EUt+

European University of Technology

Deliverable D111

D8.6 Open Science Report and Policy Recommendation

D8.7A Open Science Agenda

Del. Rel. No D8.12

WP 8

Description: Short Annual Report on the Advancement of the Open Science Agenda

Comments: Deliverable 111 is composed of two reports. The first one is dedicated to the state of the art of open science activities and policies in the EU+ alliance, associated with series of key recommendations for internal and external use. The second report describes the open science activities and policies within the EUt+ alliance, related to series of key recommendations for internal and external use

The versions in the other languages of the alliance are available upon request.

Dissemination level: **PU**-Public

https://www.univ-tech.eu/phase-1-results

This initiative has received funding from the European Union's Erasmus+ programme under grant agreement 101004088 — EUt — EPP-EUR-UNIV-2020.

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Introduction

In the interests of efficiency and to avoid duplication of effort, it was decided to merge WP8.6 with WP8.7 as they both concerned Open Science or to use a more appropriate term Open Research and the same people were members of both work packages. This has resulted in a core team who are highly committed to advancing the project.

Landscape Report

Open Research is at different stages in the member institutions. Some are more advanced than others and initially it was difficult to establish the degree of variation between universities. To tackle this, it was decided to run a survey on Open Research in March 2021 which resulted in the Landscape Report (Appendix 1, p.8). The landscape report described the current 'ground state' and provides the foundation upon which EUt+'s OR future will be built and against which, future progress can be measured. After much analysis of the survey and discussion in the group a number of recommendations were produced which now directs the activities of the group.

These recommendations are:

1. EUT+ should adopt, as far as possible, a common approach to OR including a Statement of OR Principles and a common OR dictionary[1].

2. EUt+ should develop a common training and awareness programme across all aspects of OR both for researchers, research managers, students and others for whom it is relevant[2].

3. EUt+ should examine ways to leverage existing cRIS and OR infrastructure to support OR. Specifically, a common presentation layer for individual Institutional Repositories providing for a real 'window' on EUt+ outputs[3].

[1] There are several dictionaries or glossaries available and the EUt+ must be compatible with the established ones
[2] There are several examples of good practise around Europe. It may be an option to adapt these to EUt+ requirements
[3] It is not expected that individual members would replace their own infrastructure with a single common service, leveraging may, at least in the short to medium term, be achieved by some form of harvesting.

4. EUt+ should consider leveraging the existing 4 Academic Presses within the network. A sub-group of Academic Press managers should be set up to study the feasibility of providing an Academic Press across the network using a combination of the existing 4[4].

5. EUt+ should establish a subgroup to examine the feasibility of introducing a common DORA or Leiden type evaluation framework for research within the network[5].

6. EUt+ should establish a subgroup to examine the feasibility of coordinating RGMSs, cRISs, or RIMs[6]. While this is more broadly applicable than just supporting OR, the potential to rapidly build new research teams, research income and to increase the variety and quantity of research outputs

With regard to recommendation number one a common research statement (Appendix 1, p.21) was drafted, agreed and accepted by the Task Group and the EUT+ Steering Group. Members were asked to have this statement accepted by their institution. There has been limited progress in this regard. We are now looking for the universities to broadly support this statement leaving implementation up to the individual universities. Work is ongoing on a common glossary of open research terms.

It was felt that as all the universities were currently providing training and support in the area of open research, recommendation two could be left to a later date and to concentrate efforts on the other four recommendations.

Sub-Groups

Four sub-groups were established to look at a common research information system, a common institutional repository, an academic press and a group to look at responsible metrics and evaluation (recommendations three, four, five, six.). These four groups commenced work in June, 2021. All groups report back to the general

meeting of Work package 8.6.7 which takes place several times a year.

1. Recommendation 3: Institutional Repository

This subgroup has met twice since June to discuss the issue. Contact was made with OpenAire and a solution for the repository was decided on by using OpenAire. This will be free for two years at least.

[4] This has the advantage of bringing some economies of scale in terms of volume of product and cost of service.
[5] There are examples of where this has been done and an excellent implementation framework (SCOPE) has been developed by the International Network of Research Management Societies (INORMS)
[6] Research Grant Management Systems, Current Research Information Systems, Research Information Management Systems

A memo of understanding between OpenAire and TU Dublin (the lead organisation in the work package) was signed in August 2021. This will provide a full-text, open access repository with full analytics on downloads, types of materials etc. While most of the existing repositories are already harvested by OpenAire, many need to update their configuration to support OpenAire guidelines for version 4.0 and this task is underway. Another action is to find a name for the EUT+ repository, some current suggestions are EUTility, EUTInfo and EUTOR (EUT open repository). Currently members are looking at existing metadata fields used by the various repository to devise an EUT+ template for OpenAire.

