D2.7: Open Science in the Nordics: Recommendations on Legal Issues

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Executive summary

The success of EOSC largely depends on its capability to enable cross-border research. Cross-border research poses challenges not only regarding the technical solutions but also regarding the legal frameworks under which cross-border research sharing is to happen.

This deliverable is a follow-up to the *deliverable 2.3 Open Science in the Nordics: Legal Insights*. In deliverable 2.3, use cases were selected and used to study the types of legal issues hindering cross-border research collaboration, in particular cross-border data sharing.

In this deliverable, the legal constraints, as found in deliverable 2.3, have been further studied. In particular, the legal issues reported by researchers in D2.3 have been investigated from the research institutions perspective, supporting research collaborations. Based on the findings in deliverable 2.3 further interviews have been conducted with institution legal experts and other administrative personnel.

Key findings and recommendations from this deliverable are:

1. Harmonisation of data protection regulations in the different countries through soft laws like European-wide codes of conduct, but also via practical how-to-do guidelines at the Member State level can facilitate cross-border research, reduce subjective interpretation of the legislation and assist institutions to make decisions and steer their processes towards common ways of sharing data. As EOSC aims to build a Web of FAIR data, this aspect is highly relevant and should be discussed at the EOSC Steering Board and EOSC Association level.
2. The European data protection regulation has solved a range of privacy issues and handling of personal data but does not address the research needs to do a cross-border collaboration on sensitive data. The sensitive-data topic deserves dedicated discussions and further work.
3. The data owning institutions appear hesitant to enter into cross-border collaborations. To improve the situation, EOSC should offer templates for data sharing agreements that can guide institutions towards secure data sharing.
4. A common understanding of licencing and recommendations, as well as guidelines for using licenses, is needed. EOSC should provide a list of recommended license conditions and which license types fulfil the requirements as well as information about the compatibility between different license types.
5. Facilitation of the possibility to share, preserve, and maintain metadata information is one of the first important steps for sharing data and as such deserves attention.
6. Increasing awareness about cross-border research legal issues is the first step to take to improve the current situation. The EOSC Association should support the RPOs by providing clear guidelines on how to communicate about EOSC and legal-related matters at the institutional level.
7. In organisations where the institution is committed to EOSC/OS policies, specific support

functions, including legal support, are built and resources are allocated. The EOSC Partnership should boost the engagement of research performing organisations by presenting an appealing value proposition. Doing so could encourage institutions to make appropriate funding levels available to support open science and data sharing activities.

8. Providing some national support services and best practice benchmarking could speed up the establishment/adoption of OS/EOSC support services at RPOs. The EOSC national structure can play a role in making an inventory of the most common support services for OS/EOSC and making it available for all the RPOs.
9. Legal services and guidelines supporting researchers on how university-owned data could be opened; on how to access and maintain data saved in a national/international service after the employment relationship is interrupted (academics often change in their institutions); on how to comply with GDPR or Open Access requirements; on how to deal with intellectual property requirements are the most needed. These are only a few examples of the services from which RPOs would benefit.
10. There is a need to raise awareness about the fact that legal issues are not only related to contracts and agreements. To solve legal issues related to well-functioning access to data, expertise is needed in several fields of legislation like copyright, competition legislation, state aid rules etc. and procurement legislation if services are considered. There is a need for educating specialists who can support researchers in their everyday work, with the final aim of reducing subjective interpretation of legal recommendations.
11. It is often difficult to find a department or a person in charge of all the legal issues. Because knowledge and responsibility are distributed among different actors, there is a need for a clear definition of the roles, responsibilities, and processes at the EU, national, RPO, and individual levels when it comes to legal support.
12. There is a need to bridge the gap between technology-oriented researchers and legal staff, which can be challenging. A researcher may ask a specific question without revealing the whole picture, leading up to the wrong advice being given unless the right follow-up questions are asked.
13. Organisations setting up legal support functions might have to reconsider their organisational structure.
14. EOSC should keep into account that small RPOs cannot afford to hire dedicated personnel for OS and legal support. Providing training or consultancy services in a centralised way could be a very valuable service to support small institutions.

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1. Purpose and scope of the deliverable

The EOSC vision is to develop, deploy and evolve a trusted environment providing European researchers with seamless access to research data, research infrastructures, e-infrastructures and related services, enabling them to share, curate, discover, access, process and reuse research outputs of all kinds across borders and scientific disciplines[1].

Sharing and processing of research data across borders pose challenges not only regarding the technical solutions but also regarding the sustainability and compliance with national legal frameworks under which the sharing is to happen. While the Open Science and FAIR practices give researchers and service providers technical guidance on how to share digital objects, legal guidelines to make this happen are still unclear and legal support may be in need of development.

The EOSC Nordic deliverable 2.3[2] *"Open Science in the Nordics: Legal Insights"* explored how researchers in the Nordic and Baltics share and reuse open and restricted-access digital objects across borders. Deliverable 2.3 resulted in four main key findings:

- Even though legislation is important, legislation in itself is not always the most significant obstacle for cross-border data sharing;
- In many cases organisations have restrictive policies related to cross-border sharing even though the legislation might not be a hindrance;
- There is a lack of support for tackling legal issues and processes to handle data sharing at the institutional level.
- There is a lack of awareness and preparedness among research performing organisations (RPOs) for data sharing needs and support systems to handle the processes from the beginning to the end.

The purpose of this deliverable is to complement the analysis done in deliverable 2.3 by:

- Further reflecting on the results of D2.3 in light of the publication of two new EOSC legal studies and the new EU data regulations on health data;
- Understanding the types of legal support tools and procedures that are available at RPOs;
- Offering recommendations on how to overcome some legal barriers in order to facilitate the implementation of EOSC and Open Science policies[3], in particular those related to cross-border data sharing.

[1] EOSC Strategic Research and Innovation Agenda https://eosc.eu/sria
[2] Deliverable 2.3: Open Science in the Nordics: Legal Insights, https://www.eosc-nordic.eu/kh-material/deliverable-2-3-open-science-in-the-nordics-legal-insights/
[3] Please note that the original scope of the deliverable was also to address legal issues related to EOSC standards but there are no EOSC standards agreed upon yet.

2. Methodology

In the same way as deliverable 2.3, this deliverable takes a qualitative, case-based approach. The study is not meant to be a comprehensive, quantitative study.

Three main methods have been adopted to produce the deliverable:

1) Literature review of EOSC legal studies and new EU data regulations;
2) Web-desktop research;
3) Interviews with administrative staff at research performing organisations.

2.1. Literature review of EOSC legal studies and new EU data regulations

Problems concerning legislation were identified in the EOSC-Nordic use cases investigated for deliverable 2.3. Thus, to verify the use case findings and to identify additional aspects to consider, three recently published studies concerning legal issues of sharing data have been reviewed:

- EOSC study: Legal interoperability and the fair data principles[4]
- EOSC Pillar D4.1 Legal and Policy Framework and Federation Blueprint[5]
- Assessment on the EU Member States' rules on health data in the light of GDPR[6]

2.2. Web-desktop research

In order to understand what legal tools (such as tools for legal issues in Research Data Management) and type of information or legal advice or potential legal best practice related to EOSC are available at RPOs in the Nordic and Baltic region, a web-desktop research has been performed. The desktop research covered the analysis of the websites of over 80 RPOs based in Denmark, Estonia, Finland, Iceland, Latvia, Sweden. The results of the desktop analysis are reported in Annex 1.

[4] EOSC study: Legal interoperability and the fair data principles, December 2020, https://zenodo.org/record/4471312
[5] EOSC Pillar D4.1 Legal and Policy Framework and Federation Blueprint, January 2021 https://zenodo.org/record/4486610
[6] Assessment on the EU Member States' rules on health data in the light of GDPR https://ec.europa.eu/health/sites/default/files/ehealth/docs/ms_rules_health-data_en.pdf

2.3 Interviews with administrative staff at research performing organisations

Whereas deliverable 2.3 was based on interviews with researchers, the respondents in the interviews for this study are RPO administrative personnel, directors, lawyers, etc. The respondents were selected in order to gain knowledge about the type of legal support related to Open Science and cross-border data sharing. The following eleven institutions were interviewed: Blekinge Tekniska Högskola, Estonian Research Council, Karlstads Universitet, University of Eastern Finland, University of Helsinki, University of Iceland, University of Latvia, University of Tartu, University of Uppsala, Riga Technical University, Tallinn University of Technology. These institutions were selected as meaningful examples because they were considered in part more mature in terms of Open Science and EOSC adoption/practices and for some countries showcasing experiences of organisations of different sizes and maturity levels. Additionally, they were also ensuring a good geographical representation of the Nordic region. The interview template and the complete interviews are included in Annexes 2 and 3.

3. Findings and recommendations related to legislation

The success of EOSC largely depends on its capability to enable cross-border research. Cross-border research poses challenges not only regarding the technical solutions but also regarding the legal frameworks under which cross-border research sharing is to happen.

