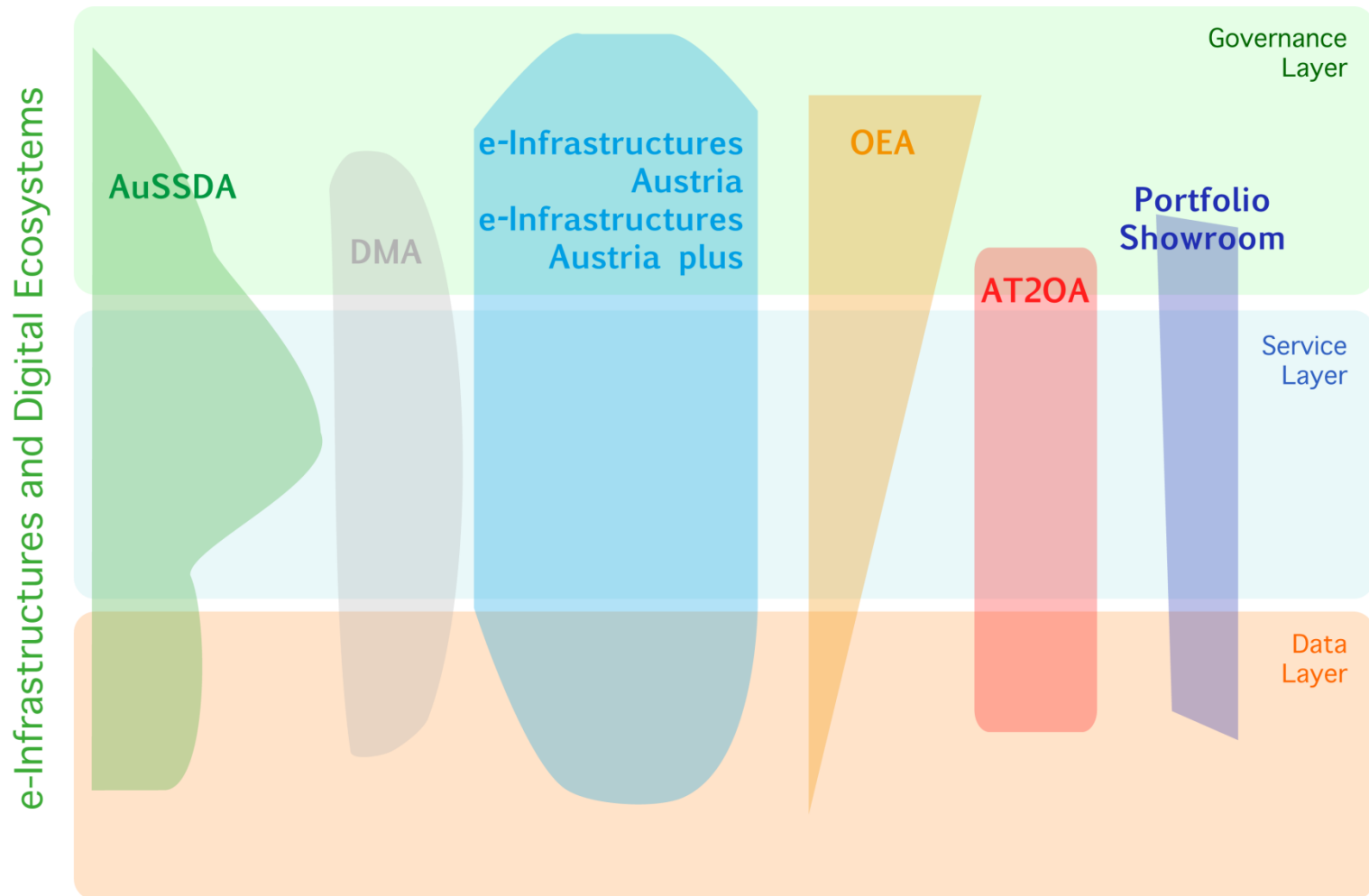
The Austrian use case for the implementation of the EOSC

There is strong Austrian presence and active participation in national, European, and international policy development initiatives.

Currently there are several national, either research infrastructures or publicly funded cooperative projects in Austria, each supporting the Amsterdam Call for Action on Open Science **covering governance, service, data and infrastructure.**

These research infrastructures/projects can serve as these foundation for further development of existing e-infrastructure and research data policies and strategies.

European Open Science Cloud: Use Case Austria



 Paolo Budroni, Raman Ganguly - University of Vienna 2017

This graph gives an overview of national efforts, increased visibility and interoperability of digital eco-systems like repositories., services, data, governance models, etc. all according the requirements of the EOSC as foreseen in the report of the HLEG.



Paolo Budroni, RDM and Policy Development – Goettingen, 5OCT17

*Currently there are 9 national, publicly funded cooperation research infrastructures /projects in Austria, each supporting the Amsterdam call initiatives. These are transversal projects **covering governance, service, data and infrastructure**. They could serve as the foundation for further development of existing e- infrastructure and research data policies and strategies.*

- **AuSSDA:** Austrian Social Sciences Data Archive (2017-2019). The aim is to set up an Austrian-wide data archive for social science data, development of services and alignment with European infrastructure CESSDA (ESFRI-Project)
- **BBMI – ERIC :** [Biobanking and BioMolecular Resources Research Infrastructure](#)
- **e-Infrastructures Austria** and its successor project **e-Infrastructure Austria Plus:** website <http://e-infrastructures.at/en/startpage/> . The project started in 2014.
- **OEA:** Open Education Austria
- **AT2OA** (Austrian Transition to Open Access) started in January 2017 (2017-2019)
- **Portfolio/Showroom – Making Art Research Accessible** (2017-2019): Setup of CRIS systems
- **DMA:** The Data Market Austria (2016 2019): Creation of Data-Services Ecosystems in Austria by advancing technology foundations for secure data markets and cloud interoperability

Strata of research data

Different levels of processing of data

Model for digital archiving

World of data

Raw data (primary data)