2. Recommendation 4: EUT+ Academic Press

After the survey, it was established that the existing academic presses were in various stage of development and were print only. It was decided in the spirit of open research the EUT+ Academic Press will be an open access, online press with a print on demand facility. Book design and layout will be provided by TU Dublin and the print on demand facility by Darmstadt and Sofia. Given the time constraints (2 years) and a general lack of resources 2 possible models were explored. The first required resources and staff, the second leverages facilities available within in the network. A report and presentation were given to the WP Steering Board and they opted for the second model. It was felt the publishing platform provided by digital commons software available through the Arrow Repository (TU Dublin) was the most sophisticated one available since it has a journal and book publishing module providing double blind peer review. Two representatives from TU Dublin are currently in negotiation with Elsevier (the owners of the Digital Commons Software) with a decisive meeting to take place early November. It is hoped that the outcome of this meeting will be favourable. In which case the design of the site can go ahead.

In the meantime, the subgroup working on the press has decided to set up an advisory board around the press. This will be made up of academics from each institution (so far 5 from TU Dublin, 3 from Troyes). It is intended that this advisory board will meet before Christmas. The purpose of the board will be to advise on the type of material to be published, to endorse and sanction policies and guidelines and it is hoped in time that an editorial board can be made up from this membership.

Establishing an academic press in the time frame available will provide proof of concept. The subgroup would hope to be in a position to publish material in 2022 but it is important that the correct standards, policies and guidelines are established first and that may take some time. Moreover, there will need to be common approach to promotion and advocacy to encourage academic staff to publish with the press. Indeed, some positive incentives may be needed to encourage early adopters.

3. Recommendations 5: Research Evaluation

Metrics and evaluation of research and researchers in an open research environment is a subject of much debate currently. The sub-group's objectives are:

- to prepare a landscape report on research evaluation in the universities.

- to agree a common approach and provide recommendations for research evaluation based on the DORA and LEIDEN declarations.

The group has held two meetings so far. The first meeting provided a snapshot of how research evaluation is being carried out in the member universities. The group is currently investigating the global situation to see what other countries/ universities have done. At the second meeting, each representative presented their national policies in this area. These presentations will shortly be presented to the larger working group in the form of a document for discussion.

4. Recommendation 6: Current Research Information System (CRIS)

The first task this group undertook was to assess the current situation in each university, i.e. what software is being used and which research information types are collected. Also, in the case where a university did not have a CRIS, were there plans to establish one. A discussion also took place around what common metadata standard could be used in particular CERIF. This is a common theme in all sub-groups, the need to agree on a common standard and a common approach.

The group has now developed a very basic mock-up for a common research portal based on the OpenAIRE CRIS Guidelines. This is to get an idea what such a website could look like and how complicated it will be to implement these data models. The group intends to have a first specification draft for a common research portal and possible options for implementation by the end of 2021.

Conclusion

Work package 8.6.7 is dealing with come complex matters in regard to open research. It is encouraging that so much in the sense of a common purpose, objectives and understanding has been achieved. The only area currently not being addressed is a common training policy and that is down to constraints of time. However, in the next survey to be run in April 2022, 2 new sections will be incorporated to include Research Evaluation and Training and Support. It is intended that the Institutional Repository will be operational in early 2022. The site for the Academic Press will be available by the end of 2021 with 2022 concentrating on procedures, work flows and compilation of the Editorial Board. The work of the evaluation subgroup is increasingly important as national and

institutional policies do not take account of open research. A common research portal would be highly desirable for the EUT+ and the Cris sub-group hopes to provide proof of concept in early 2022.

Appendix 1: EUt+ OR Landscape Report, April 2021

Authors: Representative of TU Dublin, Elza Vecpuise (RTU), José Antonio Vidal Roca (UPCT)

Executive Summary:

In March 2021 T8.6-7 initiated an EUt+[7] wide survey of the state of Open Research (OR) within the network. From the responses, it is very clear that, while every partner is aware of OR and active in some regards, the specific implementations in terms of investment and activities vary widely.

Divergences exist in the presence or absence of high-level strategic commitment, the presence or absence of policies and procedures and their enforcement, the requirement for either local or national OR reporting, infrastructure, personnel, etc.

This landscape report describes the current 'ground state' and provides the foundation upon which EUt+'s OR future will be built and against which, future progress can be measured.

While we present the initial results of the survey, it is clear that much more work needs to be done over the coming years.

The report makes a series of recommendations for future work. In summary, these are;

EUT+ should adopt, as far as possible, a common approach to OR including a Statement of OR Principles and a common OR dictionary[8].

EUt+ should develop a common training and awareness programme across all aspects of OR both for researchers, research managers, students and others for whom it is relevant[9].

[7] The EUt+ partners and their abbreviations are included in **Error! Reference source not found.**

[8] There are several dictionaries or glossaries available and the EUt+ must be compatible with the established ones

[9] There are several examples of good practise around Europe. It may be an option to adapt these to EUt+ requirements

EUt+ should examine ways to leverage existing cRIS and OR infrastructure to support OR. Specifically, a common presentation layer for individual Institutional Repositories providing for a real 'window' on EUt+ outputs[10].

EUt+ should consider leveraging the existing 4 Academic Presses within the network. A sub-group of Academic Press managers should be set up to study the feasibility of providing an Academic Press across the network using a combination of the existing 4[11].

EUt+ should establish a subgroup to examine the feasibility of introducing a common DORA or Leiden type evaluation framework for research within the network[12].

EUt+ should establish a subgroup to examine the feasibility of coordinating RGMSs, cRISs, or RIMs[13]. While this is more broadly applicable than just supporting OR, the potential to rapidly build new research teams, research income and to increase the variety and quantity of research outputs.

