

Report on the Workshop “Co-creating EOSC: University Networks shaping EOSC”

Lead Partner:	TU Wien
Version:	1.0
Date:	21 February 2020
Status:	Version coordinated with workshop participants
Dissemination Level:	Use for: Governance Board bodies (EB, GB, WGs), EOSC Secretariat, Universities Networks, Funding Agencies and Research Performing Organisations, participating Units of the EC

Abstract

This report is a summary of the workshop “University Networks shaping EOSC” which was organised with the support of the EOSC Secretariat co-creation funding at the EFTA Palace, Rue Joseph II, 12-16, Brussels, Belgium, from 23-24 January 2020. The organisers gathered 35 participants from the five university networks EUA, The Guild, CESAER, LERU and the Coimbra Group as well as representatives from the Swiss Universities and the Turkish Universities, experts from the EOSC Governance Boards, experts from E-IRG and ESFRI, members of EC staff (Open Science Unit) in order to discuss EOSC building processes. The main goal was to voice the needs of researchers and research institutions with a focus on the main topics a) How will EOSC be governed and funded after 2020?, b) User engagement referring to organisations, c) Networking and collaborations.

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1. Introduction

Objectives of the workshop

As partner of the project consortium EOSC Secretariat, TU Wien is responsible for the task “researcher engagement”. In order to address the broad range of European research institutions in a structured way, TU Wien brought university networks together with the aim to:

- voice the needs of researchers and research institutions with a focus on research infrastructures, policies and services
- discuss the roles of research institutions/university networks within the EOSC
- discuss how to bridge local needs on pan-European level
- discuss co-creation possibilities
- discuss the question “How will EOSC be funded after 2020?”
- help identifying fields of actions

The task “researcher engagement” does naturally not only comprise university associations, but also researchers and funding bodies. Thus, TU Wien activities also include workshops with researchers (the first one took place in Feldkirch, Austria, 12-13 January 2020) and dialogues with funding bodies and research performing institutions (in a first step, a discussion was organised on invitation and with the support of Science Europe in Brussels on 11th February 2020).

The findings of all these workshops will be fed into the work of the EOSC Executive Board (EB) Working Groups (WGs), thus providing input in the ongoing development processes of the EOSC.

Structure of the workshop

The workshop “University Networks shaping EOSC” was organised as a by-invitation-only, noon-to-noon event with the support of the EOSC Secretariat co-creation funding opportunities. It took place at the EFTA Palace, Rue Joseph II, 12-16, Brussels, Belgium, from 23-24 January 2020. The five university networks EUA, The Guild, CESAER, LERU and the Coimbra Group identified and sent 5-8 representatives with expertise in open science and research data management. The organisers also invited representatives of the Swiss Universities, the Turkish Universities as well as members of the EOSC Governance Boards. In total, the workshop comprised 35 participants.

The main goal was to voice the needs of researchers and research institutions with a focus on three main topics (and related subtopics) discussed during breakout sessions:

- 1) How will EOSC be governed and funded after 2020?
- 2) User engagement referring to organisations
- 3) Networking and collaborations



The key outcomes were presented after the group discussions in two plenary sessions and in a final panel.

The agenda of the workshop, the list of the 35 participants as well as the topics of the three breakout sessions are included in the annex of this document.

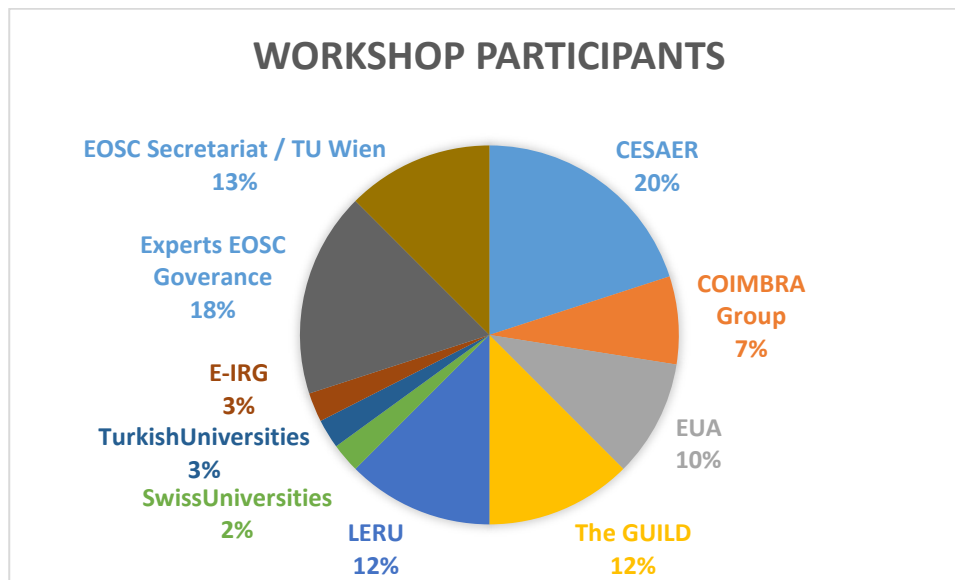


Figure 1: Affiliation of the workshop's 35 participants

Acknowledgements

The topics of the breakout sessions and the related subtopics were elaborated in a joint effort with the representatives of the university networks EUA, The Guild, CESAER, LERU and the Coimbra Group in preparation for the workshop.

TU Wien would like to thank all representatives of the networks and the invited experts (see list of participants in Annex III) for their valuable contribution in preparing the workshop, but also for participation in the event and for the follow-up work. A big thank you also to Swiss Universities in assisting the EOSC Secretariat with the logistics.

TU Wien owes particular thanks to the invited experts, Paul Ayrís, Lidia Borrell, Carlos Casorran, Christian Cuciniello, Jean-François Dechamp, Stefan Hanslik, Sverker Holmgren, Jan Hrušák, Jessica Klemeier and Karel Luyben.