Problems concerning legislation were identified in the use cases investigated for deliverable 2.3. in relation to:

- protection of personal data;
- ownership of data, databases and copyrights;
- licenses;
- metadata and endangered species data.

To verify the use case findings of D2.3 and to identify additional aspects to consider, three recently published studies concerning legal issues of sharing data have been reviewed:

- EOSC study: Legal interoperability and the fair data principles[7]
- EOSC Pillar D4.1 Legal and Policy Framework and Federation Blueprint[8]
- Assessment on the EU Member States' rules on health data in the light of GDPR[9]

The findings in these studies are discussed in this chapter against the challenges identified in deliverable 2.3.

3.1. Protection of personal data

In deliverable 2.3 issues for cross-border research related to data protection legislation were identified. The interviews revealed that it may be difficult to transfer research data between the Nordic and Baltic countries, in particular in research requiring sensitive or personal data. From a legal point of view, reasons such as the inability to process personal data indefinitely were brought up. It was also pointed out that the European data protection regulation[10] allows countries to make their own decisions concerning national legislation, which means that rules are not homogeneous but rather that interpretation of legislation may vary between the countries. An overall harmonisation is necessary at the legislation level – this is a complex task due to the other policy and legislative interests, e.g. GDPR vs open research data vs data copyright/ownership issues. If legislation like the database directive or the regulation protecting personal data is implemented differently in different countries, the result may be that what is

[7] EOSC study: Legal interoperability and the fair data principles, December 2020, https://zenodo.org/record/4471312
[8] EOSC Pillar D4.1 Legal and Policy Framework and Federation Blueprint, January 2021 https://zenodo.org/record/4486610
[9] Assessment on the EU Member States' rules on health data in the light of GDPR https://ec.europa.eu/health/sites/default/files/ehealth/docs/ms_rules_health-data_en.pdf
[10] Data protection in the EU https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en

allowed in one country is not allowed in another country, making data sharing across borders very challenging, or even impossible. Also, within and between the countries studied views regarding the strength of the implemented security measures may vary.

Additionally, there should be a discussion and legislative work on the fair use principles for academic research data and data opening. Such regulation must also cover data that is not possible to share, and here the aim should be enabling the cross-border use of protected data for regulated and safe researcher use.

The same kind of issues has also been recognised in the studies that were further analysed for this deliverable. The study *Assessment on the EU Member States' rules on health data in the light of GDPR 2021* brings up how the possibility to implement the European data protection regulation differently in the member states results in a complex and fragmented landscape for researchers to navigate. The paper also brings up the variations on how the Member States distinguish between public and non-public sector researchers, the variations in the standards for pseudonymisation and different interpretations at the national level, as well as differences for ethical requirements in health-related research. The result is limited availability of data for public researchers across the Member States, and, for commercial purposes, the use is even more difficult. The paper points out that sometimes national rules seem to make access to data more complex than EU legislation intended.

Recommendations in the study suggest harmonisation of rules and security measures on all levels through soft laws like European-wide codes of conduct, guidelines and policies, common approaches with security measures, common standards, and new health-specific legislation. The same conclusion is also reached in the EOSC Pillar deliverable *D4.1 Legal and Policy Framework and Federation Blueprint* that brings up the need for harmonised best practices concerning the protection of personal data.

Recommendation 1: Harmonisation of data protection regulations in the different countries through soft laws like European-wide codes of conduct, but also via practical how-to-do guidelines at the Member State level can facilitate cross-border research, reduce subjective interpretation of the legislation and assist institutions to make decisions and steer their processes towards common ways of sharing data. Guidelines, codes of conduct, and soft-law tools could help to bring difficult and contradictory issues under control and help steer the institutions' processes towards common ways of sharing data to tackle the whole chain of data sharing. As EOSC is aiming at building a Web of FAIR data, this aspect is very relevant and should be discussed at the EOSC Steering Board and EOSC Association level (such discussion could be done within the frame of the rules of participation Task Force or create a separate Task Force).

Recommendation 2: The European data protection regulation has solved a range of privacy issues and handling of personal data but does not address the needs of research to do a cross-border collaboration on sensitive data. The sensitive data topic deserves dedicated discussions and further work.

3.2. Ownership of data, databases, and copyrights

In deliverable 2.3, ownership of data and databases was recognised as a difficulty and hindrance for cross-border data transfer. One of the reasons is that the European database directive[11] allows flexibility regarding the implementation of the directive, causing diverse interpretations in different countries. It was also pointed out that ownership of data is not always clear - whether it vests in the researcher or RPO, and especially so in the case of many contributors.

The *Legal interoperability and the FAIR data principles* study[12] also recognises the problem of ownership of rights both regarding the database and the content of the database. For example, the rights to a database may be held by an employer while the content belongs to employees or third parties. Thus, the study recommends that the database rights be handled case by case. The study points out how database rights should be carefully considered, as well as the licenses which are used to access the database, and brings up how EOSC should encourage repositories to incorporate harmonised mechanisms to validate and update rights statements and conditions of use.

Additionally, also in the ALLEA study *"The European Code of Conduct for Research Integrity"*[13] legal interoperability is also brought up and copyright is mentioned as one problem. The study points out how several areas of copyright are subject to national legislation, which creates fragmentation in various sectors that are of importance for cross-border sharing.

Recommendation 3: The data owning institutions appear hesitant to enter into cross-border collaborations. To improve the situation, EOSC should offer templates for data sharing agreements that can guide institutions towards secure data sharing.

3.3. Licenses

[11] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A31996L0009
[12] https://eoscsecretariat.eu/cocreating-eosc/legal-interoperability-fair-data-principles
[13] https://zenodo.org/record/4486610#.YS9SgvdxdPY

In deliverable 2.3, licenses for both data and software were considered very useful to ensure knowledge regarding conditions for data or software availability, and to enable further use. But in practice, the problem is that data from different sources are available through different licenses and it is difficult to ascertain whether all collected data can be shared and if it can be shared under the same conditions. There are initiatives promoting some preferred licenses, but often public organisations want to use their own licences so, it may be very difficult to find only one or two licenses to recommend.

Within the interviews, it was highlighted that clear instruction and simple ways to utilize licenses are needed. There is also a need for harmonisation to reduce the plethora of different licenses used. A Plenti fora of licences may cause user rights to vary, and the researcher faces a difficult task to understand the details of each licence. Furthermore, the researcher should be able to verify if and how the different licenses are compatible, a task that is hard to understand and confirm even by experts.

In the EOSC study: *Legal interoperability and the fair data principles,* licensing is also recognised as important, and the study makes many practical recommendations for licensing. The study suggests that the number of licenses is minimised and gives for example licenses like CC0[14], CC BY[15], ODC-BY[16], O-UDA[17], and MIT[18] and points out the importance of providing information about compatibility with other licences.

The study also brings up the need for mechanisms and guidelines to handle the licensing process. It also recommends preparing a list of EOSC-recommended licenses and their compatibility with other licenses and Member States' recommended licenses as well as guidelines for using databases whose owners are unknown and suggests using automated means to determine legalities for use. However, while licensing is very much supported for attribution, the paper recommends other means of moral and ethical obligations, such as the European Code of Conduct for Research Integrity[19] or the development of Persistent Identifiers, or by way of a standard form of acknowledgement.

Recommendation 4: A common understanding of licencing and recommendations, as well as guidelines for using licenses, is needed. Licencing is the way to share data as then the conditions of using data and related products are clear, but the licenses need to be compatible with each other to allow efficient and wide data sharing and use of data. EOSC should provide a list of recommended license conditions and which licenses fulfil the requirements as well as information about the compatibility between different licenses.

[14] https://creativecommons.org/share-your-work/public-domain/cc0/
[15] https://creativecommons.org/licenses/
[16] https://opendatacommons.org/licenses/by/1-0/
[17] https://spdx.org/licenses/O-UDA-1.0
[18] https://opensource.org/licenses/MIT
[19] european-code-of-conduct-for-research-integrity_horizon_en.pdf (europa.eu)

3.4. Metadata and endangered species data

In deliverable 2.3, it was brought up that metadata often also contains personal information, which means that processes of data protection regulations need to be taken care of which further complicates data sharing. The possibility to share, preserve, and maintain metadata information is one of the first important steps for sharing data.

This aspect has also been brought up in the EOSC study: *Legal interoperability and the FAIR data principles.* A case-by-case assessment is recommended, and it is pointed out that the data generator is in the best position to identify if personal data is included and to take necessary steps to ensure compliance with the personal data legislation.

In one of the cases in deliverable 2.3, a special issue concerning endangered species was highlighted. The case study showed how biodiversity data face similar challenges of the variation of national legislation as described above regarding other issues, but there are also some specific challenges. There are differences with so-called red-listed species in national regulations which results in different regulations regarding access to such information. Obligations to report information may differ between countries and for some species, there are also commercial values that may warrant stringent demand for access. This aspect of endangered species has been recognised also in the abovementioned study: the paper points out how legal mechanisms used to ensure the protection of species and their related data consist of various measures. They are for example collection permits, the signing of mutually agreed terms and the generalisation or redaction of location data. To release protected data by way of open access without these safeguards, there is a risk that the data is used for illegal and destructive purposes. It is also pointed out in the study that if redacted or generalised, data is combined with other sets of data and carried forward, there is a risk that sensitive information may be deducted by way of analogy. Without sufficient protection and safeguards, the right holders of data may be reluctant to share the data if the combination of datasets can generate additional information which then may be legally protected in some countries, but not in every country. Thus, the study brings up the need for mechanisms to handle this kind of situation, but also for procedures for monitoring and reporting violations of use.