Processed Data
Inconclusive
Results

Processed Data

Processed Data
Negative Results

Positive results

Positive results

Released
Data

Shared
Data

Pub.
Data

Shared
Data

Pub.
Data

Shared
Data

OA

→ Strata of data

→ Closed and restricted data

→ Open data

→ Published data

→ Open access published data

→ Different Stakeholders

→ Sustainable development

→ Design to distribute

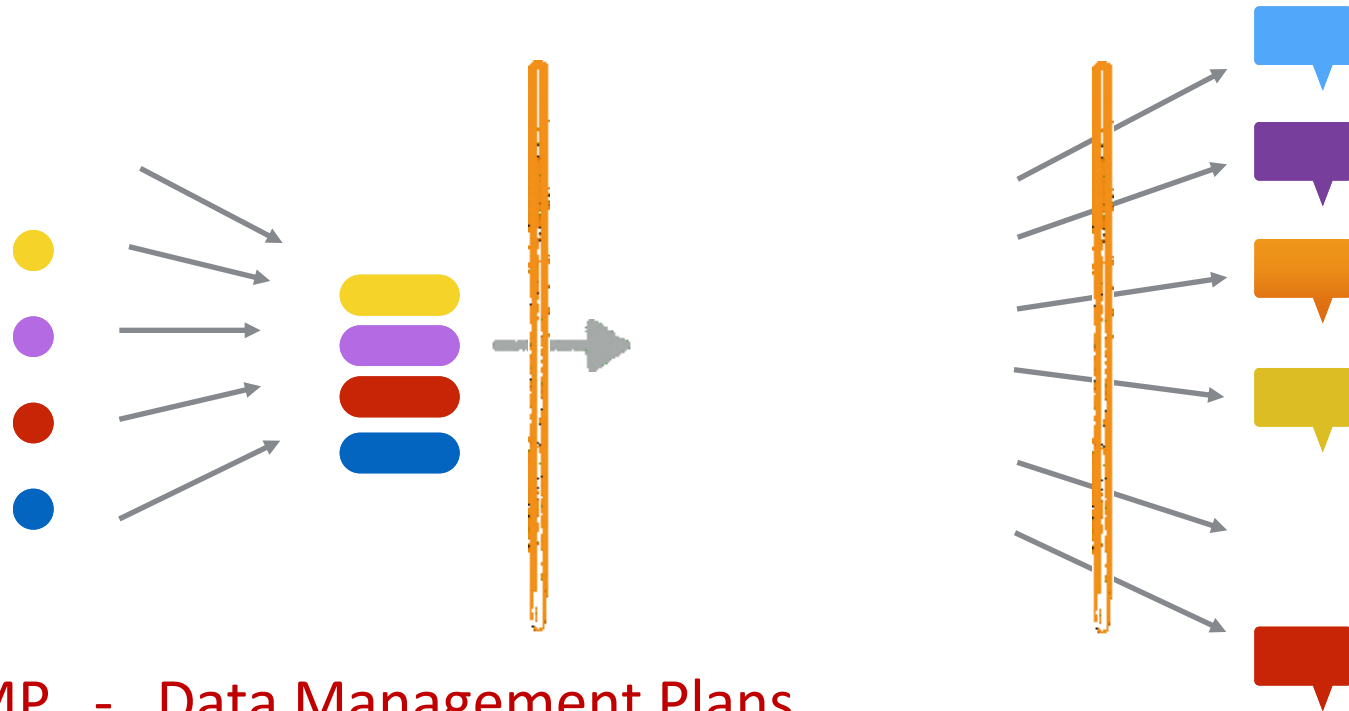
→ Create to regenerate

Ensuring legal and ethical compliance is key issue in this context

CONCLUSION 1

Descriptions of workflow models
for research processes are
needed

Generic Digital Workflow Model



DMP - Data Management Plans

Production and
Preingest

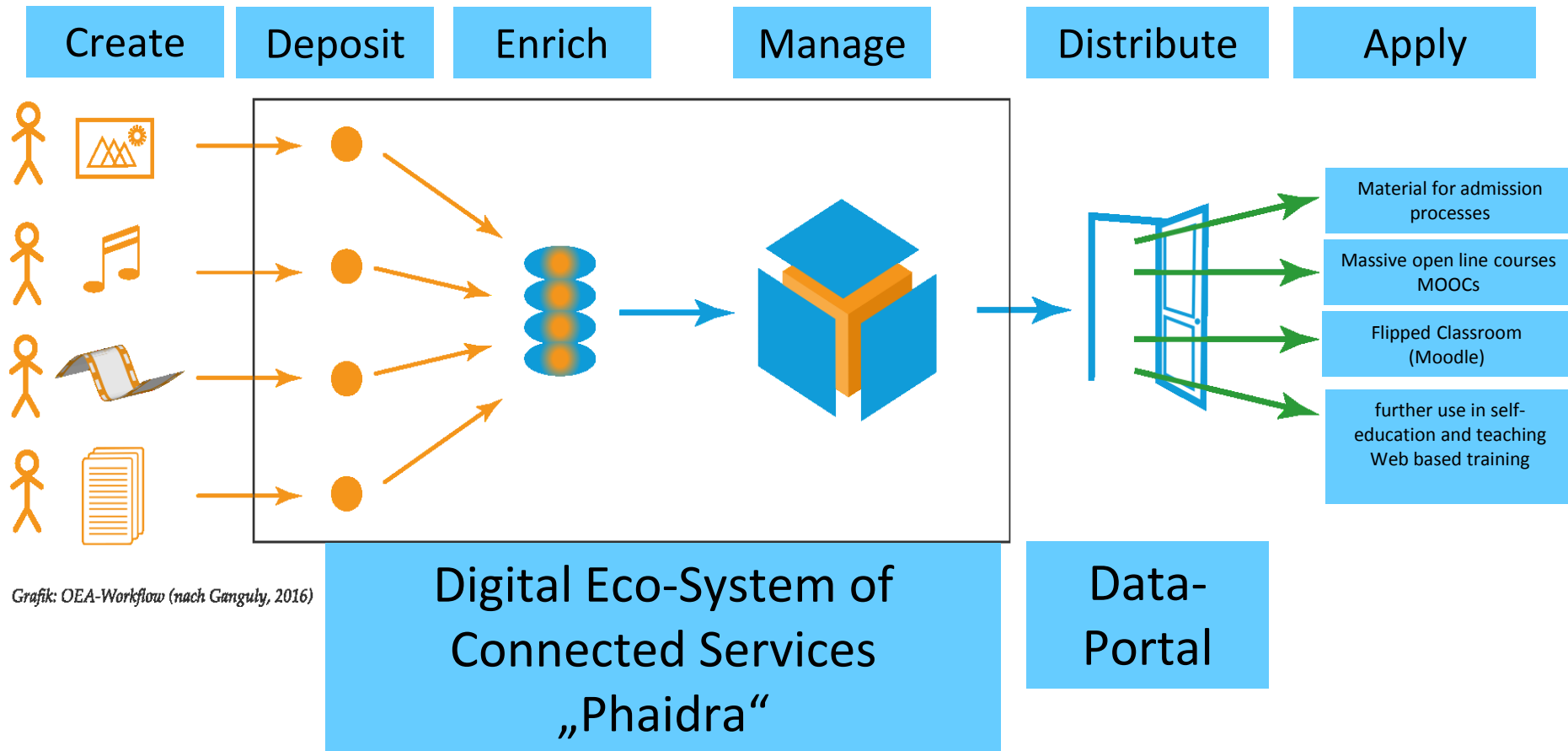
Ingest

Data and Services
Management

Distribution
Scenarios

Open Education Austria

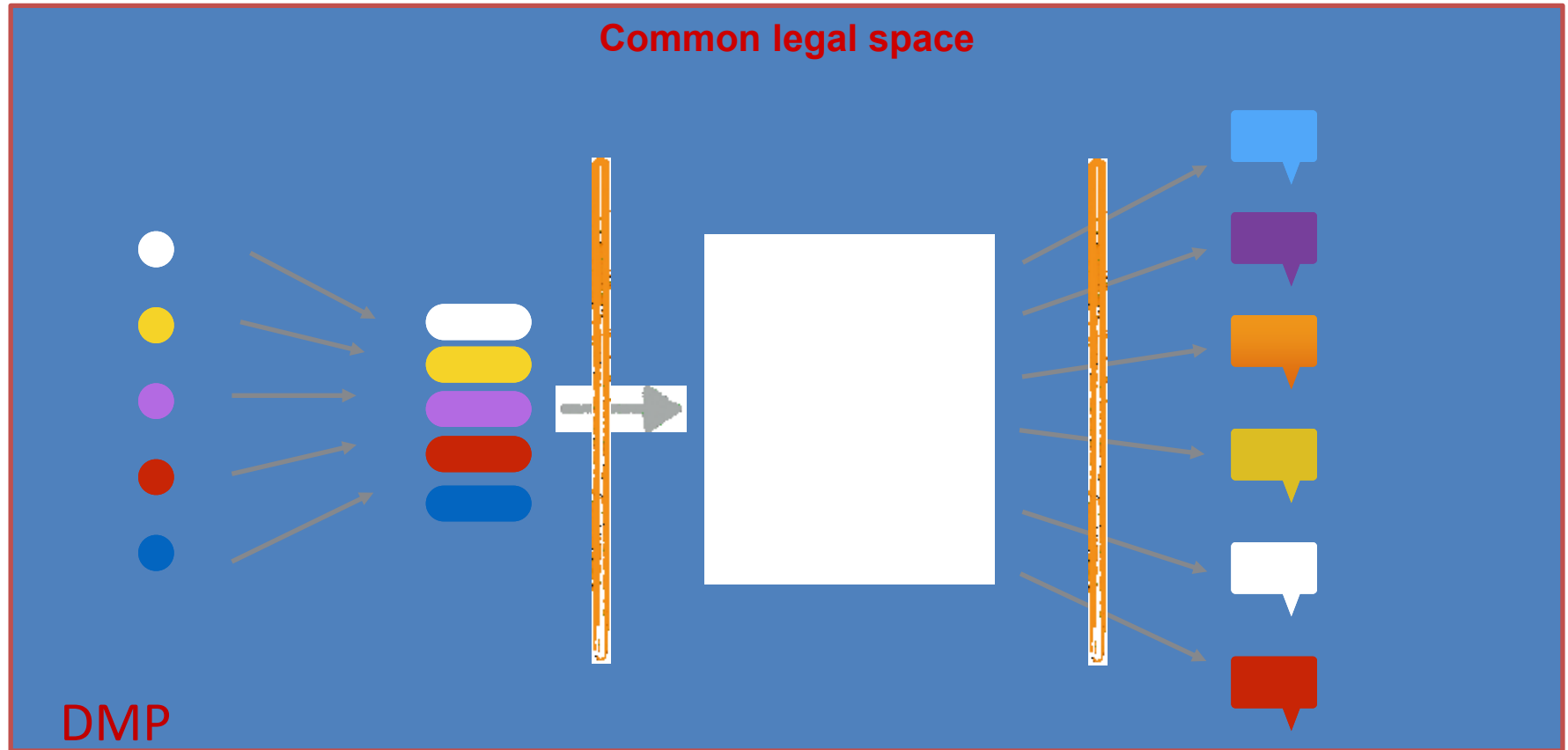
Example of OER Workflow at Partner University of Vienna



CONCLUSION 2

**A common legal space for data
and an ecosystem of connected
services**

A common legal space for data and an ecosystem of connected services



Production and
Preingest

Ingest

Data and Services