Last but not least, a big thank you to all participants, who have shown their expertise and engagement during two intensive days: Their contributions are a tangible example on how bidirectional communication between stakeholders and EOSC may be established.

Contributors to the report

In alphabetical order:

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2. Summary of the Workshop

Interactive work during the plenaries, wrap-up and panel discussions

The event started with welcome addresses and introductory words. Paolo Budroni presented the objectives and the intended outcomes of the workshop. Karel Luyben gave a presentation, illustrating the current state of EOSC developments. Luyben also showed a video excerpt of the President of the European Commission, Ursula von der Leyen, presenting a speech about the European Open Science Cloud she gave in Davos in January 2020.¹

Interactivity with the 35 participants was promoted from the beginning.

Introductory statements were then made by the following participants (in alphabetical order): Paul Ayris (LERU), Mattias Björnmalm (CESAER), Silvia Bottaro (The Guild), Paolo Budroni (EOSC Secretariat), Giorgio Maria Di Nunzio (Coimbra Group), Jean-Pierre Finance (EUA), Stefan Hanslik (EOSC GB), Karel Luyben (EOSC EB), Lennart Stoy (EUA).

Nota bene: The following sentences reflect words and expressions used during the workshop.

By diving into the topic of EOSC, we can realize that the name is a bit misleading. EOSC is not only for Europe, as it shall be a one-world system. It also will not only include open data, because research data cannot always be open, especially when it comes to sensitive data. However, there is a vision of a gradual process that in 20 years at least all the metadata of the EOSC are open and the offered data will be FAIR. This will be the backbone of the EOSC. Thus, the EOSC will be the federation of yet existing infrastructures and services towards an internet of FAIR data and services. It shall be a virtual environment free at point of use, with open and seamless services for storage, management, analysis and re-use of research data across borders and scientific disciplines. EOSC cannot be reduced to a cloud, since it shall support the whole research data lifecycle, by providing a wide set of software, infrastructure, protocols, methods, incentives, trainings and services. Taking all of this into consideration a more aptly name for the EOSC would be **“Enabler of Opening Science Commons”**.

Connecting researchers from multiple disciplines and fostering research in Europe, is one of the main assets of the EOSC.² For users EOSC shall be well known, ubiquitous and transparent. On the other hand, it shall have rules of participation, a system architecture including security, specific services and a governance. The EOSC shall be an infrastructure that is highly used, robust and resilient with very complex processes in the background that are mostly shielded from the users of the services.

In the process of establishing EOSC, it is necessary that each scientific discipline develops specifications of FAIR data and for data-related algorithms, tools, workflows, protocols, services and other kinds of digital

¹ In January 2020 Ursula von der Leyen stated in Davos: "Europe is launching the Europe Open Science Cloud - a trusted space for researchers to store their data - a pool of information leading to a web of insight. We are the first in the world to do so.". The video containing this assertion was shown during the introductory statements to the "Co-creation Workshop: University Networks shaping EOSC". Source: https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_20_102

² <https://op.europa.eu/en/publication-detail/-/publication/78ae5276-ae8e-11e9-9d01-01aa75ed71a1>

research objects. Another key element of EOSC is data stewardship where minimum conditions for Data Management Plans have to be defined.³ In addition, PIDs⁴ will play an important role in the EOSC as they guarantee interoperability. Discovery tools will play a major role.

However, within the process of the development of the EOSC there are many topics currently in discussion. Some possible boundary conditions and core functions have been identified by the EOSC Executive Board and could find its way in the future EOSC.

Possible boundary conditions:

- Core funding for EOSC from EU
- Inclusiveness of stakeholders
- Core follows subsidiarity principle
- Providers with a shared purpose
- Countries have different structures
- Self-inclusivity as much as possible
- Hardware agnostic
- Focus on FAIR data

Possible core functions 2020+:

- Develop and govern dedicating core
- Manage compliance framework
- Manage trusted certification
- Manage EOSC trademark
- Manage PID policies
- Develop outreach to stakeholders
- Web of FAIR data
- Monitor services

Different visions of EOSC are possible. Nevertheless, *it is the opinion of the EOSC stakeholders* that leads to the development of EOSC and even though the landscape of the EOSC is currently very fragmented, there is no doubt that common needs and requirements will be identified through the ongoing processes.

Infrastructures are a very important element in the EOSC as they are the places where the data is operated. In terms of stakeholders, universities are most important, since all researchers are trained there *and* most research is done in universities nowadays. In-kind contributions of universities are essential for the future EOSC.

University networks have not been systematically involved in the co-creation process of EOSC so far. The workshop was a starting point for a more structured dialogue. A *periodic flow of structured information* to stakeholders is needed.

³ https://ec.europa.eu/research/openscience/pdf/eosc_declaration.pdf

⁴ Initial Persistent Identifier (PID) policy for the European Open Science Cloud (EOSC):
<https://doi.org/10.5281/zenodo.3574203>

Summary of breakout sessions and discussions

Break-out Session A - How will EOSC be governed and funded after 2020?

Chair: Barbara Sánchez; co-chair: Lidia Borrell; assisting expert: Christian Cuciniello; rapporteur: Juliana Giroletti

In order to reflect on the governance of the EOSC after 2020 from the perspective of universities, it is necessary to identify the services, which will be implemented in the first phase of the EOSC. Some core functions of EOSC 2020+ will, as per current state, consist of a shared open science policy framework, authentication and authorisation framework, data access framework, e-science services, a minimum legal framework (GDPR compliancy, licenses), an open metrics framework and PIDs. EOSC in this sense is IT structures connecting to each other. EOSC will enable identification management (AAI). Metadata should be visible within EOSC, especially administrative metadata, based on PIDs. PIDs will be part of the EOSC core as they guarantee the interoperability. For discovery strategies, rules for metadata standards are necessary. But first, basic issues like FAIR need to be solved.