[10] It is not expected that individual members would replace their own infrastructure with a single common service, leveraging may, at least in the short to medium term, be achieved by some form of harvesting.
[11] This has the advantage of bringing some economies of scale in terms of volume of product and cost of service.
[12] There are examples of where this has been done and an excellent implementation framework (SCOPE) has been developed by the International Network of Research Management Societies (INORMS)
[13] Research Grant Management Systems, Current Research Information Systems, Research Information Management Systems

EUt+ OR Landscape Report 2021

Introduction

The EUt+ Work Package 8 proposal outlines the kind of commitment that the EUt+ will make to open research (OR). Some of these are particularly relevant for WP 8.6-7 and involve:

Making publications available as open access, supporting the implementation of Plan S and the green route to open access.

Managing research data in as open a way as possible and promoting and implementing the production of FAIR (findable, accessible, interoperable and reusable) data.

Promoting and advocating open research in the eight universities.

Becoming signatories of DORA or Leiden promoting the use of fair and humane metrics for evaluation.

Given the diversity of the institutions involved and the fact that it could be assumed that open access and openness generally would be at different stages in the member universities some means needed to be found to establish a benchmark to assess the current position of open research in each of the universities. The solution found was to survey each institution to allow them to self-report on open research. A working group of representatives from RTU, TU Dublin and UPCT compiled and analysed the survey. The survey was issued at the beginning of March 2021 to be returned completed by the 25th of March and the analysis was undertaken in the first two weeks of April.

Disciplines

While the institutions are designated technological universities, all have some Arts and Humanities disciplines that would need to be accommodated in a paradigm for open research. While many of these disciplines are in Business, Social Sciences and Law other disciplines include Architecture, Fine Arts, Culinary Arts, Music and Languages.

Policies

National Policies

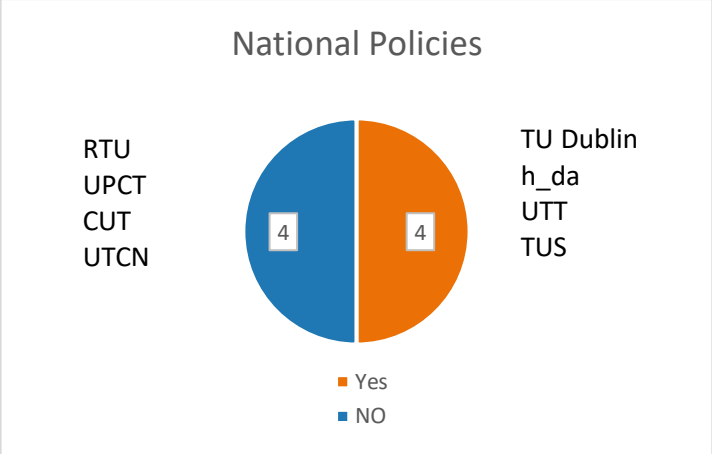


Figure 1. National Policies of Open Science for EUT+ partners

The majority of the institutions are operating within strong national frameworks around OR. Ireland, Germany, France and Bulgaria are well served in this regard. Spain does not have a national framework but the Spanish Universities Rectors Conference (CRUE) has produced a statement on open science and the government requires all publicly-funded research to be made available as open access. Latvia is currently developing a national plan but there are no plans to do the same in Cyprus or Romania.

Institutional Policies

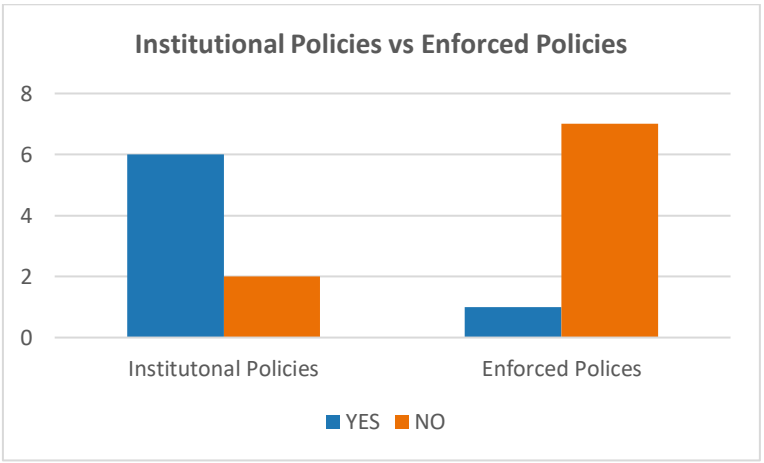


Figure 2 Institutional Policies vs Enforced Policies of Open Science of EUT+ partners

OR is mentioned in the strategic documents of TU Dublin, h_da, UTT, UPCT, and UTCN indicating a measure of institutional support. Three out of the seven institutions have formal bodies established within the universities to oversee activity in this area. Such institutional recognition or support is a prerequisite for the development of an open research agenda. Only two universities (TUS and UPCT) report on their open research activities[14].

Six of the universities have a formal policy on open access to publications and four have a formal policy on open data but none on FAIR data. However, only CUT enforces these policies.