Management

Distribution Scenarios

A common legal space for data and an ecosystem of connected services

Legal space



CONCLUSION 3

Common terminologies

Common terminologies

Common terminologies

CONCLUSION 4

Good governance models



Good governance models

Good Governance Models

CONCLUSION 5

Policies



DM-Policies

Good Governance Models and RDM- Policies



CONCLUSION 6

Assignments of new roles,
responsibilities and duties
are needed

Chapter II



A background graphic consisting of a network of grey circles of varying sizes connected by thin grey lines. The circles are arranged in a somewhat circular pattern, with a larger central circle and several smaller ones around it, all interconnected.

Chapter II

Results from a national survey conducted in Austria



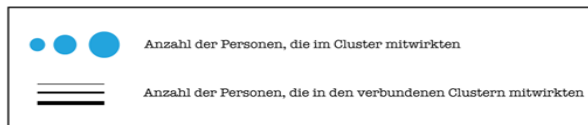
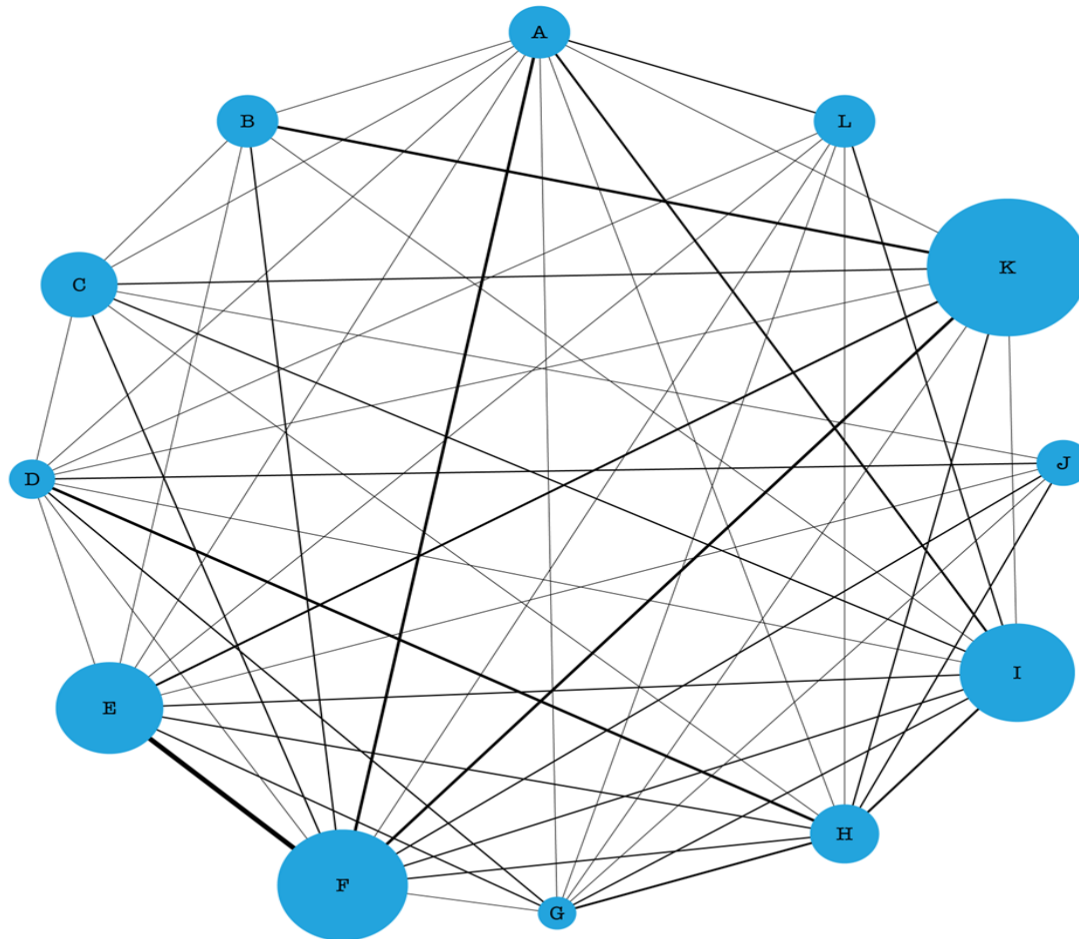
INVOLVED STAKEHOLDERS

- **Universities**
- **Non-university research institutions**
- **Research Communities**

- **Research-funding bodies**

- **Research Support Institutions or Services**
 - Scientific Libraries, IT-Services, Research Support Services, Legal Services