It is agreed among the participants that the definition of infrastructures should be clarified to answer the question if repositories, service centres and HPC can also be seen as an infrastructure of the EOSC. After all, they provide access to the research communities. In this respect a set of common standards and policies should be created. Another aspect that should be taken into consideration is that research is not only European. American journals that have their own repositories are highly used by European researchers. Funders can steer some processes in this respect but it is questionable if the EOSC should drive researchers towards particular solutions.

How can universities be involved in the governance of EOSC after 2020?

There are thousands of universities in Europe. To keep the number of members within EOSC at a reasonable level, they could be represented by their associations or networks. It is expected that every country will designate one representative (organisation) for EOSC. This could mean that each country creates a legal entity. The challenge is that organizational structures are very different in European member states (e.g. Germany: many different ministries for research). Within the different countries, the universities are not always linked to the relevant ministry. Funders should also be part of the governance as well as the industry if they are actually doing research. Currently there is a difference of readiness to join the EOSC in the different European countries, so the development of the EOSC should be done carefully under the obligation that the divide across regions is shrinking and not increasing. Some instruments have to be created to engage less prepared universities.

How can the EOSC best encourage institutions to join the EOSC?

Through incentives and primarily through added value. It should be noted that added value means different things for rectors and researchers. For both stakeholders, however, visibility is crucial. Other argumentation is financial reasons and FAIR reasons (availability of research output for taxpayers' money). After all, MS spend a lot of money on research.

How many different structures for financial contribution will be necessary - per country/per institution/per service?

In the discussion, there were many different views to this point. Some think that as many structures as possible will be necessary and that different models make sense, e.g. payment per service. Others, however, prefer national payment, which is perceived as clearer. A disadvantage of contribution per country could be that it is harder to get institutions involved. Ministries in MS give money to funders and institutions that are publicly funded. Thus, different sorts of funding schemes will probably be necessary. While ministries subsidize public institutions, some institutional solutions could also be taken into consideration. ERICs can be identified as a good example for the legal structure for financial contributions.

What information would universities/research organisations need in order to commit to funding participation in the EOSC?

In order to encourage institutions to join the EOSC, incentives and added value for both the rectors and the researchers shall be provided. The aspect of the enhanced visibility through the EOSC is crucial. In addition, financial and FAIR reasons play an important role in the context of the availability of publicly funded research. Minimal standards for funding should be created and universities should always indicate what researchers need. For the planning of institutional infrastructures, it is important to understand how compatibility between existing infrastructures can be achieved, where at least but not only ESFRI infrastructures should be compatible, and which of these infrastructures are planning to open up their services.

In order to potentially commit to funding participation in the EOSC, universities and research organisations need to know what the EOSC actually is, and their researchers need to send clear messages that EOSC is needed. The message should be adapted according to different target groups within universities. For the university management strategic goals are more important while IT-experts are more focused on the technical specifications. Thus, communication is perceived as crucial at different levels:

- Rectorates: it is important to explain that EOSC will provide added value to what needs to be done anyway (data stewardship, invest in open science skills, implement support structures etc.). Another benefit is reclaiming the ownership of data and software (learn from experience with articles)
- ICT departments: in some way all universities are connected to the GEANT network services (identification processes etc.)
- Research support offices & funding organisations: EOSC will be included in the upcoming Horizon Europe framework programme. One of the demands will be to have data FAIR
- Researchers: they can give some pressure to the rectorates with regard to investments
- Funding bodies: DMP as requirement, FAIR evaluations
- National groups and data organisations to reach RDM experts and researchers, e.g. national RDA nodes, FAIR offices etc.

Nota bene: It is noted that some universities have been indirectly involved in EOSC projects through membership in international projects.

Breakout session B - User engagement referring to organisations

Chair: Paul Ayris; co-chair: Jessica Klemeier; assisting expert: Carlos Casorran; rapporteur: Katharina Flicker

For achieving user engagement, it is important that individual decision makers agree, that open data is the future of research and that FAIR is necessary for open data. Thus, the objective should be to build a model and deliver the goals and benefits of the EOSC, which is tricky to describe now. So, it is important to identify the services and content that universities could offer the EOSC. One service that universities could offer is a research data archive. In order to do so some Rules of Participation have to be created. Universities have many data repositories that are currently not joint. Here a new structure is needed since convincing researchers is not enough. In addition, for providing the EOSC with data from students, more repositories need to be developed and publications should be linked to the EOSC as well.

Within the EOSC the metadata should be open and visible and equipped with a 'barcode' which helps machines to identify what this data can be used for. It is questionable if in the EOSC there should also be a search engine implemented, the implementation should not be a technical issue. However firstly FAIR rules and metadata standards have to be created as well as demanded in the next Horizon Europe program, where also the education of researchers plays a crucial role. Also open metrics are of importance for the development of the EOSC. Anyway, these questions should be tackled internationally through RDA or Plan S. For the researchers three main assets could be identified which are: Visibility, financial reasons and FAIR reasons for taxpayers money.

Researchers are sensitive when it comes to open up their data since financial investment is needed in order to do so. Thus they currently only share it with well-known colleagues. For the connection of the data they produce to the EOSC ecosystem, it is crucial to implement a reward system for researchers that are providing the EOSC with FAIR data and open metadata and preventing that the researchers only act as freeloader. It is important to stress again that the research data itself does not have to be open, but FAIR while the metadata must be open in the EOSC. In this context it is also necessary to raise awareness of FAIR in the community and point out that FAIR is the future of research while EOSC is seen as an enabler there. Where FAIRness of the research data is of course important, even more important is that the research data is at least available in the EOSC.

Handling of data needs resources, training and skills. Thus, not only a change in mentality is needed but also its supply through the EOSC. The role of the EOSC should be to determine a certification of what specific skills and trainings are a necessity. In addition, knowledge transformation is very important, thus it should be ensured that knowledge will not stay in a single group. As an enabler of trainings, the EOSC should set the rules on what trainings you need in order to do research, it should help finding them as well as allowing to "share" your competences and skills. The EOSC shall also take the role of an observatory and support the on boarding of university services from and to the EOSC. Researchers themselves would need to have policies on how to do research right, the adaptations to be taken under the circumstance that the culture of data will change the trainings and awareness tools on FAIR and trainings on data management. Responsibility of their research data produced and the understanding of good data practice is key in the development of the EOSC. There should be data competence centres created within universities. In addition, IT and libraries should be brought into these discussions as well, where the combined efforts in countries and networks will come in handy.