Recommendation 5: Facilitation of the possibility to share, preserve, and maintain metadata information is one of the first important steps for sharing data and as such deserves attention.

4. Findings and recommendations related to legal tools and information available at RPOs

Following the recommendation of the EOSC Nordic interim review about identifying *"technical tools (e.g., anonymization) that could boost legal and regulatory compliance",* a web-desktop research has been performed in the Nordic and Baltic region to find out if any legal advice or legal support tools related to Open Science and EOSC were available. Over 80 websites of RPOs based in Denmark, Estonia, Finland, Iceland, Latvia, Sweden were browsed. The results of the desktop analysis are reported in Annex 1.
The web-desktop research revealed that EOSC, and any legal requirements related to it, are not known and not on the RPOs agenda. In particular:

- In the majority of the cases legal topics are not addressed on the institutional websites;
- Legal tools or suggestions on where to find legal support tools are also completely missing confirming the outcome of D2.3 that researchers struggle in getting legal help because the topic is not seen as important at the RPO level;
- Navigating the different websites it was also clear that not only information about legal support is missing but when it comes to EOSC, in the majority of the websites, EOSC is not even mentioned. RPO level strategies do not recognise EOSC, nor are there any or only very few policy-level initiatives to implement EOSC. As an example, despite a number of Swedish universities being part of the EOSC Association, only a few of them mention EOSC on their websites.

Recommendation 6: Increasing awareness about cross-border research legal issues is the first step to take and a specific EOSC Task Force could be created in that respect (as currently legal issues are only marginally addressed by the new EOSC Association Task Forces[20]).
Whether this awareness should be created in the context of EOSC or in the context of Open Science at large, it doesn't really matter. The desktop research revealed that in the majority of the websites EOSC is not mentioned. Is this really an issue? Do PROs need to promote EOSC or the practices behind it? The EOSC Association should support the RPOs by providing clear guidelines on how to communicate about EOSC and legal-related matters at the institutional level.

[20] https://eosc.eu/advisory-groups

5 Recommendations on legal support at RPOs

In order to gain knowledge about the type of legal support related to Open Science, cross-border data sharing, and EOSC available at research performing organisations (RPOs) in the Nordics and Baltics, eleven interviews have been performed with representatives from legal departments and data offices in RPOs. The main findings are reported in the following paragraphs.

5.1. Legal support at RPOs is only present when there is a certain level of awareness about EOSC/OS

Among the interviewed organisations, knowledge about EOSC, and the concept of EOSC is limited as also emerged from the web-desktop research. This applies particularly to organisations in countries that lack national Open Science (OS) policies. Knowledge related to EOSC appears to be confined to individual researchers directly involved with EOSC projects, e-infrastructure providers, and university library employees, especially in organisations that have been active in implementing Open Science policies and support. The level of awareness of EOSC goes hand in hand with the level of awareness and maturity of OS at the organisational level.

There is a correlation between the policy work and support provided: if there is a national and institutional policy to which the institution is committed, then the support functions (including legal support) are built and resources are allocated to these.

Recommendation 7:
The adoption of OS/EOSC policies at the institutional level triggers the set up of structured support services for researchers. In organisations where the institution is committed to EOSC/OS policies, specific support functions, including legal support, are built and resources are allocated. The EOSC Partnership should boost the engagement of research performing organisations by presenting an appealing value proposition (e.g. EOSC as an actor that facilitates cross-border sharing of research data). Doing so could encourage institutions to make appropriate funding levels available to support open science and data sharing activities.

5.2. Legal services supporting EOSC/OS

Support functions at RPOs usually include structured service for the OS. The services that are most commonly made available include data management plans, actual data management (active and preservation phase), and data-opening services (including metadata, legal assistance, archiving help).

Recommendation 8:
Providing some national support services and best practice benchmarking could speed up the establishment/adoption of OS/EOSC support services at RPOs. The "*EOSC national structures"*[21] study recently published by the EOSC Secretariat project highlights that national structures are emerging in all countries with the scope of supporting the national stakeholders towards EOSC. The EOSC national structure can play a role in making an inventory of the most common support services for OS/EOSC and making it available for all the RPOs.

Recommendation 9:
Legal services and guidelines supporting researchers on how university-owned data could be opened; on how to access and maintain data saved in a national/international service after the employment relationship is interrupted (academics change often in their institutions); on how to comply with GDPR or Open Access requirements; on how to deal with intellectual property requirements are the most needed. These are only a few examples of the services from which RPOs would benefit.

5.3. Legal expertise at RPOs

Advice and support inside RPOs are usually given by open science experts (normally working at university libraries, IT departments, Data Support Services) and legal advisors (Lawyers, Privacy Officers).

The majority of the interviewed RPOs do not have lawyers but they mainly rely on external consultants.

Especially in regarding cross-border data sharing, as there are several laws that in practice appear to diverge and thus there is no clear overall common understanding among the EU-countries, it was highlighted by interviewees that different legal experts may give different legal advice. Different legal interpretations and a broad set of legislation and agreements at the national and EU level, sometimes even contradicting each other, cause grievance to the individual researcher during daily decision making.

Also, in many RPOs, the legal support is still mostly only interpreted as legal support for making contracts.

It has also to be noted that lawyers are only one factor in the process, and even if they could and had time to give advice, there may not be support from the institution policies or guidelines to guide what steps to take. Lawyers can only say if there are legal restrictions, but if no processes are available to solve the issues and the institution's guidelines for steps forward are

[21] https://zenodo.org/record/5602949#.YYPfQXmxVTY

missing, it is left to the researcher to figure out how to proceed.

Recommendation 10:
There is a need to raise awareness about the fact that legal issues are not only related to contracts and agreements. For example, GDPR is available and helpful for contracts, but not for other legal issues that would perhaps require a little more extensive knowledge of research and even discipline. To solve legal issues related to well-functioning access to data, expertise is needed in several fields of legislation like copyright, competition legislation, state aid rules etc. and procurement legislation if services are considered. There are also competing interests like protecting your research knowledge for innovation, especially regarding inventions and patents but also software. There is a need for educating specialists who can support researchers in their everyday work with the final aim of reducing subjective interpretation of legal recommendations.

Recommendation 11:
It is often difficult to find a department or a person in charge of all the legal issues. Because knowledge and responsibility are distributed among different actors, there is a need for a clear definition of the roles, responsibilities, and processes at the EU, national, RPO and individual level when it comes to legal support.

Recommendation 12:
There is a need to bridge the gap between technology-oriented researchers and legal staff, which can be challenging. A researcher may ask a specific question without revealing the whole picture, leading up to the wrong advice being given unless the right follow-up questions are asked. E.g. a researcher may want to store protein data, which may be of human origin, which implies personal data, which in turn means patient data, which means that the Public Access to Information and Secrecy Act applies.

5.4. Different RPOs and scientific fields have different needs in terms of legal support

While smaller RPOs may have issues in securing competence and funding for provisioning legal support, a larger RPO may have an issue in incorporating recently established units, such as a data office, into existing structures in which existing units have established mandates. This also entails establishing processes that facilitate existing structures to cooperate and work towards a common goal.

Recommendation 13:
Organisations setting up legal support functions might have to reconsider their organisational structure.

Recommendation 14:
EOSC should keep into account that small RPOs cannot afford to hire dedicated personnel for OS and legal support. Providing training or consultancy services in a centralised way could be a very valuable service to support small institutions.

The level of legal support requested also largely depends on the field of science where researchers are operating: for example in the environmental field where raw data gathered from the air, ground etc. is mainly handled, there are not so many legal obstacles, many times it is only about how to handle database rights. But then there are social sciences where copyright plays a big role or the biomedical and medicine field where handling personal information is a complicated issue.

It is also known that the practices of sharing data vary between different fields of science. Some fields of science have traditions of sharing data, and ways to do this have been established. On the other hand, the data as such may also be easy to share, having few legal restrictions. But then there are other fields of science where sharing data is not very common or where sharing data is more complicated, like in the endangered species case or the cases concerning health data. If there is little push and support from the institutions, these more inexperienced or more complicated fields of science may have little incentive for sharing data. Researchers are not accustomed to and motivated with sharing and do not have time to find out how to do it properly and solve all legal and practical issues.

As can be seen from the recent experience of Covid, there may suddenly be a huge driver for sharing as everyone wants to respond to the demands and show how data is used. However, if the structures are not in place to respond quickly to challenges, e.g., how to tackle legal barriers of data sharing, the momentum is rapidly lost.