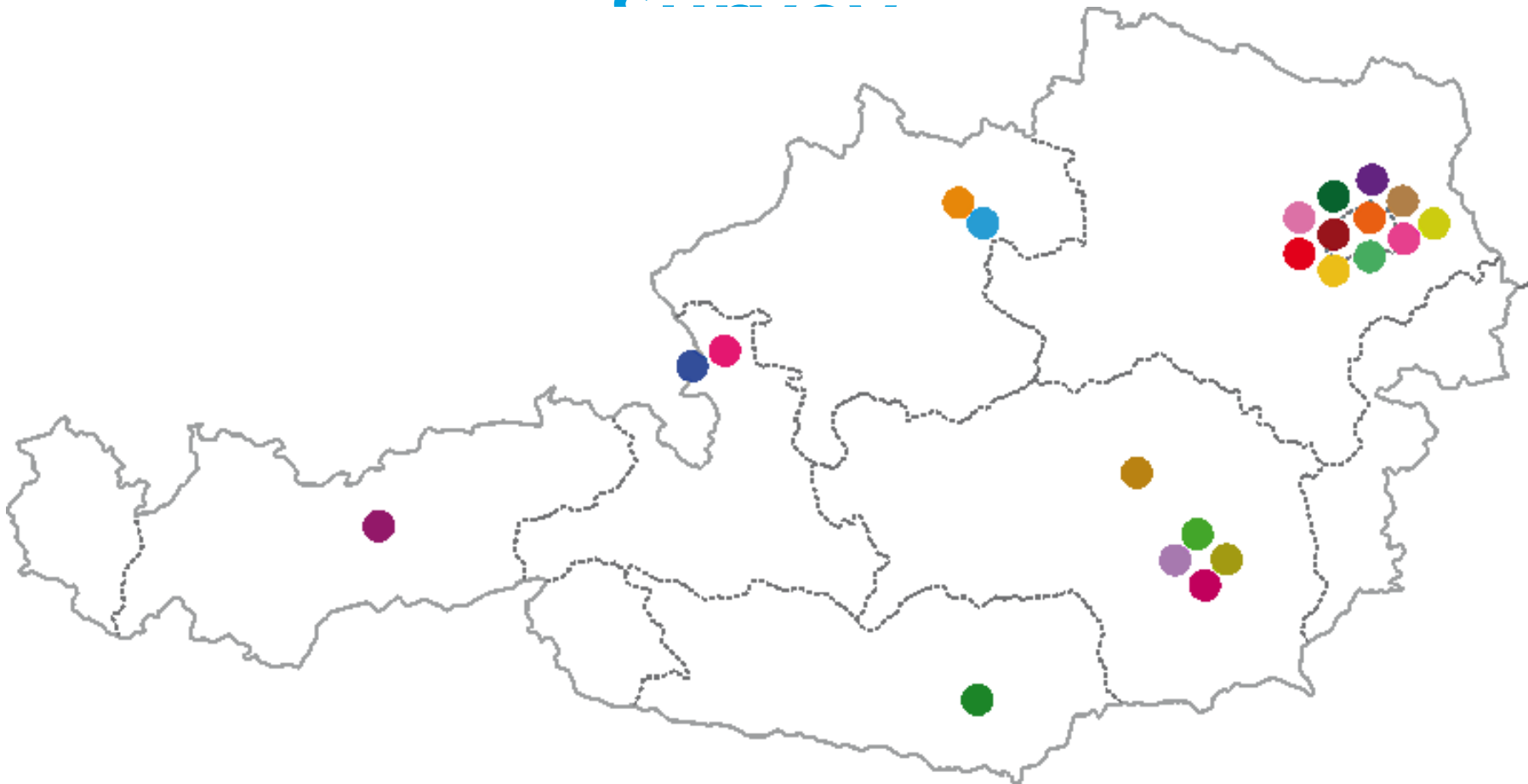
E- Infrastructures Austria - Network and intensity of interaction of 12 working groups



Analysis and graphic: Raman Ganguly
University of Vienna, Computer Centre

Austrian National Research Data

Summary

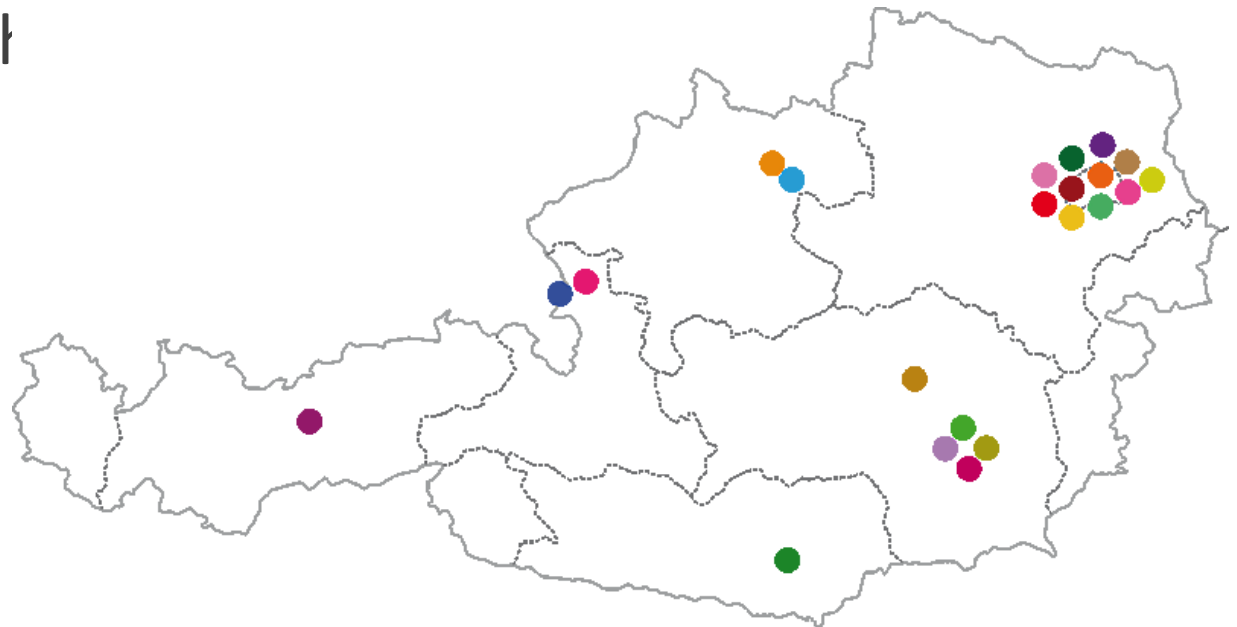


e-infrastructures
austria



Target and response

- » Researchers of all 21 public universities and three extra-university research institutions in Austria
- » From post doc level upwards
- » According to knowledge management report: 36.000 research
- » Response rate:



Austrian National Survey, November 2015

Method:

- Online survey (26 questions, German and English, anonymous)
- Software *LimeSurvey*
- Duration of survey: 19th January to end of March 2015
- Analysis and report 4 months
- Results published in German and English (November 2015)