Another interesting question to be considered in the development of the EOSC is who will be allowed to receive services coming from universities. Technical universities have lots of collaborations with the industry, thus they are willing to offer services under some circumstances. EOSC services shall not only be considered to be used by scientists but also be opened up to a broader community if it fits the Rules of Participation. Co-funded infrastructures do already exist but the expectation of the engagement of researchers to the industry should be clear. Possible boundaries between researchers and infrastructures should be explicit through partnership agreements to share best practice examples and to make templates available.

In terms of Rules of Participation to the EOSC the focus should not be on the question who should be able to participate. Any person and also nonhumans like machines should have the opportunity to do so. A much more relevant question could be what characteristics participants should have. When it comes to eligibility of the participation, it is necessary that also “ordinary” data sets like small data sets should be considered as part of the EOSC as well. Also some rules for providing and using services and on the deletion of research data and services are required. Further, also rules on PIDs, data stewards, metadata and DMPs have to be created.

However, the provision of access to infrastructures to interested parties always comes with challenges. The ownership of data is currently differently defined in the European countries. Thus, the EOSC should provide a harmonising solution for this issue. However, even more important than the ownership of data is the question of its responsibility, which shall be taken into consideration in the current development of the framework concerning GDPR, copyright and personal data, as currently the universities are responsible for the research data their researchers produce.

Another hurdle of EOSC in terms of user engagement is its quality management. Thus evaluation processes are needed so that researchers can trust datasets. A quality control is also especially important in the engagement of Citizen Scientists to the EOSC. The encouragement to academics to also use other sources than publications is a bid difficult to accomplish.

On the other hand, to ensure the quality of research data in the EOSC there could also be no quality control foreseen. The EOSC could rather focus on training researchers on the awareness of importance of quality in research and how do facilitate it and set incentives that the researchers are going to use these trainings. Other researchers are checking the research data before they are using it, which implements a natural quality control in the EOSC. Being transparent and letting the researchers decide which data fits them is the best quality control the EOSC could set. Another aspect to be taken into account is that bad research data can also turn into highly valuable research data for some other domains like historians for example who are trying to figure out how research was done in the past.

However getting a sense of the quality of data could get difficult when it comes to interdisciplinary or newly shaped data. Thus some expert teams has to support the researchers in that cases by providing feedback and advising the researchers on their data sets. There data stewards play an important role. Also some domain specific checklists for research quality should be established which should include the recommended preciseness of measurements and the completeness of data sets for example.

Key findings (based on the group's conclusions):

- **Rules of Engagement / Rules of Participation** still need to be developed. Lack of them is a major issue for universities and university networks, as it is for other potential partners such as industry, funders and citizen scientists.
- **Management / Leadership.** There needs to be leadership at the EOSC level, reaching out to universities, and also to funders, industry and citizen scientists, and also embracing researchers. Without these links in place, it is difficult to build up momentum around the EOSC.
- **Involvement in Data Management.** Is EOSC the right message? Are not Research Data Management, Open and FAIR data the right messages? The EOSC is then a 'by-product' of this engagement, rather than the subject *per se*.
- **Culture change at university level: rewards and evaluation procedures.** Not all academic disciplines have a culture of sharing. One important way to encourage data sharing is to make such sharing a criterion for reward and promotion. This is the role of universities, not the EOSC, and it can be encouraged by research funder requirements.
- **Convincing researchers of the benefits of FAIR data.** Most researchers would not understand what FAIR means, and how/why it is different from Open. There is a huge advocacy challenge here.
- **Identify best practices / share knowledge / provide templates.** The EOSC team really needs to do this, engaging with the academic and research communities to identify what is needed.
- **EOSC as a seamless enabler.** The best way to 'sell' the EOSC concept is to make it like the Internet. It is just there, always available and enabling global connectivity and sharing.
- **Citizen Science: Role for public libraries.** Discussion about the EOSC usually embraces researchers, funders and industry. But, in the age of citizen Science, global public library networks have a role to play in providing instruction and infrastructure to allow citizen science projects and for this activity to be part of the EOSC.
- **Industry and Research: Partnership agreements.** This is a complicated area since the understanding of industry and academics about ownership and openness of research data resulting from jointly-funded research may well be different. It needs to be clear, in a collaboration/partnership agreement at the start of the collaboration, what the status of any resulting research data is. This collaboration/partnership agreement needs to sit alongside the Data Management Plan.
- **How would you identify eligible participants?** Research-intensive universities around Europe are the best places to target initially, since they are producing a great deal of research data. University networks - such as LERU and the European University Association - would also be useful as a conduit for advocacy for and engagement in the EOSC concept. Other partners - industry, citizen scientists - could follow.
- **How do you ensure quality?** The Rules of Participation in the EOSC should identify minimum criteria and the FAIR metadata should explain more about the data which is available. But, in an open environment, the emphasis should be on making data open (where possible) and providing enough information in the metadata to allow the data to be re-used.