Perceived Success in Open Research

Four out of the eighth universities felt they were somewhat advanced concerning open research, two felt they were more advanced and two felt they were not very much advanced. All eight universities reported open access to publications as the area they feel they have been most successful in. Though most of the institutions have formal policies on open access to publications, all except one (UTCN), have institutional repositories or are in the process of implementing an institutional repository.

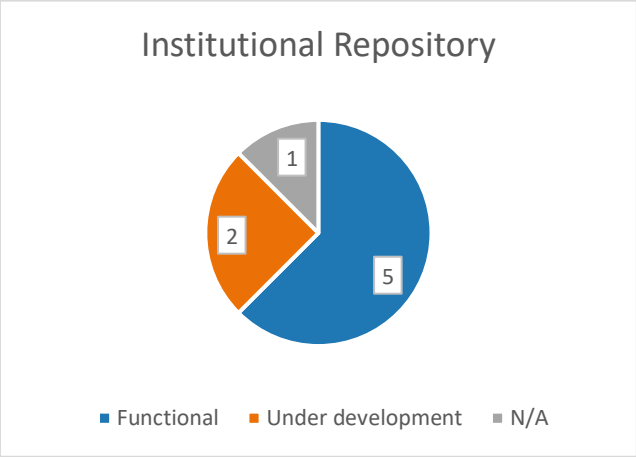


Figure 3 Status of Institutional repositories on EUT+

[14] This is changing. From 2022 the Irish HE Sectoral Performance Compacts and the Higher Education Research and Development Survey will require information on OR.

Scival, the analysis tool on Scopus, shows that for the years 2017-2019[15], the percentage of peer-reviewed literature that is available as open access is relatively low ranging from barely over 25% to barely over 50% (Table 1).

Table 1: Table showing the % of publications in OA, the presence or absence of relevant policies and whether or not those policies are enforced.

University	% Published OA	Has Policies	Enforces Policies
TU Dublin	51.5%	Has formal policy	Not enforced
h_da	36.2%	Has formal policy	Not enforced
UTT	30.6%	Has formal policy	Not enforced
RTU	48.4%	Has formal policy	Not enforced
TUS	26.8%	Not yet	Not applicable
UPCT	39.9%	Has formal policy	Not enforced
CUT	38.2%	Has formal policy	yes
UTCN	34%	Not yet	Not applicable

Examining these figures more closely in Scopus (see Appendix 5) indicates that the trend towards open access to publications in all eight universities is relatively steady with an upward trajectory which is encouraging (see Figure 4).

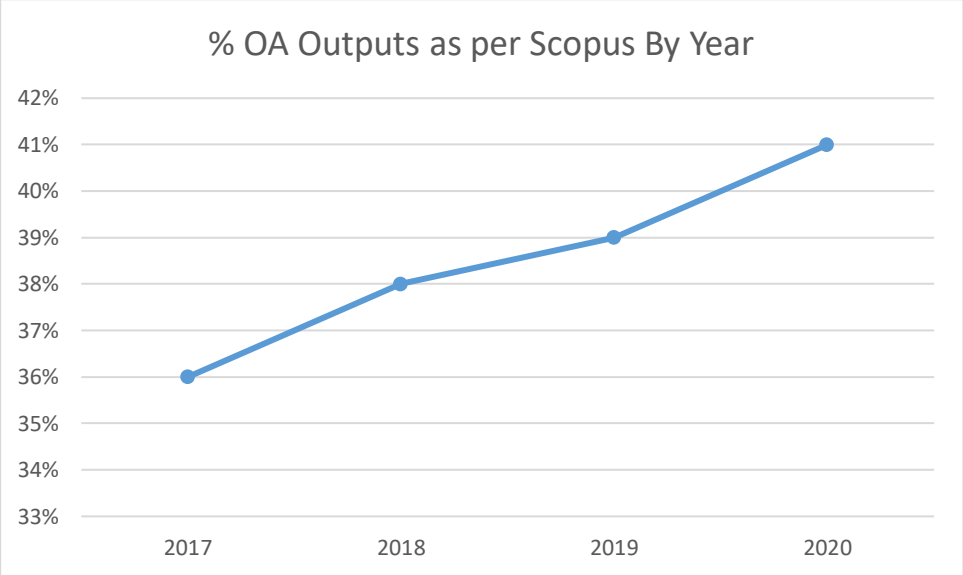


Figure 4: Change in the average percentage of publications that are OA (Scopus 2017-2020)

[15] Not all universities would have been actively engaged for the three year period.

Five of the universities support the payment of article processing charges (APCs) and the self-archiving of the author's accepted manuscript (known as the green route to open access). Two universities did not support the payment of APCs (TU Dublin and UPCT). There may be ambiguity over the meaning of "supporting APCs", this needs clarification as to whether universities are paying APCs for their authors or authors are paying them from their research grants.

Three universities also felt they have been successful in the production of open-source software and one university felt they had been successful with open data.

The areas the universities felt least successful in was open data and in particular FAIR data. Other areas included citizen science and the open evaluation of researchers. Five of the universities felt there was a conflict between the concept of openness and the protection of intellectual property and copyright especially concerning research undertaken with industry partners. TUS has taken steps to deal with this problem, establishing two committees (the Intellectual Property Committee and the Committee of Fostering and Promoting Open Research Policy) and this is an area where an exchange of experience and expertise would be very useful. However, it is clear that while all EUt+ partners are engaged with the open research agenda, the intensity of that engagement is different for every university.