56

Survey - Results

A new ecosystem of services

High interest in support

60% Technical infrastructure

49% Specific support

42% Legal advice

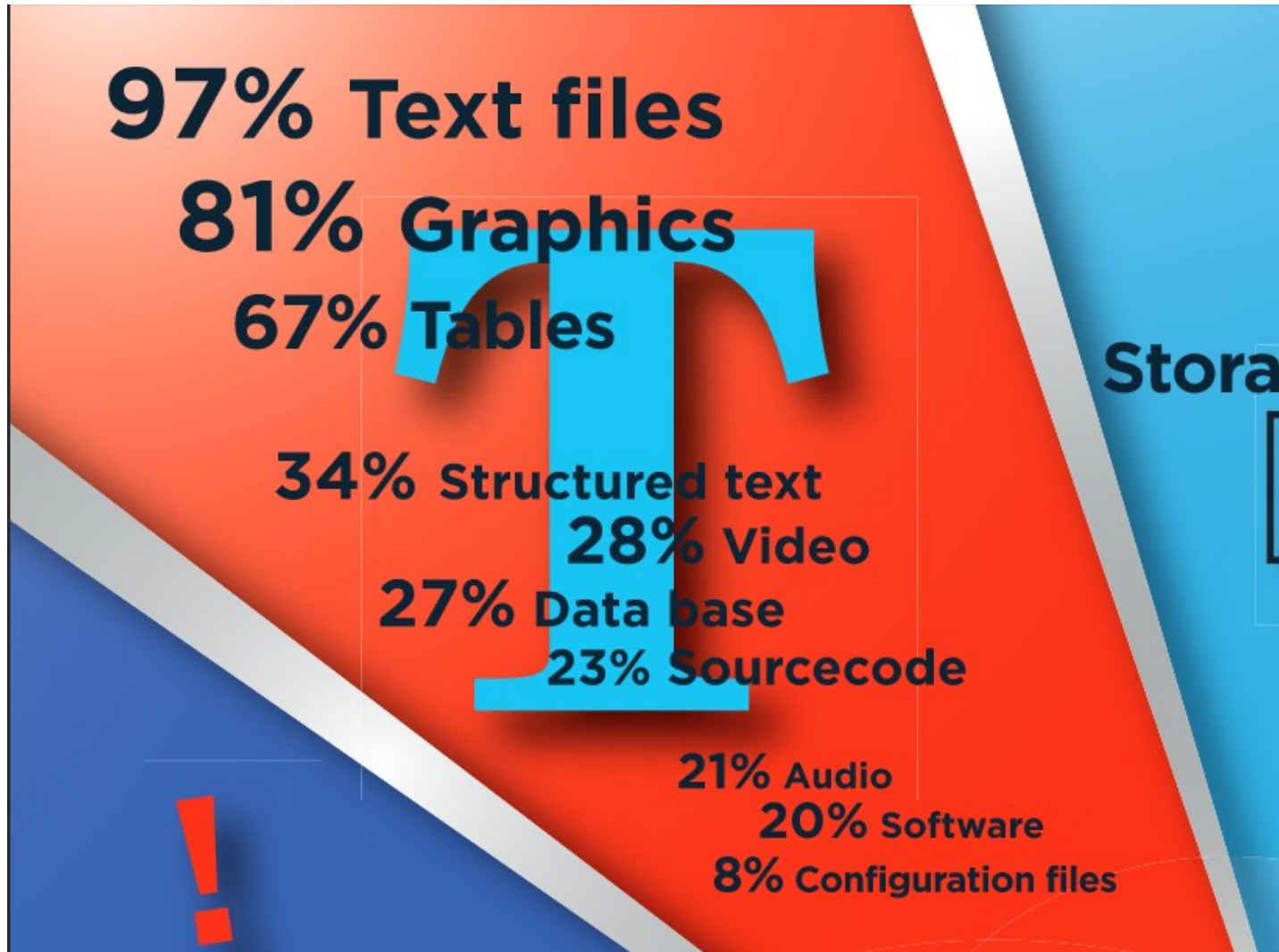
41% Helpdesk

37% Training courses

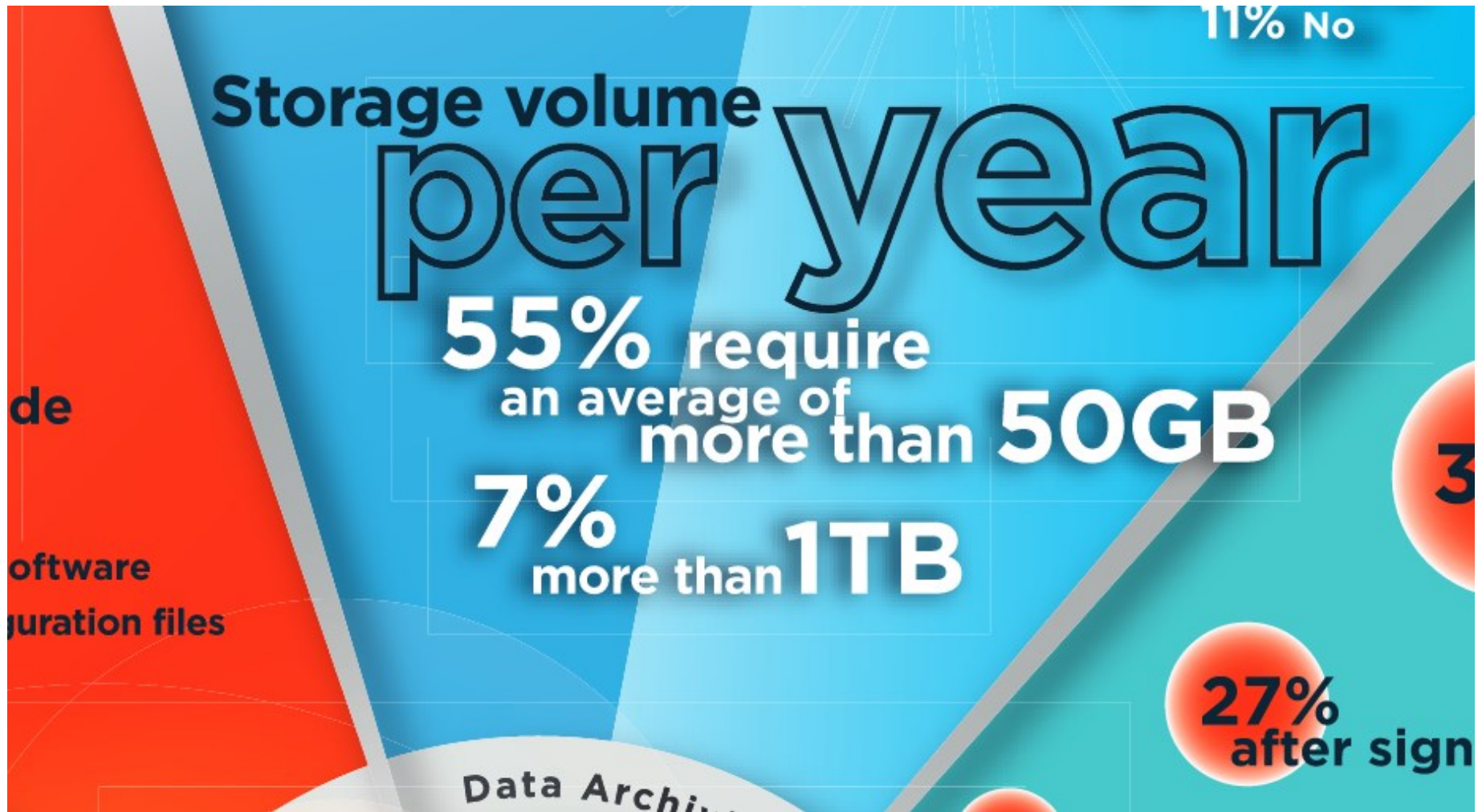
Infrastructure and Services