6. Conclusions

The interviews carried out in deliverable d 2.3, the legal review of studies done within the frame of EOSC, as well as the studies carried out within the scope of this deliverable all point towards a few common areas to address, highlighted below.

- Harmonisation and best practices

  Harmonisation of data protection regulations in the different countries through soft laws like European-wide codes of conduct, but also via practical how-to-do guidelines at the Member State level can facilitate cross-border research, reduce subjective interpretation of the legislation and assist institutions to make decisions and steer their processes towards common ways of sharing data. Guidelines, codes of conduct, and soft-law tools could help to bring difficult and contradictory policies under control and help steer the institutions' processes towards common ways of sharing data to tackle the whole chain of data sharing.

- A dedicated EOSC Task Force or equivalent for legal issues

  Increasing awareness about cross-border research legal issues is the first step to take and a specific EOSC Task Force could be created, as currently legal issues are only marginally addressed by the new EOSC Association Task Forces. Such a group may comprise personnel knowledgeable about access to data, copyright, patents, software, competition legislation, state aid rules etc. and procurement legislation if services are considered.

- A need for specialised competencies at the PRO level.

  Advice and support inside RPOs are usually given by open science experts and legal advisors. The majority of the interviewed RPOs do not have lawyers but they mainly rely on external consultants. It was highlighted by interviewees that different legal experts give different interpretations and that still in many RPOs the legal support is mostly still related only to the contracts.

  There is a lack of specific expertise for just sharing data, open access. EOSC should keep into account that small RPOs cannot afford to hire dedicated personnel for OS and legal support. Providing training or consultancy services in a centralised way could be a very valuable service to support small institutions.

References

Hammargren, Per-Olov; Arvola, Maijastiina; Rauste, Päivi: *Deliverable 2.1 Open science policies and resource provisioning in the Nordic and Baltic countries (first report)*

Lars Fischer; Per-Olov Hammargren; Francesca Iozzi; Pirjo Kontkanen; Troels Rasmussen: *Deliverable 2.3 Open Science in the Nordics: Legal Insights*

Fischer, Lars; Hammargren, Per-Olov; Riungu-Kalliosaari, Leah; Arvola, Maijastiina: *Deliverable 2.4: The EOSC Delivery Chain*

Graber-Soudry, Ohad; Minssen, Timo; Nilsson, Daniel; Corrales, Marcelo; Wested, Jakob; Illien, Bénédicte: *EOSC study: Legal interoperability and the fair data principles***,** December 2020

Foggetti, Nadina; Gerin Laslier, Maryvonne; Di Giorgio, Sara; Haile Gebreyesus, Netsanet; Müller, Sabine; van Nieuwerburgh, Inge; Romier, Geneviève; Van Wezel, Jos*: EOSC Pillar D4.1 Legal and Policy Framework and Federation Blueprint*, January 2021

Johan Hansen, Petra Wilson, Eline Verhoeven, Madelon Kroneman, Mary Kirwan, Robert Verheij, Evert-Ben van Veen: *Assessment on the EU Member States' rules on health data in the light of GDPR*, 2021

Annex 1: Web-desktop research

The results from the website study on the information available on legal tools, policies and advice for EOSC and Open Science are gathered in this annexe. The study was done at the beginning of June 2021 and any changes on the website after that are not recorded.

Denmark
All universities offer DMPonline through DeIC: Welcome to DMPonline. (deic.dk)
Copenhagen Business School Research Data Management policy: Research Data Management | CBS - Copenhagen Business School RDM support through the CBS Library services: Research Data Management Support | CBS - Copenhagen Business School RDM plans offered through DMPonline: Research Data Management Plans | CBS - Copenhagen Business School No mentioning of EOSC or FAIR. Storage and tools sharing of data and training activities are links on the website, but there is no information on these subjects.
Danish Technical University: General policy and links to tools and guidelines for RDM and open science, FAIR and EOSC: Https://www.dtu.dk/english/research/research-framework/research-data-management Intranet: DTU DATA - DTU's own repository for making data FAIR and accessible, including guidelines and tools - the public version is available at: https://data.dtu.dk/
IT-University of Copenhagen No mentioning of Open data, EOSC, FAIR Roskilde University No mentioning of Open data, EOSC, FAIR
University of Aarhus Landing platform for all things related to EOSC, FAIR, DMP etc: Research Data Management (au.dk)
University of Aalborg Guidance on FAIR Compliance: https://www.team.vbn.aau.dk/forskningsformidling/open-science/open-data/ Claaudia: Online tool and support staff function for research data management; Platforms and Tools, Training and Guides, Support and advice: https://www.claaudia.aau.dk/ No mentioning of EOSC, EOSC Nordic, RDA or FAIR DM.
University of Copenhagen

No overarching policy or guidelines on EOSC, OPen Data and FAIR - but numerous such guidelines at department and faculty level. Examples: Faculty of Humanities: Data Management guidelines and policy: https://humanities.ku.dk/research/data-management/ Faculty of Health and medical science research Data Management policy: https://healthsciences.ku.dk/research/responsible-conduct-of-research/SUND_policy_for_research_data_management_FINAL.pdf
University of Southern Denmark Online tool for research data management, including SDU Open Science Policy, Best practise, DMP guidance, Legal and GDPR guidelines, Storage facilities, Guides on sharing data. Research Data Management Support (sdu.dk) No mentioning of EOSC, EOSC Nordic, RDA or FAIR DM.

Estonia
Estonian Academy of Arts No information available via website
Estonian Academy of Music and Theatre No information available via website
Estonian Academy of Security Sciences No information available via website
Estonian Aviation Academy No information available via website
Estonian Military Academy No information available via website
Estonian University of Life Sciences No information available via website
Pallas University of Applied Sciences No information available via website
Tallinn Health Care College No information available via website
Tallinn University No information available via website

Tallinn University of Technology No information about EOSC available via website Open Access information: https://www.taltech.ee/en/open-access
Tartu Health Care College No information available via website
University of Applied Sciences No information available via website
University of Tartu Information regarding EOSC - 32 results about seminars of Fair, Open Science, etc. Regarding Open Science – lots of information (over 10 thousand results) Open Science in UT: https://utlib.ut.ee/en/open-science-ut Estonian open data portal: https://avaandmed.eesti.ee/

Finland
Aalto University The EOSC portal is mentioned as a (potential) solution for supporting research data management EOSC is listed under IT services for research Based on the above, we can deduce that there is an attempt to make EOSC known by the Aalto scientific community. Aalto university has an open science and research policy which documents the institution's commitment to open science, open access publishing, open data, FAIR research data along with open research protocols, methods and software.
University of Helsinki: EOSC not brought up but openness and open access key choice for strategy and guidance and help for that provided. University strategy for years 2021 - 2030[22]and its strategic choices[23] show that openness and open access is one of the key choices. University data policy accepted 2015 says among other things: ● The University of Helsinki offers training and support for drawing up data management plans and for data management throughout the research lifecycle. Training is offered to both students and staff.

[22] https://www.helsinki.fi/en/about-us/strategy-economy-and-quality/strategic-plan-2021-2030

[23] https://www.helsinki.fi/en/about-us/strategy-economy-and-quality/strategic-plan-2021-2030/strategic-choices

- The University of Helsinki provides researchers and research groups with research data infrastructures, including tools and services that support the management, use, findability and sharing of data as well as storage, computation and processing capacity. Data infrastructures are built and developed together with Finnish and international parties, taking their services and infrastructures into account.
- The University of Helsinki offers support for identifying and resolving legal issues involved in research data. Principal investigators are responsible for the prompt conclusion of agreements on the ownership and access rights for data generated through research; where applicable, such agreements should be concluded before the beginning of research projects.
- Data management plans, to be enclosed with funding applications, must consider the collection, processing, ownership and access rights, (long-term) storage, re-use, publication and planned destruction of data and datasets, and must particularly consider the required resources. Research metadata must mention the owner of the research data as well as any legal restrictions on their use. The processing and storage of personal data and other sensitive material must be taken into account in data management plans.
- Research data produced at the University of Helsinki and linked to published research results are, as a rule, open and available for shared use. The findability and citability of data must be ensured. When research data are used, it is good practice to cite their authors and mention the University of Helsinki as the source. Compensation can be charged for datasets refined for commercial and public parties.

University has a Research Data Services Portal to help and guide how to manage and store data.
University arranges webinars for managing data covering items like law & ethics

Iceland
Holar University The University of Iceland's Quality Assurance Policy mentions open data. The University supports public access to the outcomes of scientific research, including data and research findings, through the use of information technology but there is no information openly available on legal assistance afforded to researchers in the field of data-sharing, nor best practice examples.
Reykjavik University No information available on the website
University of Akureyri No information available on the website

University of Iceland The University of Iceland's website yields about 135 results for the search term "EOSC" - the majority of which is from a professor's website and relating to his participation in H2020 projects, including EOSC-Nordic. A search excluding his name yields only seven results, all of which relate to the university's participation in EOSC-Nordic. "European Open Science Cloud" yields 208 results, all of which include reference to the same professor's and none of which refer to legal questions. The Icelandic term for computer cloud yields a handful of results, most from syllabus. No information on EOSC was found on the websites of other universities and colleges; search for the icelandic term gave one result.