Research Data

Research Data

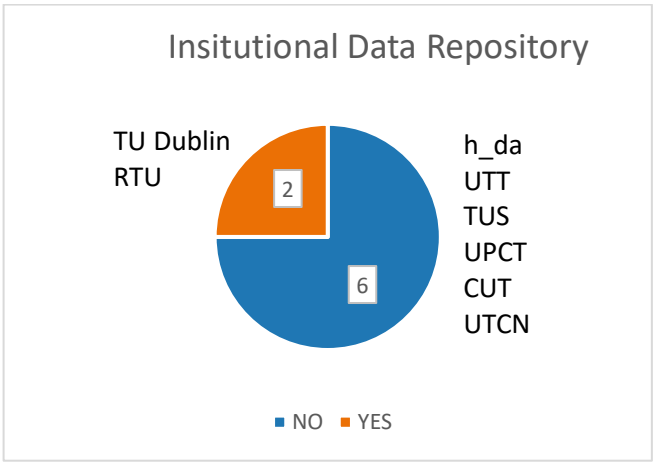


Figure 5. Institutional Data Repositories on EUT+

Four universities have an official policy on research data, but, by and large, they are not enforced. Only two universities have a data repository. Only one university employed a person whose job it was to manage data with another university currently in recruitment for a similar person. Four

universities do not offer any kind of training or support in this area. While some universities offer training and information on the creation of FAIR (Findable, Accessible, Interoperable and Reusable) data no institution currently supports the creation of Fair data.

Research Infrastructure

In the context of the survey, research infrastructure means any system or software used to support research activity. All of the universities have either a CRIS (research information system), intranet, public portal or a website for research and seven have institutional repositories (two are completing the implementation process). Four of the repositories have been built internally, two are hosted externally and one is on a national platform. h_da seems the most advanced in terms of infrastructure offering such services as SYN and share cloud services for data sharing, video-conferencing based on open-sourced software, Plan Gitlab version control for source code and data, a Dspace repository for research data and uses the RDMO Research Data Management Organiser while using the Opus 4 software for the repository. Six universities have the capacity to mint digital object identifiers, which is the most widely, used identifier. Other identifiers include URNs and Handles.

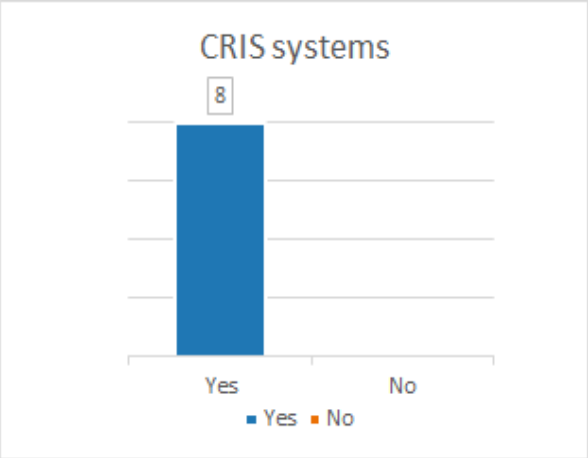


Figure 6 All EUT+ partners have a CRIS

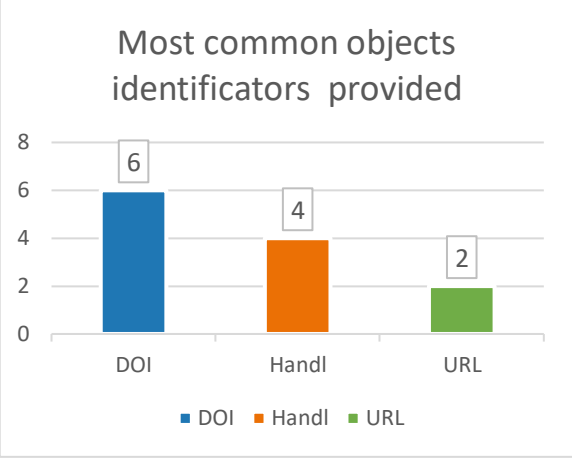


Figure 7 Object identification provided on EUT+

An omission in the survey was a question relating to the use of ORCID as it would be useful to know if ORCID identifiers are widely used in the system with regards to researchers. All of the universities have access to one or all of the following support databases such as Scopus (indexing database), Scival (an analysis tool for Scopus) and Web of Science (indexing database).

Research Evaluation

All of the universities are using traditional criteria such as citation count, journal quality, h-index, funding and patents. Only one university (TUS) included publications in open access journals as a metric for evaluation. Six of the universities are currently exploring the possibilities of using non-traditional metrics for example Altmetrics but no-one is currently using any for research assessment. Again, six universities are considering signing up to the San Francisco Declaration on Research Assessment (DORA) or the Leiden Manifesto both of which promote the use of responsible metrics.

Academic Press

Four of the universities have functioning academic presses (RTU, TUS, UPCT and UTCN). All of the presses are supported by their universities and by sales. Three of them considered their academic press to be cost-neutral whereas UPCT did not.