Preferred

Data types and formats



Collaborative data infrastructures

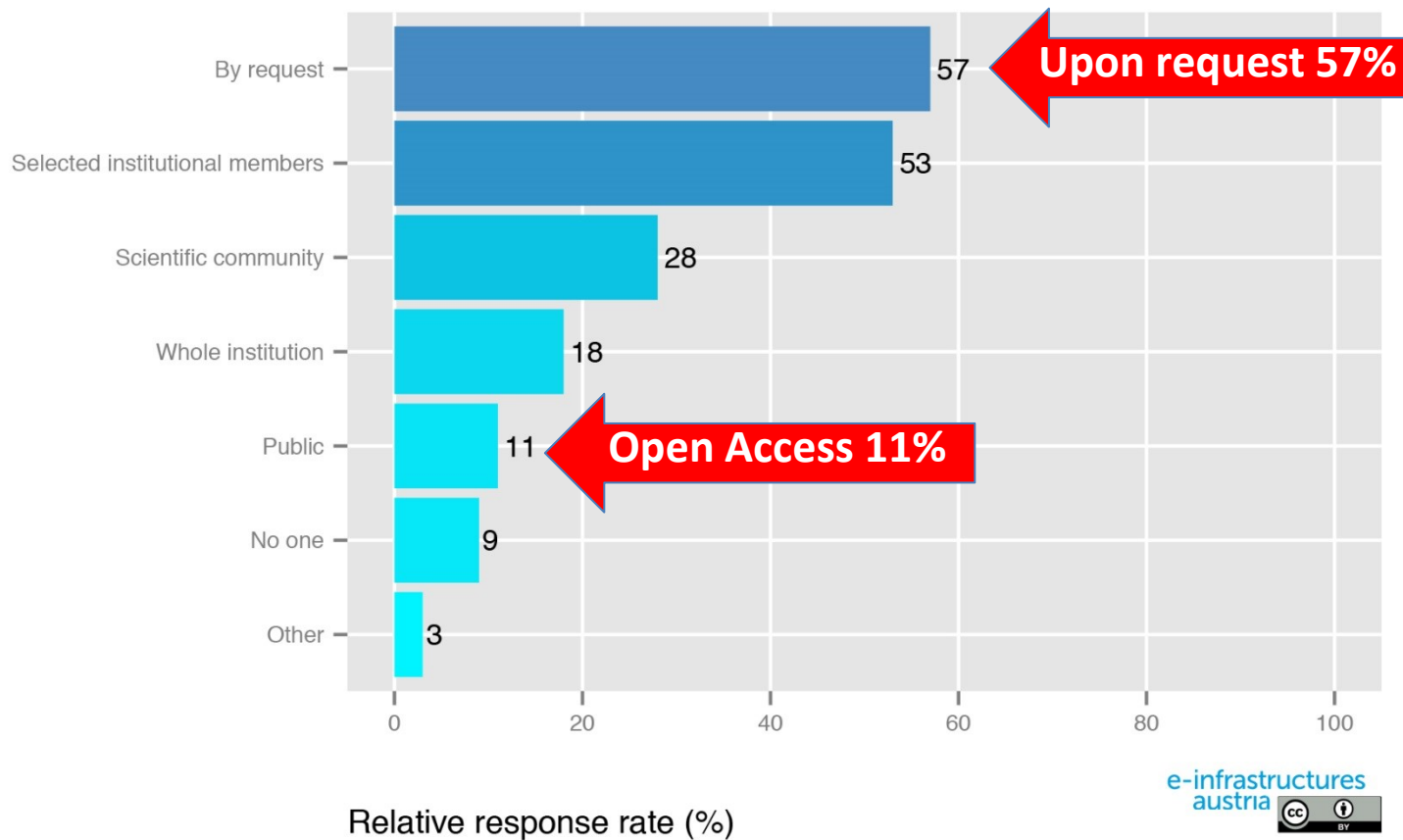


Re-design of re-use scenarios

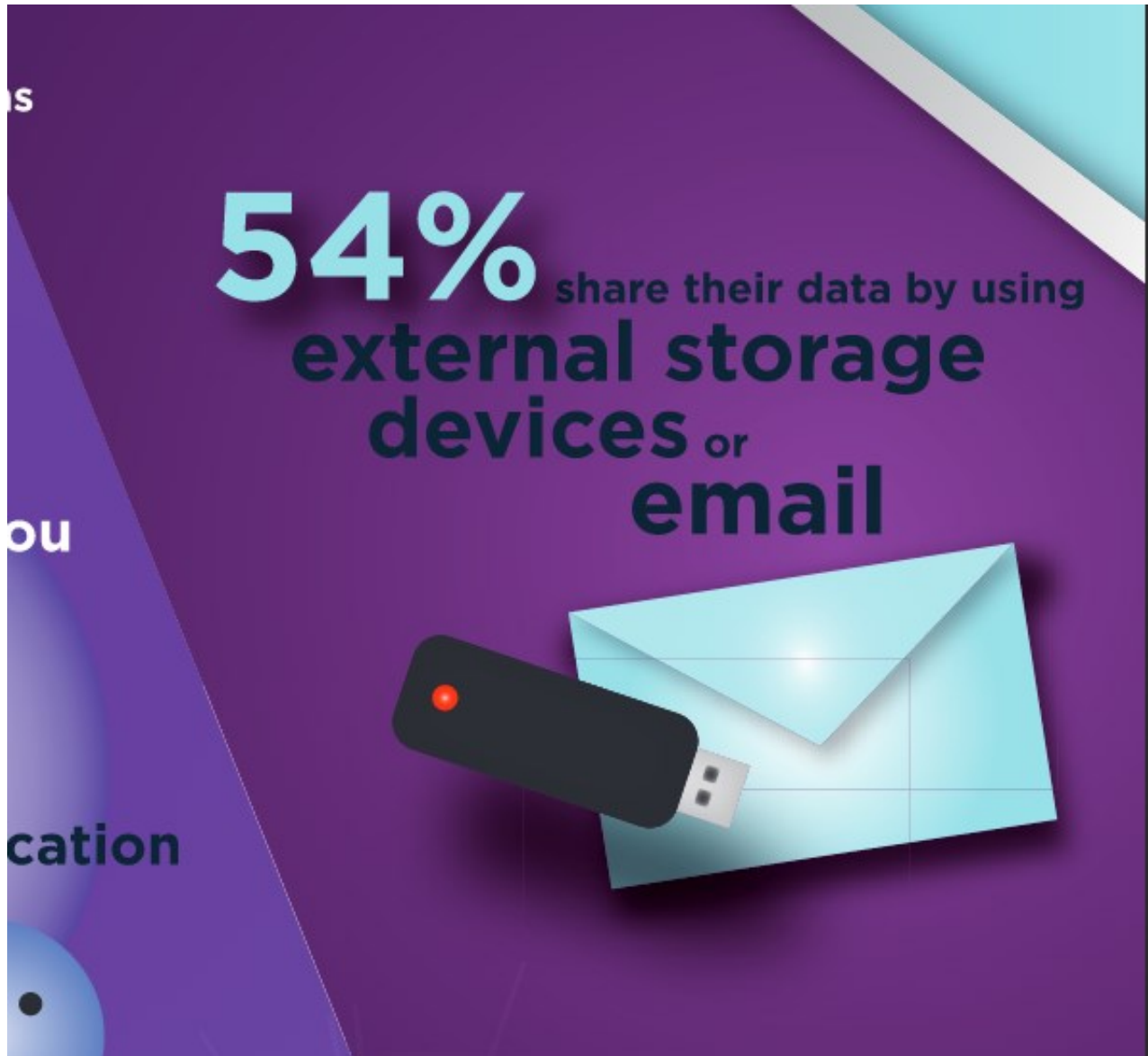


Identification of target groups

Whom do you grant access to your research data?