- **Who should be allowed to offer services to the EOSC?** Anyone who has a service which supports the ambition and aims of the EOSC. The challenge will be the nature of the Business Model which underpins it.
- **How will common results be shared?** Through making the data FAIR and so discoverable and re-usable, with research data being as Open as possible.
- **In a collaborative, and competitive, research environment, what can the EOSC offer to support universities going forward?** The EOSC can provide infrastructure to make a reality the ideal of a global, open commons - supported by services and software which researchers/users need to do their work. The EOSC is therefore a *partner* in the research process with universities, funders, industry and citizen scientists and should work with all these partners to meet their needs and to stimulate innovation.
- **What reporting/management information would subscribing institutions require once they had joined the EOSC?** Difficult to say at this stage - certainly view and download information; citation information of where and how many times datasets have been cited; and perhaps some social metrics with regard to impact.
- **What services or content could your university offer to EOSC? (now, 5/10 years from now).** Content would be the first offer that universities could make - Open and FAIR data from their own research data management repositories. Research-intensive universities could offer tools and services which they have developed, to be available to a wider audience, subject to an agreed approach about Business Models.
- **Who would you be willing to offer services to? Industries/private universities/extramural research institutions/citizens?** The critical issue would, be the Business Model which underpins these services. Universities would *not* want to make their services available free to industry only for industry to make money by using those services themselves. There would need to be more of a partnership model around the offering of services, with guarantees about what was or was not the commercial model underpinning them.
- **What services do you think would your researchers/research support/ICTs need from the EOSC? (now, 5/10 years from now).** Now: an infrastructure which would store metadata about Open and FAIR datasets stored locally in an institutional/subject repository. As for service: the best people to ask are the researchers themselves and the EOSC should make a conscious effort to reach out to them via focus groups and surveys.
- **What services would institutions expect the EOSC to give them in terms of their support?** The EOSC is so nebulous a concept in the minds of most researchers that it is currently impossible to list these. There needs to be much more engagement with surveys/focus groups to tease out the answers.
- **What do you perceive as the biggest barriers for providing access to your infrastructures for interested parties? On-campus/off-campus?** University networks need to know what the Rules of Engagement are to see what the technical barriers are. The biggest current barrier is lack of awareness about what the EOSC is and what it can offer.
- **How many ways or channels of making data accessible do you think will be needed to meet the differing requirements of data (closed data / restricted data / open data)?** Well, certainly, these 3 different types of data need to be catered for. Restricted/closed data can be FAIR but not Open.

These are going to be challenging concepts to explain to researchers, especially where the researchers are new to sharing data.

- **Which services would you need to support industrial cooperation (NDA monitoring, confirmed deletion, access protocols, data anonymization, data pre-aggregation)?** There needs to be a series of surveys/focus groups with relevant parties to tease out the answers.
- **Referred to EOSC: What could be the role of crowd sourcing/Citizen Science?** There is a huge potential for citizen scientists to participate in the EOSC. If they work with university partners, it may be the university which provides the infrastructure for linking up to the EOSC. For citizen scientists working on their own, public libraries seem an obvious home. So the EOSC will need to build partnerships with European public library networks.
- **What are the consequences for your researchers of not joining the EOSC?** Lack of visibility for their outputs, loss of impact, the risk of needlessly repeating experimentation which has already been undertaken elsewhere.

Breakout session C - Networking and collaborations of universities

Chair: Sverker Holmgren; co-chair: Jean-François Dechamp; assisting expert: Jan Hrušák; rapporteur: Bernd Saurugger

Universities can be seen as consumers of the EOSC, but they also have an important role as contributors where they could supply by anonymizing datasets or by identifying standards for domain specific data in order to make them FAIR. This raises the question what kind of added value the EOSC is bringing to the universities. For now, it is unclear what exact purpose the EOSC should serve and what data will be available once the EOSC will exist. Researchers in universities nowadays are not engaged in the process of shaping the EOSC, as they often have or are developing other data infrastructures - locally, nationally or in Europe, which also leads to the question why researchers should provide their data in EOSC.

Nowadays, some universities are involved in the co-creation of the EOSC, but there is a lack of coordination between the 50 EOSC related projects. This fact as well as a lack of transparency, has led to the loss of enthusiasm of the universities' researchers. In fact, nobody knows what the EOSC is, "but it is supposed to be really useful". There are too many versions of the EOSC definitions currently circulating. Further, EOSC is still mainly a political concept, which is also needed in some areas. Maybe, the EOSC Secretariat shall interconnect these two aspects and bridge the gaps. It must be noted that EOSC Secretariat is a project as well, while the EOSC shall be a sustainable infrastructure in future.

Another issue of the EOSC is that there are too many sources producing information. There should be one single website where the EOSC stakeholders get information, updates and news of the EOSC. When it comes to the building of the EOSC, it is important to close the divide between Member States and to take care of the different maturity levels.

In order to close the gap of communication, the university networks could convey questions, convey messages wanted, communicate with publishers, find concrete ways of engagement, get clear on the concept of EOSC, connect what is needed in the EOSC to what is already there and inform the leaders at the

university level about the EOSC which does not seem to be the right moment, but they will fall behind in research at global scale if it is not done soon.

The building of the EOSC at universities is a staged process. At first, the universities identify the need of data management, sustainability of data sets, data sovereignty and a regulated and secure environment, many are building data repositories. However, the researchers at universities also work jointly together with other institutions and countries. Due to their need the established repositories will get connected. At the last stage, the universities then see the opportunities in opening up the data where the EOSC comes into play. The EOSC can be seen, as a deliverable from the real key message of improving global research, which is an exciting vision. Thus the EOSC should be sold as an idea or vision.

The role of university networks could include the help in consolidating, support of RDM, getting people together and the communication with its researchers, which is a challenging task. There is a need to involve leadership in this process, even if it is top-down, since there is a need to deliver data-driven as future research. Data stewards need to be encouraged to take care of their DMPs. The nomination of data champions is one way to do so. In addition, funders are important in this process since they are giving the money as well as setting up the rules. However, university networks could also encourage universities to make data FAIR and open for disclosure in the EOSC by explaining its benefits in order to achieve a change in research culture so that sharing gets desirable.

While the EOSC is harvesting the universities' research data, the universities themselves are responsible to make their data FAIR. It can also be considered as their task to figure out how to connect the EOSC. In addition, the university networks are responsible to feedback the EOSC on what information they need and ways to disseminate it. In order to do so three channels can be identified. These channels are the Governance Board, the Executive Board and the European Commission where the university networks can come up with concrete questions and deliver them.