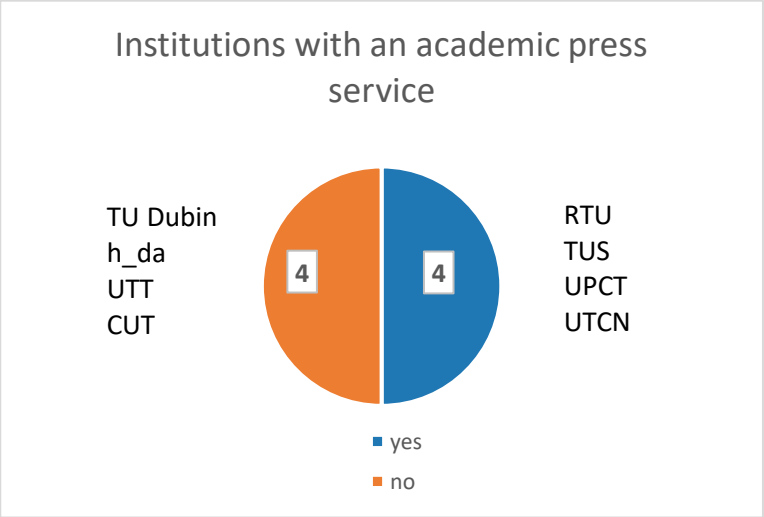


Figure 8 Institutions with an academic press service on EUT+

RTU Press (RTU)

RTU Press is a leader in science and engineering publishing in Latvia. Its mission is to produce and deliver scientific literature to the students and faculties of RTU. Its major publishing languages are Latvian and English. It is an autonomous department specializing in scientific publishing within the RTU and is under the direct supervision of the Vice-rector for Research. The Press adheres to the best practice standard for academic publishing. Its annual output is made up of approximately twelve scientific journals, twenty academic books & scientific monographs, one hundred promotional summaries, and about forty scholarly aides and materials for media and advertising distribution. RTU Press publishes for a wide, international audience and uses the latest e-platforms and tools, and

applies digital and offset printing. The RTU Press is a member of the AEUP Association of European University Presses and CrossRef.

PTUS (TUS)

The publishing house of the Technical University of Sofia (PTUS) is a unit in the structure of the Research and Development Sector. Its main outputs include monographic research books, textbooks and study literature; scientific papers and conference proceedings and dissertation summaries as well as a variety of copying and printing services. In 2020, the Academic Publishing House of TU-Sofia published approximately 200 titles (mainly books, journals, and proceedings) with a total circulation of 5100 copies. The production possibilities are significantly greater, but for now the publishing house serves only the needs of the university. A catalog of the published literature can be found at http://itus.tu-sofia.bg/documents/Catalog_ITUS.pdf.

UPCT

The press supports e initiatives for the development of scientific, educational and cultural content for the university community preferably in an electronic format. It promotes the use of information and communication technologies in teaching to enhance student learning. It is managed by the Library service and mainly publishes teaching manuals, scientific monographs and papers from conferences held at the university, and material authored by university staff. The press publishes 10 and 15 books per year in a digital format most are uploaded to a book collection in the institutional repository.

UTCN

The publishing house concentrates on publishing books for teaching purposes mainly for university courses and the production of laboratory and design guides produced by the staff of the university. It also publishes scientific monographs by university staff. In the course of its 25 years of existence as a nationally accredited publishing house, over 1,600 titles have been published with over 1100 authors. Material is published in a variety of formats both print and online. Under the auspices of the publishing house, several scientific journals are also published in print and electronic formats.

The existence of such fully developed academic presses would suggest that one or all could be utilised as the academic press for the EUt+.

Staffing

While TUS reported a staffing level supporting OR of between five and ten, all of the other universities selected a staffing level of between one to five. Staffing levels were higher for the academic presses with RTU selecting the range of five to ten and the TUS was higher again selecting the range of ten to fifteen people. The number of people supporting the institutional repository was

within the range of one to five people for all the institutions. All of the institutions reported high levels of cooperation and collaboration between different departments in the university in particular between Library and Research Staff.

Citizen Science

Three of the universities have had some experience of projects involving citizens as participants at one level or another but, overall, the experience is quite limited.

Recommendations

EUt+ should have a common statement on Open Research principles as a common framework around which we will build OR.

As part of the same framework, EUt+ should adopt a common OR dictionary that provides a common OR language and is consistent with existing OR glossaries.

Given the well-developed state of the repository system in the EUt+ the repository sub-group should also look at a means of providing a EUt+ portal that would harvest the existing repositories and provide a space for the one institution that does not have a repository

Establish an information and training programme to cover research data, FAIR data, intellectual property in the open environment and the use of citizen science. These are all areas that are underdeveloped in the EUt+. It is recommended that a common approach be taken to such training programmes and a suite of toolkits be produced to be used by those in the network.

There are four developed academic presses in the EUt+. There is no need to build more within the system. A subgroup of press managers should be set up to see if an EUt+ Academic Press can be implemented using one or all the existing presses.