Latvia
Latvia University of Life Sciences and Technologies No information available via their website
Liepaja University No information available via their website
National Library of Latvia RTU and LU are collaborating with the National Library of Latvia (LNB) in promoting Open Science, Open Access and EOSC. Main orientation of LNB is to inform and educate librarians on Open Access, use of FAIR principles in databases etc.
Rezekne Academy of Technologies No information available via their website
Rīga Stradiņš University (RSU) No information available via their website on EOSC and legal aspects. There is a Bioinformatics Research Unit[24] collecting and analysing genomic data using also HPC. There are experts consulting on how to create the data management plan for medical research according to FAIR principles.
Riga Technical University The Riga Technical (RTU) is involved in the EOSC Nordic project. RTU in collaboration with LU is promoting Open Science, EOSC and FAIR principles. At the Riga Technical University there are published guidelines and recommendations for researchers and other staff on how to cope with GDPR. There is an Open Access policy developed and training for staff organized, but mainly with orientation to research papers and not data.
University of Daugavpils No information available via their website.

[24] https://www.rsu.lv/en/bioinformatics

University of Latvia The University of Latvia (LU) is involved in the Open Aire project. It hostes the National Open Access Desk organising courses and events promoting Open Science, Open Access and EOSC, as specific issues as FAIR etc.
Ventspils University of Applied Sciences No information available via their website
Vidzemes University of Applied Sciences No information available via their website

Sweden
Beckmans designhögskola No information available via their website.
Blekinge tekniska högskola No information available via their website.
Chalmers tekniska högskola Information regarding Chalmers and internationalization
Enskilda Högskolan Stockholm No information available via their website.
Ericastiftelsen No information available via their website.
Ersta Sköndal Bräcke högskola No information available via their website.
Försvarshögskolan No information available via their website.
Gammelkroppa skogsskola No search function on their website.
Göteborgs university No information available via website
Gymnastik- och idrottshögskolan No information available via their website.
Handelshögskolan i Stockholm

No information available via their website.
Högskolan i Borås No information available via their website.
Högskolan Dalarna No information available via their website.
Högskolan Evidens No information available via their website.
Högskolan i Gävle No information available via their website.
Högskolan i Halmstad No information available via their website.
Högskolan Kristianstad No information available via their website.
Högskolan i Skövde No information available via their website.
Högskolan Väst No information available via their website.
Karlstads universitet Seven search hits, including a dedicated page on open research data:
Karolinska institute Information regarding EOSC in relation to SNIC and FAIR. No information regarding best practices.
Konstfack No information available via their website.
Kungl. Konsthögskolan No information available via their website.
Kungl. Musikhögskolan i Stockholm No information available via their website.
Kungl. Tekniska högskolan Information regarding EOSC in relation to SNIC and centres of excellence. No information regarding best practices.

Johannelunds teologiska högskola No search function on their website.
Linnéuniversitetet On search hit, the annual report for 2020 mentions EOSC
Linköpings university No information available via website
Luleå tekniska universitet No information available via website
Lunds university Information regarding the EOSC Association, RDA, and EOSC-Nordic. No information regarding best practices.
Mälardalens högskola No information available via their website.
Malmö universitet No information available via their website.
Mittuniversitetet No information available via their website.
Newmaninstitutet No information available via their website.
Örebro teologiska högskola No information available via their website.
Örebro universitet No information available via their website.
Röda Korsets högskola No search function on their website.
Skandinaviens akademi för psykoterapiutveckling No search function on their website.
Södertörns högskola No information available via their website.
Sophiahemmet högskola No information available via their website.

Stiftelsen Högskolan i Jönköping One search hit, a blog post on how to proceed with open research data[25]
Stockholms konstnärliga högskola No information available via their website.
Stockholms Musikpedagogiska Institut No search function on their website.
Stockholms university Information regarding EOSC-Hub, presentations regarding COVID19&EOSC, and the esoc declaration. No information regarding best practices.
Svenska institutet för kognitiv psykoterapi No search function on their website.
Sveriges lantbruksuniversitet No information available via their website.
Umeå university Information regarding EOSC and different EOSC projects
Uppsala university No information available via website. The data office is establishing a policy on Open Data, we have been asked to comment on the draft.

Annex 2: Interview template

The interviews were conducted in a structured manner by using the following interview template. Target interviewees: RPO support staff including administrative personnel, directors, lawyers, etc.

- *What is the approach to EOSC and Open Science at the institution?*
    - *Is there institutional awareness of EOSC? Open Science?*
    - *Is the institution actively engaged?*
    - *Are there policies? Support processes?*
- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*
    - *Policy issues*

[25] http://ju.se/portal/vertikals/blogs/daniel-gunnarsson/bloggposter/2019-11-15-oppna-forskningsdata---hur-gar-vi-vidare.html

    - *Legal barriers*
    - *Licensing*
- *How are researchers supported with EOSC and Open Science issues?*
    - *Are there policies in place?*
    - *Are there processes in place?*
    - *What are the processes like?*
    - *Who gives advice and support?*
    - *Do researchers know whom to turn to for legal and policy assistance?*
- *What are the challenges for the institution in giving advice and support?*
    - *Policy challenges?*
    - *Legal challenges?*
    - *Process challenges?*
    - *Resource challenges?*
    - *Skill challenges?*

Annex 3: Interview results

Blekinge Tekniska Högskola (BTH)

- *What is the approach to EOSC and Open Science at the institution?*

EOSC is not very central to BTH, rather they are looking at FAIR and open data from the perspective of their own policies and guidelines. These policies have not been formally decided yet, as there is a cultural resistance primarily from software developers, where established methods for open data are missing. The actual phrasing is being discussed. The university management has taken a positive stand vis-a-vis the concept.

A group with representatives from the library, the Research Data Office, the Grants Office, and an IT representative has been formed. The only skill missing is a lawyer.

The respondent emphasised that the focus of the HEI is to establish local policies.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

So far there have been relatively few direct questions, possibly because the policy is not in place yet. It is anticipated that there will be more domain-specific questions when the policy is in place, and the Data Access Unit is lacking knowledge about research data formats and methods in some disciplines.

One question is whether the storage solution selected by BTH must be used, or if it is voluntary. Currently, many researchers use Github or Zenodo, which is OK although the BTH platform is the prefered solution. In Figshare it is not possible to select accountable authority, which is a deficiency. The easiest method is to use the SND directory for personal data with authorization from people. The SND platform is the only one where the Data Office has control.

How the intellectual property rights of academic staff, which is specific for Sweden, relates to Open Data is not clear.

Sometimes researchers plan to apply for patents, and then publication must wait.

BTH receives relatively little funding from the Swedish Research Council, with the KK foundation being the primary source of support. This foundation has had a slower uptake concerning Open Data requirements.

- *How are researchers supported with EOSC and Open Science issues?*

BTH investigates the SUNET storage offering, although the minimum order of 500 seats is a bit steep for an organisation with maybe 100 potential users. Handling of sensitive data, e.g. emanating from the research related to the education of nurses, is saved for a later stage.

- *What are the challenges for the institution in giving advice and support?*

There is no lawyer on BTH's payroll, instead, they have to rely on an external consultant, which causes lead times.

It is not clear to all researchers that BTH is an agency, and that they must follow the code of conduct applicable to public agencies.

Funding is never unrestricted, neither for storage nor for the Data Access Unit assignment.

BTH cooperates with a vast number of companies, where data sometimes may not even leave the premises of the company. There is a need to strengthen juridical support in this respect.

Currently, there is no solution for how personal data can be shared with researchers outside of the EU.

The respondent emphasised the need for resources, both personnel resources, and technical solutions to facilitate assisting researchers seeking support in questions relating to data.

Estonian Research Council (ETAG)

- *What is the approach to EOSC and Open Science at the institution?*

The awareness of open science is growing in the institution. As a research funding organisation, several elements of open science must be taken into account when funding research grants or consulting researchers. There is less awareness concerning EOSC because it is a relatively new instrument and it is not fully operational yet. The general opinion is that EOSC is a tool oriented more for researchers, not funders.

There is the Data Management Plan (DMP) required when applying for funding, also there is open access consulting.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

There are recommendations to develop a national open science policy, developed in 2016. No national open science policy is in place yet. The framework of such policy has been developed by the Ministry of Education and Research, the process is ongoing.

- *How are researchers supported with EOSC and Open Science issues?*

No national open science policy in place, but research institutions have developed (or are developing) institutional policies for open science. Advice and support inside research institutions are given by open science experts (normally working at university libraries), also legal advisors of research institutions. I believe, the researchers are more and more aware of whom to turn to in their institutions concerning open science issues.

- *What are the challenges for the institution in giving advice and support?*

Mostly – no national open science policy in place! Not clear what the roles are in national open science, who is responsible for what, the funding of open science is not clear, there is also a lack of skills (for example, who and how to review DMPs submitted by the researchers).