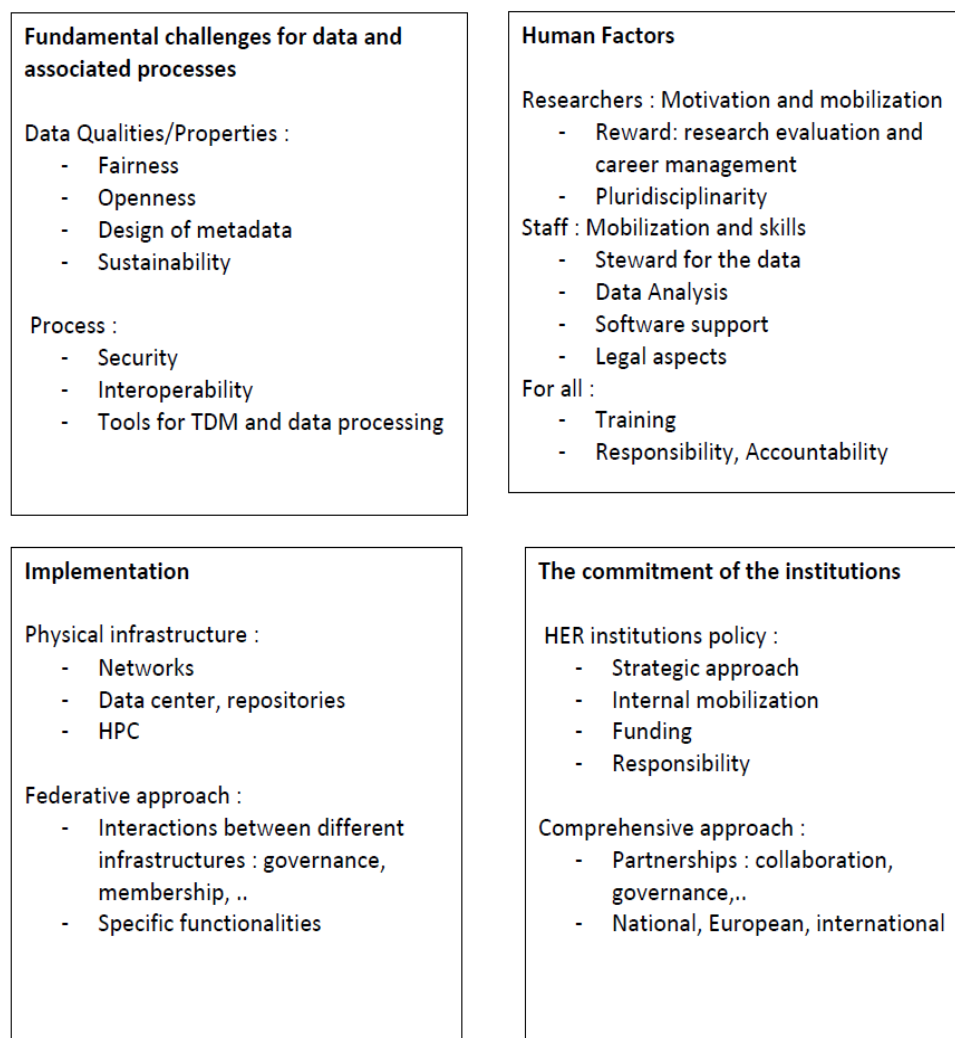
In terms of accessing the EOSC, it is important to consider the needs of the different disciplines to find a way to connect them. The EOSC is the coordinator and giving access to a federated infrastructure. In order to make this infrastructure highly used it shall be an underlying one, working in the background. Researchers will pay attention to the data they want to access and not to which type of infrastructure they use in order to get it.

For the continuation of the dialogue the European university networks will organise joint events on their own, in order to provide help and input to member organisations and to provide a starting point for the co-creation process where universities together with other EOSC stakeholders are developing the EOSC as a regulated, secure and sustainable environment.

University networks have only been involved indirectly in the co-creation of the EOSC, it is necessary to have a continuation of what has been initiated through this workshop. The opinion of university networks is of relevance in the building of the EOSC, as research is happening at universities and most research data is stored there. However, this workshop was happening exactly at the right time, since recently there has been a lot of work done regarding the EOSC, which lay the basis of this event.

Wrap-up of Jean-Pierre Finance

The graph below was produced and presented by Jean-Pierre Finance, and served as introductory statement and as a starting point for discussions at the second day of the workshop.



Addenda after the presentation of the graph (“What was not mentioned?”)

- EOSC and the *PSI Directive*
- *Universities, EOSC, the context of knowledge society and first mission*: in the context of knowledge society the universities are not only responsible for producing new knowledge (Research – the second mission) but also for qualifying the human capital (Education – the first mission)
- EOSC and (European) *discovery strategies*
- EOSC and *ethical questions* (especially related to the implementation of FAIR and to machine actionable tools)

3. Takeaway messages for the EOSC Governance Board bodies

As EOSC stakeholders, universities are highly relevant. All researchers are or were trained in research institutions and most research and the production is done in universities nowadays. In-kind contributions of universities are thus essential for the future EOSC. With the workshop “University Networks shaping EOSC”, the stakeholder group of universities were represented through their associations and networks. These groups were systematically involved in the co-creation process of EOSC. The workshop was a starting point for a more structured dialogue.

Synthesis of key messages

How will EOSC be governed and funded after 2020?