A sub-group should be established to evaluate the most appropriate metrics for the humane and fair evaluation of researchers and to select either Leiden or Dora as an appropriate approach for the EUt+

OR Statement

Authors: John Donovan (TU Dublin). Jean Baptise Van Vu (UTT)

Through the work of this project group it has become apparent that there was a need to use the same terminology and to have a common understanding of what these individual terms mean. It was very obvious that the term Open Research is subject to interpretation. Therefore, we felt it was important for the work of the group to produce a formal statement on Open Research and what it means for the EUt+.

EUt+ Open Research Statement DRAFT (V4 17/04/2021)

EUt+ Open Research Vision.

The European University of Technology, (EUt+) is an alliance of eight European universities of technology who share a common vision of a human-centred approach to technology and the ambition to establish a new type of higher education institution on a confederal basis. Through EUt+, the partners are committed to creating a sustainable future for students and learners in European countries, for the staff of each of the institutions and for the territories and regions where each campus is anchored.

Research, actively engaged with the University's academic life, engaged with its communities and regions, its students, and citizens, is a vital element of the new university's connections to the wider research ecosystem and the communities and regions in which EUt+ is present.

From the outset, EUt+ has committed to an ambitious vision for Open Research.

We believe that research outputs should be publicly and freely available at the point of presentation.

We believe that research outputs must be available to researchers, teachers, businesses, charities, and philanthropies, the public sector, and the citizen with no restriction on reproduction and distribution save the author's control over the integrity of the work and the right to be properly acknowledged.

We believe that free availability means, easily accessible, permits users to read, download, copy, distribute, search or mine, link to, index, or any other lawful purpose with appropriate IP protections and licences such as Creative Commons and with proper acknowledgement of the producer.

We believe that Open Research makes our research more accessible, improves research progress, makes research more transparent and accountable, and more responsive to societal challenges.

We believe that Open Research fosters research quality by promoting research integrity, reproducibility, and replicability.

We believe that our research outputs should be made available without the need for specialist technologies, using open standards and that data be FAIR (findable, accessible, interoperable and reusable).

We believe that research data should be shared under the following principle: "As Open as Possible, as Closed as Necessary".

We believe that research outputs include research results, research data, research methodologies, software, exhibitions, and performances, and other products of normal academic enquiry.

We believe an Open Research ecosystem is good for research, researchers, citizens and EUt+. We believe that appropriate protection of any intellectual property is not in conflict with the principles of Open Research.

We commit to Open Research by:

Maximising the proportion of our research outputs, including FAIR data, that are available in Open Access repositories/outputs at the point of presentation, supporting the implementation of Plan S in appropriate Open Access Journals and supporting Green OA in preference[16].

Developing an Open-research-permissive IP protection regime to support industrial and commercial partners to convert research outputs into impactful research outcomes.

Supporting the use of humane, fair, transparent, and responsible use of indicators for research evaluation and career progression.

Integrating Open and Citizen Science methods into our curricula to provide our students with the skills and training in Open Research to enable them to flourish in this new environment.

Publishing detailed data on our institutional research performance.

Developing an Open Educational Resource (OER) policy, the creation and dissemination of OERs and aim to support creators and users of OERs equally.

Appendix 1: Abbreviations used in this Document.

Abbreviation	University

[16] Whether these are OA or not, we do not endorse the publication in predatory journals accepting low-quality works that do not contribute to increasing the knowledge of the scientific community. We do not support hybrid journals.

TU Dublin	Technological University Dublin
h_da	Darmstadt University of Applied Sciences
UTT	Troyes University of Technology
RTU	Riga Technical University
TUS	Technical University Sofia
UPCT	Technical University of Cartagena
CUT	Cyprus University of Technology
UTCN	Technical University of Cluj-Napoca

Appendix 2: Green Open Access Vs Hybrid Open Access:

Any researcher is entitled to publish any output wherever they think is most appropriate. However, researchers should be aware that many funders (both public and private) will not support payments to publishers that do not support full (no embargoes) OA at the point of publication. It is incorrect to assume that universities can or will make a provision for an indefinite and unquantifiable allowance towards APCs or any other publishing charges. In this case, the payment of any publication charges will become a matter for the author to resolve themselves.

Open access to publications is the process by which research articles are made freely available online. In the true sense, an open access publication will also have a license dictating how the item can be used, shared, reused and repurposed. With open access journals the model changes from a subscription to read the material to a cost known as an article processing charge (APC) for publishing.

The different routes to open access to publication are varied and have been assigned colours to distinguish them from each other but the two main routes are Green and Gold open access. The third option is to publish open access in Hybrid Journals.

Green Open Access

Green open access is where authors have the right to archive a pre-print or post-print in an online repository. The author publishes in a traditional subscription journal but retains the right to disseminate their work in an open manner generally by self-archiving the authors final manuscript in a repository. Most traditional publishers, while insisting on a transfer of copyright from the author to the publisher will allow the self-archiving of the author's accepted manuscript. However, in recent years many publishers have greatly increased their embargo periods before the manuscript can be made available (in some cases up to three years). The Sherpa Romeo website while not comprehensive offers an easy way to check a particular publisher's policy on self-archiving.