Karlstads Universitet (KAU)

- *What is the approach to EOSC and Open Science at the institution?*

The awareness of EOSC is very limited within the organisation, except for the research data office. The RDO has informed the university management about developments in the area. Almost no information about ESOC has been disseminated to researchers.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

The university does have a policy to strive towards open science. KAU is a member of SND and can store metadata in Doris if a researcher so wants. Some researchers store their metadata in e.g. Figshare /Zenodo, but the RDO has much better control over data stored in Doris. If EOSC would provide support as SND and SNIC do, it would be much appreciated.

- *How are researchers supported with EOSC and Open Science issues?*

Most researchers are aware of the research data office. The RDO has been active with outreach activities.

KAU is good at Open Access, primarily through the university library, with established processes and policies. Open data is also in the works. Other Open Science areas are less developed, and it all needs some coordination, right now there are silos rather than cohesive information.

It would be good if the Research Council and/or SUHF would take the lead and give direction.

- *What are the challenges for the institution in giving advice and support?*

KAU in general, and the legal division in particular, is not afraid to dig deep to find out which possibilities are at hand for a researcher. As KAU is a smaller HEI there is a lack of both resources, and a lack of staff needed to be able to specialise.

The reuse of research data deserves more attention/discussion.

The respondents expressed a need for “training the trainers” i.e. domain-specific knowledge regarding data management, but also regarding legal questions.

The respondents seek guidance, policies, and steering from the national levels.

Processing data sets is a challenge due to a lack of competence.

Before it is clear how Open Data affects meritorious value there is no incentive for the researchers, the RDO is in dire need of a punchy point of sales argument.

Different legal experts make different interpretations, which is driving scientists mad.

Technology has been a bit frustrating, but KAU really sets its hopes on SUNET Drive.

University of Eastern Finland

- *What is the approach to EOSC and Open Science at the institution?*

Open Science is part of the University’s strategic planning and goals[26]. The EOSC awareness is mostly at the library level – researchers and academics do not know much about it (it also seems that they are more interested in well-functioning services, not who and how they are provided). There definitely is a need for marketing and educating about the concrete services provided via EOSC and how they can be used in everyday work by the academics.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

There has been a major advance in opening publications[27], the more structured open data services are at the present in a planning phase, basic services have been active for a couple of years. The university has publishing and data policies[28] and basic services are provided for the researchers – the Library is coordinating those and they are conducted via an actor-network.

All academic incentives do not motivate in opening one’s research and academics are mainly motivated via their research needs and communities and they want to use tools as easily as possible not so much about the policy issues. Research is global – if policy issues enable only EU member state users, they are not used in multinational networks.

Legal barriers: ownership issues: GDPR, legal barriers: what materials can be stored in which service, for example, EOSC services that are outside the university. Data protection brings many challenges: how to open material containing personal information for further use.

- *How are researchers supported with EOSC and Open Science issues?*

Publication and data policy is in place[29] – the challenge is how to make it a part of everyday life.

[26] https://www.uef.fi/en/strategy-2030 and https://www.uef.fi/en/open-science
[27] https://erepo.uef.fi/
[28] https://www.uef.fi/en/open-science
[29] https://www.uef.fi/en/open-science

Data support, APC payments, IT support, CSC services; In the process of parallel storage of publications, publication fees are agreed at the university level that the units pay, open science service desk.

The processes vary very much depending on the open science service used to open the data, e.g. the support services do not have comprehensive information on these and thus the expertise does not help (i.e. not processes but working with cases). There is an ongoing project to redesign these services (the year 2021).

Usually advice and support come from Library, IT services, Data Support services, Lawyers, Privacy Officer, and of course collegial networks.

Researchers do not know who to turn to for legal and policy assistance. In legal matters, the University Support Service focuses largely on contracts, when an agreement is made on behalf of UEF, help can be found, but when there are other interpretative legal issues related to research materials, no support is available because it has not been assigned to anyone. Contract lawyers advise on contracts. I.e. We do not have enough staff that have the special expertise.

- *What are the challenges for the institution in giving advice and support?*

The UEF publishing and data policy is outdated. It should guide more clearly how, for example, data is managed and opened, and the responsibilities of different actors are played. The national and EU policies are changing and developing rapidly, keeping one up to date is challenging.

GDPR, the same as mentioned above, is available and helpful for contracts, but not for other legal issues that would perhaps require a little more extensive knowledge of research and even discipline than is currently possible for university contract lawyers to have.

Long-term storing and finding the final storage for data. There are shortcomings in the processes, the researcher is often left alone to decide how the data could be opened in practice. Especially if the data is so-called university-owned data and should be managed by the university after research, there are no processes or guidelines for this in place. Or if, for example, you save in a national/international service, but the employment relationship is interrupted (academics change often in their institutions) and there are no more university IDs, will the materials you produce no longer be accessible? Who then manages them?

Managing various types of data and the needs of the discipline. Of course, there is always a shortage of resources, but it is especially emphasised in the present library driven model – the academic staff also needs skills and knowledge here, but they are under-resourced at the department level.

Managing various types of data and the special needs of the discipline. More competence and skills are needed for all the actors and above all the common knowledge about what open science, good data management and the opening of research data mean in practice, especially regarding data. We are constantly developing common skills tuition, but there is still work to be done. There is also a strong need for interdisciplinary expertise, opening data in different

disciplines and for different types of data can require very different understanding and expertise. There is a great need for specialist education – both new staff and the staff already in place.

University of Helsinki

- *What is the approach to EOSC and Open Science at the institution?*

EOSC as such is not necessarily recognised but openness and open access is one of the key choices for the university strategy for the years 2021 – 2030.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

University data policy was accepted in 2015 and openness is one key point so as a rule research data should be open and available for shared use. The policy also recognises the need for training of both researchers and students as well as the need for infrastructures, tools, and services. Also, the need for legal support is recognised.

- *How are researchers supported with EOSC and Open Science issues?*

For supporting open science the university has improved a lot its services for guidance, support, and training. There is a special data support address provided for researchers and students to ask questions and a group of people behind that support. Legal counsels are consulted when needed so also legal support is available. A lot of information and guidebooks on how to handle your data and manage it is provided. There are training and webinars arranged regularly and possibility also for personal training.

- *What are the challenges for the institution in giving advice and support?*

The awareness of OS support has been growing, but obviously, there is still a lack of awareness. The University of Helsinki is large and there are many faculties. So, the readiness to manage data varies, some faculties are better in it as they have years of experience of sharing in their field of science. For some, the concept of a data management plan required by financiers may still be a new thing. The support for legal issues seems to be quite well known nowadays regarding how many cases the lawyers need to handle every week. So basically, they are rather overloaded.

It depends on the field of science how much and what kind of challenges the researchers have. In the environmental field where they mainly handle raw data gathered from the air, ground etc. there are not so many legal obstacles, many times how to handle database rights only. But then there are social sciences where copyright plays a big role or the biomedical and medicine field where handling personal information is a complicated issue.

Regarding policies, the university is now in the process of updating its data policy. One important discussion point is whether to include everything to it or only data in digital form. But for EOSC this would not seem to be important as EOSC seems to be concentrating only on access to digital data. But for organisations like universities, this is an important discussion of

open science so how universities could better make available their resources that are not in digital data format for further use.

From a lawyers' point of view, the challenges are that the issues to be handled are very broad. To solve legal issues related to well-functioning access to data you should be able to cover several fields of legislation like copyright, competition legislation, state aid rules etc. and procurement legislation if services are considered. There are also competing interests like protecting your research knowledge for innovation, especially regarding inventions and patents but also software. Who decides and how to make decisions whether to prioritise protections or openness?

So more top-down rules and guidance would be useful, but this is difficult to arrange in a large multi-science university like ours. Also of course resources are needed and personnel who can concentrate properly on providing the processes needed and implementing them. It is often difficult to find a department and person in charge, as the responsibility is distributed to several instances.

For lawyers, one point is also that legislation does not always support every intention. The copyright legislation for example allows flexibility of ownership rights, and this is always a problem if the university wants to give out access rights. So, if the university has no rights to the copyright, it cannot grant access to university data. But this has now been recognised and there are plans to assign rights to research to the university to some extent as part of the employment starting in autumn 2021. One of the grounds for this is to ensure openness and open access.

One other practical problem at the moment is the GDPR legislation and how to interpret it. It seems that at least in our university every lawyer dealing with research data is overloaded by questions and work related to GDPR.

University of Iceland

- *What is the approach to EOSC and Open Science at the institution?*

Generally speaking, there is little awareness of EOSC within the university among researchers and supporting staff. Iceland is not a member of the EU and the University of Iceland is not directly engaged in EOSC as a member or observer. A number of Research Infrastructure Projects where units within the UoI are in a leading role have recently been put on the Icelandic Research Fund‘s Roadmap; among those are EOSC-related projects that are likely to raise awareness and eventually increase services and resources available to UoI researchers. Awareness of Open Science varies from discipline to discipline, some have a tradition of sharing data in international collaboration projects but those are a minority. However, all in all there‘s an increasing demand from researchers for support in all areas (technical, practical and legal) of Open Science.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

The University has a policy on Open Access to journal articles; a policy on Open Science (incl. Open Data) is in preparation. Openness to publications and data is among the university‘s strategic goals for the years to come.