- It is necessary to *identify the services* foreseen to be implemented in the first phase of the EOSC
- For *planning* institutional/national infrastructures, it is important to understand how compatibility with other, existing infrastructures can be achieved
- Information is necessary on which *existing infrastructures plan* to open up their services. E.g. what is the long-term plan for Zenodo? What is the long-term plan for the ESFRI infrastructures?
- The definition of infrastructures should be clarified: apart from repositories – are service centres and HPC also seen as an infrastructure of the EOSC?
- In terms of the financial contribution to the EOSC it might need as many different structures as possible
- How *can EOSC be reached at local level*? Which are the financing models? Provide input/help to member organizations
- Currently there is a *difference of readiness* to join the EOSC in the Member States, so the development of the EOSC should be done carefully under the obligation that the divide across regions is shrinking and not increasing
- Some instruments have to be created to engage less prepared universities

User engagement referring to organisations

- University networks need to *discuss and contribute* how to engage (at national level, national platforms, by individual universities meeting stipulated criteria)
- Management/Leadership: There needs to be leadership at the EOSC level, reaching out to universities, and also to funders, industry and citizen scientists, and also embracing researchers. Without these links in place, it is difficult to build up momentum around the EOSC
- Is EOSC the right message? Are not Research Data Management, Open and FAIR data the right messages? The EOSC is an enabling service and a ‘by-product’ of this vision
- EOSC is the layer of a *seamless interoperability and a facilitator*
- There should be a role for public libraries
- Industry/partnership agreements: At the start of the collaboration, an agreement what the status of any resulting research data is

- Rules of Participation: There should be a *discussion around costs* ("We need to engage in discussions around that now")
- Definitions must be provided, e.g. how would you *identify eligible participants*?
- How do define eligible?
- "Ordinary" data sets (like small data sets) must be eligible
- How to define participant? Who or *WHAT is a participant*?
- What are the characteristics that participants should have?
- Charter, rules of conduct must be *transparent*
- *Quality & trust*: Who should be allowed to offer services to the EOSC? Who wants to fill the EOSC with data/services? And who allows this? How to avoid positions of monopoly?

Networking and collaborations of universities

- EOSC is still mainly a political concept, which is needed in some areas. However: *wherefore* is EOSC needed?
- It is unclear what exact *purpose* the EOSC should serve and what data will be available once the EOSC exists
- There are too many versions of the EOSC definitions currently circulating. *EOSC message* is not yet a clear message and needs to be *re-defined*
- There should be one *single trusted website* where the EOSC stakeholders get information, updates and news of the EOSC
- The message should
 - be clear (one voice, not the voices of different projects and/or EOSC Boards) and
 - be adapted for different target groups/ recipients
- There are different target groups within universities (rectorates, ICT specialists and researchers speak different languages and have different strategic interests)
- Keep in mind *the role of researchers*
 - They work beyond organisations – together with other institutions and countries
 - Not enough coordination between the 50 EOSC related projects. Due to lack of transparency the enthusiasm of the universities' researchers has decreased
 - EOSC teams should engage with research communities to identify what is needed
- University networks need to ask the representatives of Governance Boards to *engage directly with all potential partners in the EOSC enterprise*. Currently, the perception is that this is not happening
- University networks are responsible to *feedback the EOSC on what information they need* and ways to disseminate it. In order to do so three channels were identified. The first channel is the Governance Board, the Executive Board and the European Commission where the university *networks can come up with concrete questions* and deliver them
- Continuation of workshops like this in order to enable university networks to be part of the EOSC-building process

4. Annex

Annex I – Topics of Breakout Session

Breakout session 1 (Group A) - How will EOSC be governed and funded after 2020?

1. How can universities be involved in the governance of EOSC after 2020?
2. How can the EOSC best encourage institutions to join the EOSC?
3. How many different structures for financial contribution will be necessary - Per country/per institution/per service?
4. What would be a preferred means of contribution to the EOSC? E.g. membership fees, payment per service, service contracts, national funding, ministries directly bypassing the universities, EC programmes, further?
5. What information would universities/research organisations need in order to commit to funding participation in the EOSC?
6. How should EOSC be governed and funded after 2020 from the point of view of universities?
7. What are the consequences for your institution of not being included in the governance processes of the EOSC?

Breakout session 2 (Group B) - User engagement referring to organisations

1. What services or content could your university offer to EOSC? (*now, 5/10 years from now*)
2. Who would you be willing to offer services to? Industries/private universities/extramural research institutions/citizens?
3. What services do you think would your researchers/research support/ICTs need from the EOSC? (*now, 5/10 years from now*)
4. What services would institutions expect the EOSC to give them in terms of their support?
5. What do you perceive as the biggest barriers for providing access to your infrastructures for interested parties? On-campus/off-campus?
6. How many ways or channels of making data accessible do you think will be needed to meet the differing requirements of data (closed data / restricted data / open data)?
7. Which services would you need to support industrial cooperation (NDA monitoring, confirmed deletion, access protocols, data anonymization, data pre-aggregation)?
8. Referred to EOSC: What could be the role of crowd sourcing/Citizen Science?
9. What are the consequences for your researchers of not joining the EOSC?







Breakout session 3 (Group C) - Networking and collaborations

1. How would you identify eligible participants?
2. How do you ensure quality?
3. Who should be allowed to offer services to the EOSC?
4. How will common results be shared?

5. In a collaborative, and competitive, research environment, what can the EOSC offer to support universities going forward?
6. What reporting/management information would subscribing institutions require once they had joined the EOSC?



Annex II – Agenda of the Workshop

	Title	University Networks shaping EOSC
	Short description	<p>Event with University Networks (noon-to-noon event)</p> <ul style="list-style-type: none"> • 23-24 January 2020 • Event for 35 participants in total. Attending: CESAER, The Guild, LERU, COIMBRA Group, EUA, SwissUniversities, Turkish Universities. <p>Experts: EB WG Representatives: Jan Hrusak, Lidia Borrell, Jessica Klemeier; E-IRG Executive Board: Sverker Holmgren; Open Science Advocacy: Paul Ayris; Representatives of the European Commission, and Representative of EOSC GB</p>
	Organiser	TU Wien (Partner in EOSC Secretariat)
	Target Group	University Networks: Representatives of CESAER, The Guild, LERU, COIMBRA Group, EUA
	Site	EFTA Palace, Brussels, https://www.efta.int/ Rue Joseph II, 12-16. 1000 Brussels, Belgium
	Date/time	23 rd January 2020 (from 14:00-18:00) 24 th January 2020 (from 9:00-12:30)

23rd January 2020 Program - Day 1

13:30 – 13:59

Registration and welcome coffee-break

14:00 – 14:45

Welcome Address and Presentation of EOSC

Welcome address and introductory words (objectives and intended outcomes of the workshop),

Paolo Budroni (EOSC SEC) and Karel Luyben, EOSC EB (presenting the current status of EOSC Development).