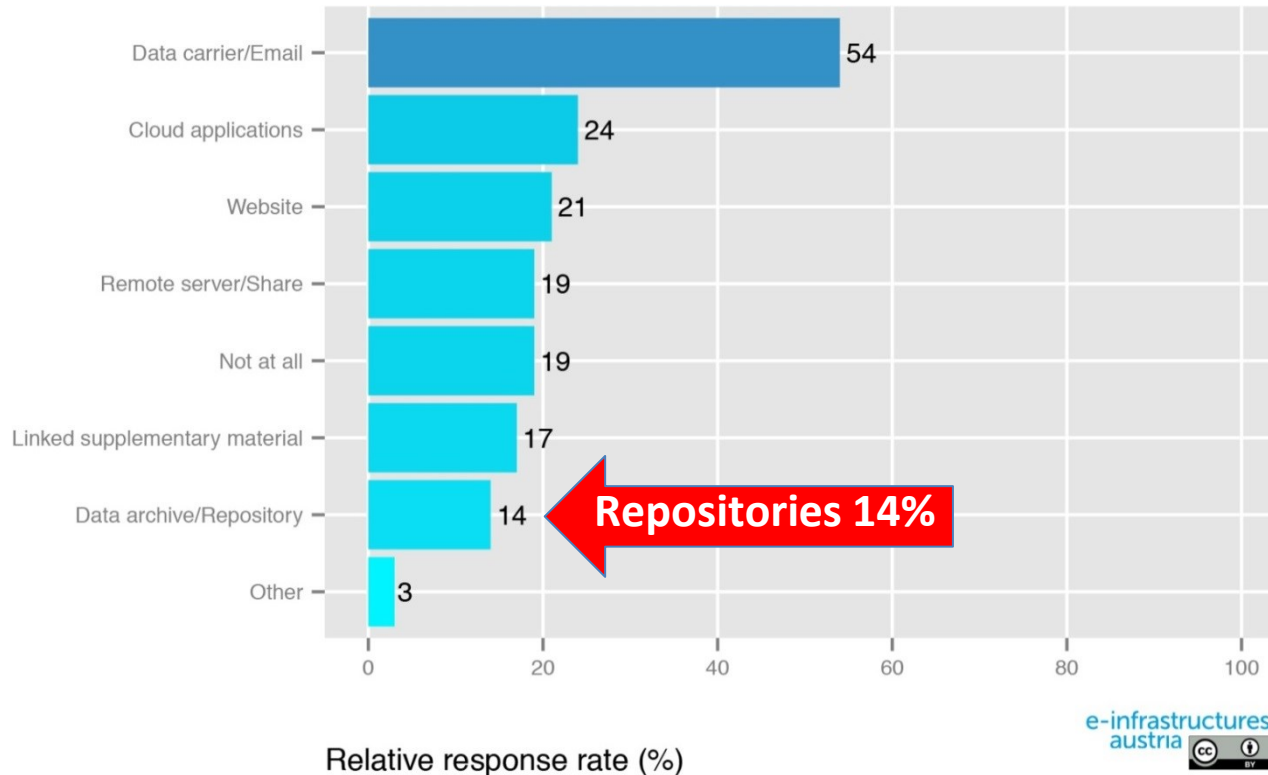


Re-thinking of scientific workflows



Coordination between various e-infrastructure components

How can others access your research data?



Enhancing sustainability

essing

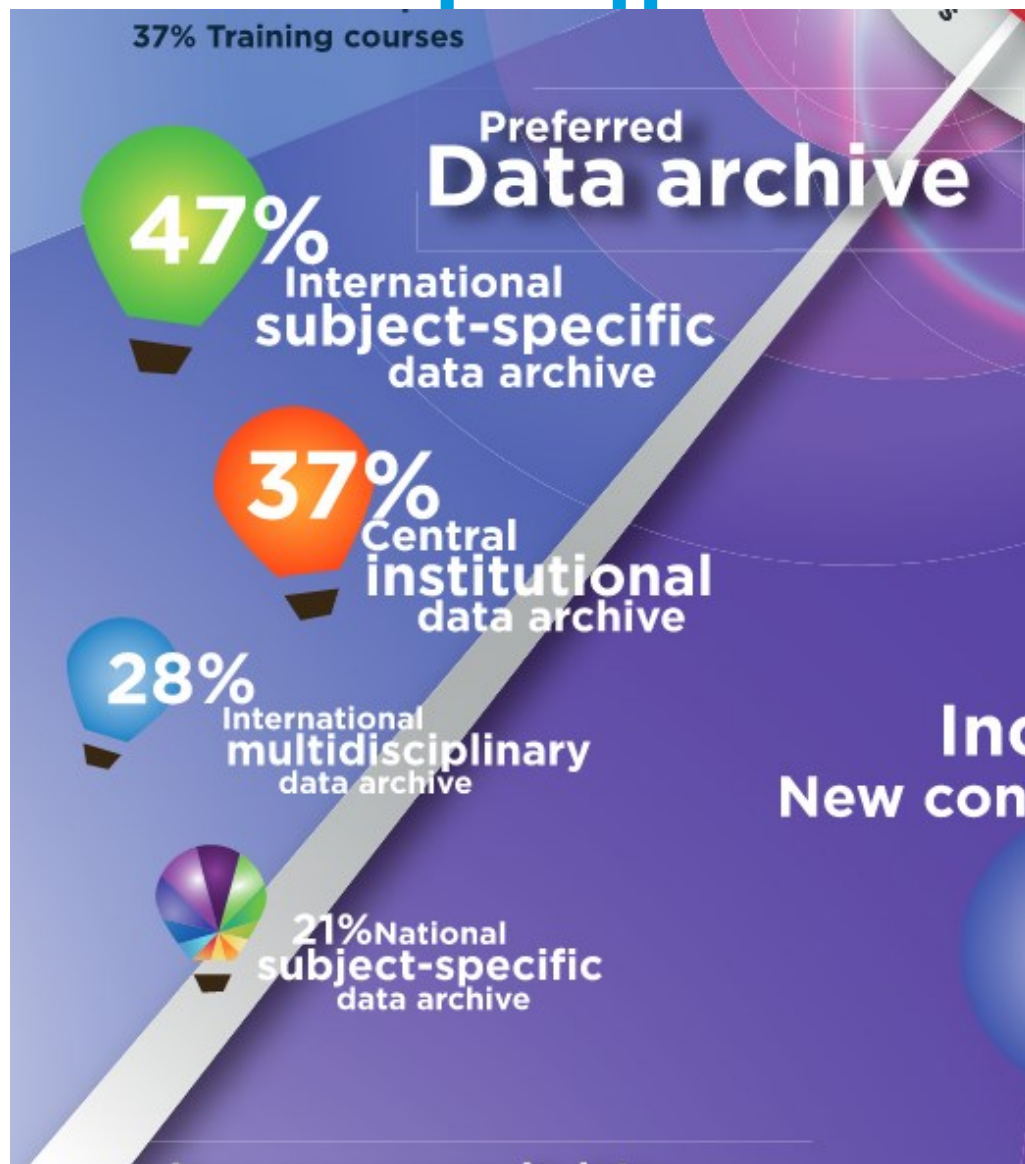
What happens when you
leave your institution?

**43% Data remain
at institution**

36% Data are taken

5% Data are deleted

A common e-infrastructure



A common strategic vision



FINDINGS

Results are conform with international reviews

The findings from this survey form the basis for a consecutive

- a) realization of RDM-policies**
- b) the identification of e-Infrastructure Commons**
- c) the optimization of e-infrastructures and services available in this field, in accordance with needs that have been expressed**
- d) the realization of trainings („essentials and data stewardship in e-infrastructures“).**

Among the challenges ...

1. It is necessary to pave the way for a common European legal framework (create a “Schengen space” for data and e-infrastructure). In order to close existing gaps of communication between member states, stakeholders and the EC. Also to overcome severe differences between member states and to derive from and harmonise existing frameworks and strategies.
2. Furthermore it is relevant to apply common rules for cooperation with industry and publishers.
3. It is necessary to develop a common terminology which can be translated into the languages of the member states.
4. It is necessary to improve skills and to focus on training.