Regarding personal data, the university has a Data Protection Policy in compliance with GDPR legislation. Policies on general data sharing and handling are not in place at the present and support processes need further development.

Assistance in matters relating to GDPR and IPR issues is available to researchers from the University‘s Data Protection Officer and IPR specialist. There is no general legal or licencing service for researchers; the central Grants Office and research managers in each school are most likely to assist.

- *How are researchers supported with EOSC and Open Science issues?*

An important step towards Open Science within the UoI was the recent opening of DATICE (The Icelandic Social Science Data Service), Iceland’s first research data repository. DATICE is hosted by UoI’s Social Science Institute and offers consultation to researchers in matters relating to open data. The data repository is open to social science type research data from all disciplines.

The IT Department and Research Services have started work on increasing services for researchers in the areas of data management, storage and access.

Open Science is promoted on the university‘s intraweb where researchers can find general information on Open Data plus guidance to further information. A link to the EOSC-Nordic Knowledge Hub is included but other than that, information about EOSC has not been actively disseminated.

There is a policy and process in place for Open Access to publications; the policy and process is available on the university‘s website as well as the intraweb where further information is given. Researchers are directed to the Division of Science and Innovation for policy and legal assistance; the University‘s Institutional Repository for publications is hosted by the National Library where specialist help is available to researchers in matters relating to OA publications and archiving. Costs of OA publishing are a problem that many find prohibitive as APC charges are not covered centrally by the UoI.

In projects where funders require open access to data, School research managers and the Grants Office assist the researchers on a case by case basis; the solution will often be to follow the lead of partners with better access to assistance and infrastructures.

- *What are the challenges for the institution in giving advice and support*

Policy issues about Open Science would mostly concern the lack of policies, national and institutional, i.e. a lack of guidance; interest in Open Science is slowly growing but will hopefully gain momentum when the UoI-policy is published and work on promoting and enforcing the policy commences.

Access to storage, assistance with DMPs, costs of preserving data and preparing metadata, licencing issues, clarity regarding ownership of data and access to it (retired staff, non-permanent staff etc.) are examples of challenges facing researchers and the institution.

We need to build a team of data stewards that can offer assistance to researchers in different fields and make sure that all are offered appropriate solutions for data storage and access. At the present, such expertise is lacking within our institution, as are many other necessary support mechanisms for Open Science.

Among the greatest challenges is that as Iceland's leading HEI, we are faced with a lack of interest, guidance and formal support from the authorities, and a low level of Open Science awareness in the public research funding environment.

University of Latvia

- *What is the approach to EOSC and Open Science at the institution?*

Awareness of Open Science is at different levels in the institution; however, it is fragmented as well as narrower (some of the openness-oriented research activities are not linked to the concept of Open Science). According to EOSC – knowledge and involvement should be more strengthened.

In the institution, the situation is very different. In general, progress towards Open Science has been slow. Researchers at the University of Latvia are interested in Open Science practice, however, financial aspects, lack of appropriate infrastructure, as well as lack of knowledge are indicated as obstacles. The integrated development of different aspects of Open Science requires a strategy.

The Researchers not participating in international projects have no motivation to practise Open Science.

Involvement (as members, etc.) in international organisations and initiatives must be strengthened, including EOSC.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

There are institutional policies related to Open Access and the E-resource repository of the University of Latvia.

The University of Latvia is working on an institutional Open Science policy document (the draft includes information on EOSC, too).

There is OpenAIRE National Open Access Desk at the University of Latvia, which is available not only to the staff of the University of Latvia but also to those interested from all over Latvia.

Processes related to Open Science are tightly integrated in the research cycle. It is rather fragmentary.

- *How are researchers supported with EOSC and Open Science issues?*

There is OpenAIRE National Open Access Desk at the University of Latvia, which is available not only to the staff of the University of Latvia but also to researchers and other interested individuals from all over Latvia. Information was disseminated and activities related to Open Access, Open Science, EOSC and OpenAIRE were organised over many years, as well as a website has been created.

Advice can be sought from the Department of Science, the Library of the University of Latvia (includes OpenAIRE NOAD), and the Legal Department.

- *What are the challenges for the institution in giving advice and support?*

The possibilities of providing support are influenced by the resources available at the University of Latvia, rather their shortcomings: infrastructure, finances and specialists with deep knowledge on Open Science different aspects.

There is a need for specialists with deeper knowledge and skills of the various aspects that shape and influence the practice of Open Science, as well as who at the same time well manage the resources of the institution (infrastructure, regulations, support, etc.). Of course, it would be good if finances and human resources could ever be used to provide specialised support rather than play a broad profile role. It is important to find a way for researchers to work more closely with specialists – Open Science support developers and vice versa, so the support services could be developed better.

The Open Science practice has to be connected to the research work assessment system – to expand wider interest and effort.

University of Tartu (UT)

- *What is the approach to EOSC and Open Science at the institution?*

There is some awareness of EOSC as well as Open Science. UT has applied to become a member of EOSC as an Estonian representative.UT has been involved in various European projects involving Open Science - EOSC Nordic, OpenAIRE, RDA, EOSC Secretariat WGs, Enlight Rise among others.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

University has no Open Science or research data-related policy nor does the nation in general; however, national policy is under development, which can lead to the requirement or recommendation for universities to develop a policy. Currently, most researchers are basing their OS-related activities on funders requirements.

Main questions that researchers are dealing with are who owns their research data and how to comply with funders requirements. Also how to comply with Open Access requirements and how to license research data and which licenses to use, what is required and what is recommended. Applying correct metadata can also raise questions and requires assistance.

- *How are researchers supported with EOSC and Open Science issues?*

There are no specific policies in place. Only requirements come from funders at the moment. There is an Estonian Code of Conduct for Research Integrity which universities have signed and agreed to follow. No clear monitoring system though.

- *What are the challenges for the institution in giving advice and support?*

No policy in place, no requirements, recommendations or set up rules of action.

Each department and institution has its own processes.

- How are researchers supported with EOSC and Open Science issues?

University has legal advisors when it comes to intellectual property requirements, they offer guidance. The Grant office offers guidance and training on funders requirements. Research administrators in various institutes offer help to researchers on administrative questions. Library offers training on research data management.

Most likely, some researchers are very aware of where they can find necessary information, while others are not. It can be assumed that the researchers start their information acquiring from their own institution or other researchers, grant office, and library.

- What are the challenges the institution have in giving advice and support?

Not enough legal staff to support researchers, they can cover individual requests and deal with patent issues mainly.

No central processes. Each office has its own services and rules - grant office, library, institutions, IT, rectory etc. No central service catalogue or agreed division of tasks. Most parts of Open Science are not an official part of the research evaluation system, no incentive to practise open science.

Lack of needed staff and funding for support and training. Researchers often lack funding on complying with various OS requirements.

Skills often required by funders - data management plans, data FAIRification, legal and licensing, metadata standards, publishing open access. Lack of knowledge on repositories and their technical opportunities.

University of Uppsala (UU)

- *What is the approach to EOSC and Open Science at the institution?*

UU has established a Data Office, although it happened fairly recently.

Secrecy, GDPR and patient security are important questions in this regard.

UU has, by tradition, a stronger ability to express independent views, relative to newly-fangled institutions more intertwined in regional or industrial liaisons.

There is a lot of activity regarding EOSC scattered in certain spots, not the least among the university leadership and within groups related to e-infrastructure and research infrastructure. The data office has tried to involve the vice-rectors but has not communicated directly to researchers. To the individual researcher, EOSC is of secondary interest, as they expect that infrastructures/common tools will solve the problem with open data for them, which is probably true in the general case. This is to say that researchers are deemed likely to approach EOSC via established structures, such as thematic communities, or national initiatives.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

Policies and guidelines are followed when they support the interest of the researcher, otherwise, they are often circumvented. According to the laws for patient security, it is more or less impossible to provide clinical data for research, but researchers with e.g. double employment will often obtain the data anyway. That said, the tradition to follow policies appears to be rather deeply rooted within the Nordic realm.

The respondent noted that an issue university lawyers may experience about issues/questions regarding open science, data sharing, and participation in international projects is that the ability to give accurate responses is dependent on the researcher being able to identify key issues beforehand, such as GDPR related issues, ownership issues et.al.

Researchers are torn between the Data Protection Regulation, on the one hand, frightening them to share data, and the funders and, in some cases, the university requiring open data, on the other hand, encouraging them to share data.

Researchers are unaware of the Public Access to Information and Secrecy Act. This is especially noticeable within clinical research, where researchers are typically not employed by the university. In practice, the data is usually catered for by the hospital.

The different interpretations of legal requirements by different lawyers, within authorities, and between authorities, is frustrating to researchers. Much would be gained if there was one common interpretation relative to Swedish law at Swedish HEI.