14:45 – 15:50

Breakout sessions (mixed breakout groups)

Dynamics: Three breakout groups per ten people. Each group will receive topics to discuss. The groups will be moderated and supported by a chair, co-chair and rapporteur

16:00 – 16:45

Coffee-break

Break for all participants, opportunity for individual interaction. During this break, the rapporteurs and the chairs will prepare the findings of the breakout sessions





16:45 – 17:00

Résumé of each breakout group

Presentation of findings (5 minutes each group)

17:00 – 17:50

Plenary Discussion

Discussion guided by moderator

17:50 – 18:00

Final wrap up

Closing remarks of first day

19:00

Social dinner at Il Pasticcio Restaurant

Rue Marie de Bourgogne 3, 1050 Ixelles - <http://www.ilpasticcio.be>

24th January 2020,

Program - Day 2

9:00 - 9:10

Introductory statement by EOSC Secretariat

9:10 - 10:00

Plenary

Discussion on how to prepare the workshop results

10:00 – 11:00

Breakout sessions

Formation of same breakout groups as on Day 1. Enrichment and refinement of presentations from Day 1 (will serve the EOSC Secretariat for a report, and deepening analysis after the workshop)

11:00 – 11:15

Coffee-break

11:15 – 11:45

Panel discussion with experts and chairs

11:45 – 12:15

Plenary discussion on further steps

12:15 – 12:30

Wrap up and closing remarks

12:30 – 13:00

Lunch at EFTA Palace (finger food)



Annex III – List of Participants

Indication of each University Network	Names	Affiliation
CESAER	Sadok Ben Yahia	FST · Department of computer Science (full professor). Habilitation to Lead researches, Tallinn University of Technology
CESAER	Mattias Björnmalm	Advisor for Research & Innovation, CESAER Vice-Chair of Policy, Marie Curie Alumni Association
CESAER	Milos Bojicic	Research support officer, University of Belgrade
CESAER	Shalini Kurapati	Senior Research Fellow of Open Science, Politecnico di Torino
CASAER	Karel Luyben	CESAER Vice President for Research, Chair of the Executive Board of the European Open Science Cloud
CESAER	Antti Rousi	Information Specialist, Aalto University
CESAER	Marta Teperek	Data Stewardship Coordinator, TU Delft
CESAER	Wilma van Wezenbeek	Library Director, TU Delft
COIMBRA Group	Sofia Baggini	Head of Research and Third Mission Unit, University of Pavia
COIMBRA Group	Giorgio Maria Di Nunzio	Associate Professor, Department of Information Engineering (DEI), University of Padua
COIMBRA Group	Mari Riipinen	Head of Unit, Research Development, Development Services, University of Turku
EUA	Jean-Pierre Finance	Université de Lorraine (UL)/EUA Former President of Henri Poincaré University, Nancy-1, France
EUA	Vinciane Gaillard	Deputy Director, EUA - European University Association
EUA	Lennart Stoy	Project Manager, Research & Innovation, EUA - European University Association
EUA	Wilhelm Widmark	Library Director, Stockholm University
THE GUILD	Andrzej Adamski	Rector's Proxy for Innovation, Jagiellonian University
THE GUILD	Silvia Bottaro	Senior Policy Officer, The Guild office
THE GUILD	Lars Kaczmirek	Head of the Austrian Social Science Data Archive, University of Vienna
THE GUILD	Birgit Schmidt	Head of Knowledge Commons, University of Göttingen
THE GUILD	Anne Vanet	Vice-President for IT, University of Paris

LERU	Kevin Ashley	DCC Director, DCC - Digital Curation Centre
LERU	Paul Ayris	Pro-Vice-Provost (UCL Library Services), UCL London Co-Chair, LERU INFO Community (League of European Research Universities)
LERU	Anne-Catherine Fritzinger	Head Librarian, Sorbonne University
LERU	Ignasi Labastida	Member of the Information & Open Access policy group, LERU Head of the Office for Knowledge Dissemination and the Research Unit at the CRAI (Library) of the University of Barcelona
LERU	Alan Smolders	Senior Policy Officer, European Research Universities (LERU)
SwissUniversities	Sonia Ackermann	Vice Rectorate for Research, University of Basel
Turkish Universities	Gültekin Gürdal	Library Director, Izmir Institute of Technology
E-IRG	Sverker Holmgren	Department of Information Technology, Division of Scientific Computing, Uppsala University, E-IRG
WG: Sustainability Co-chair	Lidia Borrell	Science Europe Representative, secretary general
WG: Landscape Chair	Jan Hrušák	Czech Ministry / Czech Academy of Sciences, Chair of ESFRI
WG: Sustainability	Jessica Klemeier	EOSC Project Officer / IT Services, European Molecular Biology Laboratory (EMBL)
Member of GB	Stefan Hanslik	Head of Unit V/3a, Austrian Federal Ministry of Education, Science and Research
EC	Carlos Casorran	European Commission, Dg RTD
EC	Christian Cucinello	European Commission, Dg RTD
EC	Jean-François Dechamp	European Commission, Dg RTD
TU-Wien	Paolo Budroni	EOSC-Secretariat representative
TU-Wien	Katharina Flicker	EOSC-Secretariat representative
TU-Wien	Juliana de Mello Castro Giroletti	EOSC-Secretariat representative
TU-Wien	Barbara Sánchez Solís	EOSC-Secretariat representative
TU-Wien	Bernd Saurugger	EOSC-Secretariat representative