Conclusions

- » Results conform with international reviews
- » Identification of challenges for enabling Open Science Vision
- » Embedding in transnational e-infrastructures initiatives

- » Deeper involvement of stakeholder groups

- » New roles in research support
- » Reference points at local level
- » Horizontal services

- » Need of **know-how transfer** of e-infrastructure **essentials**
- » Release of **RDM policies**

ABOUT CONCLUSION 6

Impact of new roles in research support

New roles in research support

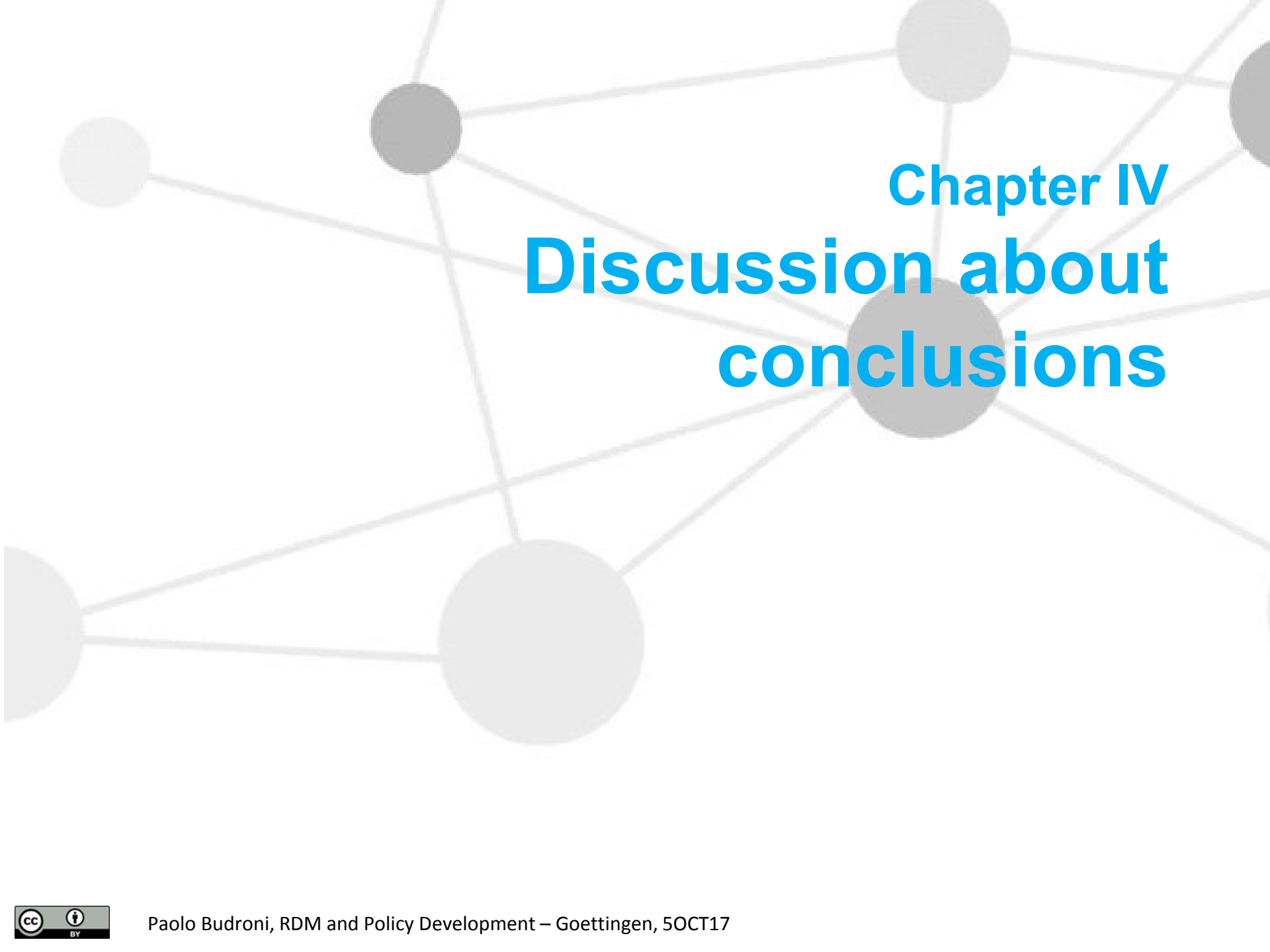
In each of the projects analyzed, research support units have demonstrated their ability to:

- respond to important questions concerning their new roles
- lead in strategy and innovation
- support sustainability
- create new and visionary settings
- show leadership
- build capacity
- implement knowledge of research data management
- manage large projects

A background graphic consisting of a network of grey circles of varying sizes connected by thin grey lines, resembling a molecular or data network structure.

Chapter III

Understanding policies for research data management – policy development and alignment

A background network diagram consisting of several grey circular nodes of varying sizes connected by thin grey lines. The nodes are arranged in a non-regular pattern, with one larger node positioned centrally on the right side.

Chapter IV

Discussion about conclusions

Among the challenges ...

1. It is necessary to pave the way for a common European legal framework (create a “Schengen space” for data and e-infrastructure):
 - bridge existing communication gaps between member states, stakeholders and the EC
 - overcome serious differences between member states
 - develop and harmonise existing frameworks and strategies
2. It is important to identify common rules for cooperation with funders (including industry) and publishers
3. It is necessary to develop a common vocabulary which can be translated into the languages of each member state
4. It is essential to improve skills and to focus on training

Proposal for a discussion: First → Impact of the implementation of the EOSC at a Research Institution

The realization of the EOSC will generate changes. The most relevant is the way on how research output will be at the disposal of an enquiring Open Science Society.

The generally assumed way of treating research data starting with “catalogue thinking management of data” will evolve into a “web-based” way of thinking.

The implementation of the EOSC at a local level will improve the visibility, the attraction and the ranking of the RI.

Research Support entities will be called to play a major and strategic role in this process.

The improved quality of training will attract more qualified personnel and students.

Proposal for a discussion: for all

- » Conception and adoption of RDM Policies and good governance models
- » Data Management Plans (DMP) adoption and continuous update and versioning
- » Training of personnel involved in research support according to the HLEG-EOSC report

RECOMMENDATIONS



Ten recommendations

1. EOSC will be a tangible reality in 2018: start to **reorganize now**
2. Enhance the shift of mentality from vertical based thinking to horizontal based thinking. Create and offer new horizontal cross disciplines services. **Make convergence of knowledge possible** and gather efforts into Reference Points for Research Support.
3. New roles assume appropriate **training and skill development**: offer them
4. Policy development and alignment at all levels, especially **RDM Policies**: introduce them
5. Generate and **adopt Data Management Plans**, support Data Stewardship

Ten recommendations /2

6. **Foster** the transition from “catalogue thinking management of data” to a “**web-based**” way of thinking at all levels of the organization
7. **Acknowledge the increasing relevance of the roles of research support units** versus the researcher community
8. **Activate all stakeholders** in your RI for the realization of the EOSC
9. **Get involved into the bottom-up processes** of EOSC
10. **Participate to the networks and initiatives** concerning the EOSC

THANKS!

Paolo Budroni, paolo.budroni@univie.ac.at

University of Vienna, Library and Archive Services
Head of Department e-Infrastructures
E-Infrastructures Reflection Group, Austrian National Delegate

Chair of GA of e-Infrastructures Austria
H2020 Project LEARN – WP3 Policy Development and Alignment
Member of Management Board of Open Education Austria