The Data Office is about to produce a guideline for data management, where researchers are expected to order their data. Responsibility is distributed. The guideline draws upon recommendations from Swedish University and University colleges Association and the Swedish Research Council. The lacking system support is a challenge.

An aspect emphasised by the respondents is that there is an ongoing discussion within Swedish HEI about ownership of data. The discussion centres around HEI responsibility for data and individual researchers actual power of disposal over data.

Somehow it must be made clear that the data is used at the researchers' own risk, and that UU is assured to bear kind liability, even if the data may seem harmless.

The Nagoya protocol must be respected for biological data and traditional knowledge. There is also national legislation with similar ramifications, e.g. regarding protected plants or areas with restricted access.

The legislation is not static, and a decision today regarding e.g. ethical permits may be different from yesterday.

Export legislation is difficult to apply.

Corporations often put forth demands that would challenge the credibility of a public agency, and often such collaborations cannot take place.

Whether data can be shared or not must be validated individually on a per-incident basis, as there are often different preconditions and legislation is constantly evolving. Usually, a tree model can be used, is it personal data yes/no, is it biological data yes/no, is it shared within the EU yes/no, do we have a data processing agreement in place yes/no, et cetera.

The respondent noted that concerning GDPR new standard clauses have been published, which will cause uncertainty and may cause HEI's to act more cautiously.

The respondent noted that in regards to EOSC HEIs may be unwilling to take risks, concerning sharing data, which causes court cases.

- *How are researchers supported with EOSC and Open Science issues?*

The legal department is usually contacted for specific questions. There is a need to bridge the gap between technology-oriented researchers and legal staff, which can be challenging. A researcher may ask a specific question without revealing the whole picture, leading up to the wrong advice being given unless the right follow-up questions are asked. E.g. a researcher may want to store protein data, which may be of human origin, which implies personal data, which in turn means patient data, which means that the Public Access to Information and Secrecy Act applies.

The majority of questions deal with personal data and ethical permits.

The legal division has an expressed ambition to give specific answers that can be acted upon. However, in reality, they often end up with alternatives a or b, where each option is associated with certain risks that the researcher must weigh in their decision on what to do.

So far no EOSC specific questions have been asked by the researchers. This will probably change when e.g Horizon 2020 money requires applicants to relate to EOSC. There are quite a few questions regarding open data, e.g. regarding FAIR or repositories. The data office recommends researchers to use domain-specific repositories if they are any available, but the longevity of specific repositories must be assessed (TRUST).

- *What are the challenges for the institution in giving advice and support?*

The breadth of juridical competence is huge and requires a legal division with a large number of specialists in different fields.

The government structure in Sweden differs from most other European countries in that agencies are fairly independent. For instance, the Swedish Research Council, SRC, avoids giving guidelines as this is not their responsibility and they have no incitement to do so. Instead, it is up to the educational institutions to independently do the interpretation. E.g. the SRC funds UU to become part of a European Research Infrastructure Consortium, ERIC.

The respondent also noted that in the Swedish context there is a different perception between different state entities regarding what entities can do. While e.g. a funder may argue that an HEI can pay a membership fee to be a part of an international collaboration, such as PRACE, this might now be allowed by the regulations governing the HEI in question.

In practice, UU will then pay a membership fee to the ERIC, which is illegal as SRC is the member. Furthermore, SRC would like UU to contribute resources like a computer to the ERIC, which again is illegal as an agency may not give away its assets. In e.g. the UK agencies tend to give out rather precise guidelines or even checklists.

The respondent noted that bleeding-edge research may entail pushing the boundaries in a way that may make it difficult for the HEI legal staff to provide advice. A research university is by definition at the leading edge, going into uncharted territories where legal support has yet to be developed.

The respondent noted that a challenge in giving advice related to data sharing, international cooperation, et.al. is to connect to the relevant functions within the HEI.

The respondent emphasised that the way Swedish authorities work differs from many other countries, in the sense that authorities are independent state entities that individually interpret and implement laws, guidelines et.al. based on the appropriation directions of the authority, laws et.al. This is to say that it is very common for Swedish HEIs to individually interpret and implement, while the central government does not, it rather gives board guidelines.

As such the Swedish landscape of authorities is disparate in regards to interpretation and implementation of laws, guidelines, missions et cetera.

The respondent noted that the institutional environment that a university lawyer works within is significantly different from that of a private entity. While the lawyer in the latter context can control processes and have a greater say in the “final word” in an issue, within an HEI context the view of the lawyer may be perceived as one of many factors affecting a decision.

The lack of existing technical solutions in place to share data is the cause of many grievances. Svensk Datatjänst, SND, does offer a solution, but it requires a local server to store the actual data, which is lacking at UU. Researchers have more or less given up the hope for a solution for long term archival.

UU has a tradition with strong faculties, who are often happy to create their own destiny, not the least to control their own costs. This leads to a very decentralised organisation, where local solutions may not quite make it in the EOSC framework. It also creates a bit of a vacuum or gap at the university level, between national/international initiatives and the faculties.

If the faculties would contribute data stewards, with discipline-specific knowledge, the resources are adequate. No new funding can be expected for data stewards, current resources will have to be rebalanced.

While smaller HEI organisations may have issues in securing competence and funding, a larger HEI organisation, such as UU, may have an issue in incorporating recently established units, such as a data office, into existing structures in which existing units have established mandates. This also entails establishing processes that facilitate existing structures to cooperate and work towards a common goal.

Additionally, connecting existing domain-specific competence for data management, available within institutions, to the data office, is viewed as posing a challenge ahead.

Riga Technical University

- *What is the approach to EOSC and Open Science at the institution?*

There is no national framework for open research. The Ministry of Education and Sciences is in the process of developing the strategy. As a result of EU project OpenAIRE, OpenAIREplus, OpenAIRE2020 and OpenAIRE-Advance, there is a National Open Access Support Centre based in the Scientific Library of the University of Latvia is disseminating information on the Open Access initiative and Open Research and organising workshops and webinars on Open Access and Open Research.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

RTU Open Access Policy (Open Access to publications and research data) was developed in 2016 by the Research Department in consultation with other RTU departments and is implemented in collaboration with the IT department and the Scientific Library of RTU. The policy says that results (publications, data) from research that is funded by RTU must be as open as possible and deposited in RTU publication repository or data repository (any data repository). Library and Research and Development Sector (Office) work together on all open research issues.

- *How are researchers supported with EOSC and Open Science issues?*

Open research is promoted on RTU university's website and there are several resources available, including information about webinars regarding open science, research data etc. Dealing with publications and open access RTU Scientific Library is always ready to help with questions and so is the Research Office.

RTU does not employ data stewards yet. But if someone has a question dealing with their research data, we always try to answer, helping to solve the issue. People in the Department for Research Coordination and Information are working on those issues. Training to teach about research data and data repositories and DMP is also provided.

- *What are the challenges for the institution in giving advice and support*

EOSC has not been recognised well in RTU overall. Some departments are aware of EOSC and take part in activities. However, there has been a discussion about joining the EOSC association.

Not having the National open science policy or strategy is the biggest issue as there is no top to bottom governance over open science issues. There is no coordinating institution that implements the concept of open science. There is no funding for the introduction and implementation of open science practices and open science does not take part in the evaluation of scientific performance.

National authorship law is not very clear in an open science context, and the relationship between authors and publishers is unclear. Attendance of open science events is weak as there is no motivation to attend. Many researchers still think of open science as something causing them more work and the burden of bureaucracy. The overall level of knowledge in the open science field is still very fragmented.

Tallinn University of Technology (TalTech)

- *What is the approach to EOSC and Open Science at the institution?*

There is quite good awareness about Open Science. There is less awareness about EOSC.

Awareness is mainly created by funding agencies and by the Republic of Estonia Ministry of Education and Science, universities and research libraries.

TalTech Research Administration Office follows the requirements of the funding agencies.

The university and the library have made a proposal for a national working group for the development of a national open research framework.TalTech Library is actively engaged in Open Science training and dissemination.

- *What kinds of legal and policy issues do researchers have related to EOSC and Open Science*

Publications and research data should be openly accessible in the case of publicly funded research (Not all data can be disclosed, some data might require anonymisation, patents, etc.). There are guidelines available about Open Access[30]. The evaluation of research and the classification of publications are not yet quite clear in the light of open science.

Creative commons is the most used license type in publishing, while in sharing research data and metadata CC0 is preferred. MIT and GNU-GPL licenses have also been used for open access.

- *How are researchers supported with EOSC and Open Science issues?*

[30] https://taltech.ee/en/open-access

The open science framework is currently being made in Estonia. We have Open Science guidelines available. The University Library has the central role. Processes and support structure is under development in cooperation with the Research Administration Office (RAO).

TalTech supports its scientists in drafting the data management plan. An Electronic Data Management Plan (DMP) template is available.

Usually, advice and support are given by TalTech Library and TalTech RAO.

- *What are the challenges for the institution in giving advice and support?*

There are no clear national policies.

Large publishers' policies often do not favour open access.

Identifying good open access journals for publishing

Competences are divided between different units

Institutional data repository is in development

More training is needed for various target groups.