Gold Open Access

Gold open access refers to articles in fully accessible Open Access Journals. Publishing costs money, and while traditionally that money has come from subscriptions - a 'reader pays' model - gold open access is an effort to come up with a new approach. One popular model is an 'author pays' system, where publishing costs are supported by article processing charges (APCs) paid by the author. There is an expectation that apc charges for Gold Open Access Journals should be reasonable. The Directory of Open Access Journals carries a comprehensive list of these journals with full details of costs. cOAlition S has also released a journal checker tool to allow researchers to check whether their selected journal is compliant with Plan S.

But this is not the only possible method, and there are funders and academic societies experimenting with ways to cover costs outside of the for-profit publishing system that do not put a burden on authors. Moreover, many universities now publish journals that are free to read and free to publish in.

Hybrid Journals

Hybrid journals are journals that have paywalls. A reader gains access by paying a subscription. An author submits to the journal in the normal way and the article may or may not be accepted for publication. If accepted, the author will be given the option to publish the article as open access which makes it free to read but this will be an additional cost on top of the subscription. This cost is termed an article processing charge or APC. APCs for articles published in traditional journals that are called hybrid (offering the open access option) can be very high, the average being about €2,500 but they can go much higher depending on the potential popularity of the paper.

Many libraries and national consortia now include APC charges in their negotiations with publishers so when agreeing to take out a subscription to a collection of journals known as “big deals” a certain number of APCs are made available free of charge, and these are distributed among the corresponding authors in the member institutions.

Appendix 3:Definitions and Glossary of Terms for Open Research

(Work on these definitions is ongoing and this is presented as a first draft of the glossary)

Citizen Science

Citizen Science is the involvement of the non-academic public in the process of scientific research.

CRIS: Current Research Information System

A current research information system (CRIS) is a database or other information system to store, manage and exchange contextual metadata for the research activity funded by a research funder or conducted at a research-performing organisation (or aggregation thereof).

ELN: Electronic Laboratory Notebook

An electronic lab notebook (also known as electronic laboratory notebook, or ELN) is a computer program designed to replace paper laboratory notebooks. Lab notebooks in general are used by scientists, engineers, and technicians to document research, experiments, and procedures performed in a laboratory. A lab notebook is often maintained to be a legal document and may be used in a court of law as evidence. Similar to an inventor's notebook, the lab notebook is also often referred to in patent prosecution and intellectual property litigation.

FAIR data

findability, accessibility, interoperability, and reusability

FAIR data are data which meet principles of findability, accessibility, interoperability, and reusability.

FAIR DATA Principles:

FAIR stands for Findable, Accessible, Interoperable and Reusable and is a set of guidelines aiming to facilitate the reuse of scholarly data.4,5

Datasets must be FINDABLE. This means assigning a unique identifier to a data, such as a DOI, which must be included in the metadata describing the set. The data also needs to be indexed in a searchable platform.

Research data needs to be ACCESSIBLE. The producer of the data must facilitate its access, either by making it available on web browser or - for data needing an access screening - by providing a contact who can make the data available to a specific user.

INTEROPERABLE is key for FAIR Data. To make sure anyone can read the dataset, the author needs to use formats readable by any software. The vocabulary used in the dataset should be standard or, at the very least, explained in a glossary included in a data management plan or easily retrievable.

The goal of these principle is to make data REUSABLE. That means guaranteeing that others can legally work on a dataset. The easiest way to make sure of it is to use license such as Creative Commons. The Data Management Plan also helps reusing data by explaining how it was collected, to guarantee reproducibility.

IP: Intellectual Property

Intellectual property (IP) is a category of property that includes intangible creations of the human intellect.

Open Access

Open access (OA) is a set of principles and a range of practices through which research outputs are distributed online as electronic documents, free of cost or other access barriers.

Open Data

Open Data is the idea that some data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control.

OER: see Open Educational Resources

Open Educational Resources (OER) are defined as “teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions” (William and Flora Hewlett Foundation definition). Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, images, software, and any other tools, materials, or techniques used to support access to knowledge.

Open Notebook Science

Open-notebook science is the practice of making the entire primary record of a research project publicly available online as it is recorded. This involves placing the personal, or laboratory, notebook of the researcher online along with all raw and processed data, and any associated material, as this material is generated. The approach may be summed up by the slogan ‘no insider information’. It is the logical extreme of transparent approaches to research and explicitly includes the making available of failed, less significant, and otherwise unpublished experiments; so called ‘dark data’. The practice of open notebook science, although not the norm in the academic community, has gained significant recent attention in the research and general media as part of a general trend towards more open approaches in research practice and publishing. Open notebook science can therefore be described as part of a wider open science movement that includes the advocacy and adoption of

open access publication, open data, crowdsourcing data, and citizen science. It is inspired in part by the success of open-source software and draws on many of its ideas.

Open Peer Review

Open peer review is a variant of peer review in which the names of both reviewers and reviewed are known to all participants. The entire process is thus designed to be transparent. Open peer review is mainly used in the field of open access.

Open Research

Similar to Open Science but includes social sciences, the humanities, arts, mathematics, engineering and medicine.

ORI: Open Research Infrastructure

Infrastructure to support open research, e.g. training programs, publishing platforms, data stewards, major scientific equipment or sets of instruments, collections, archives or scientific data, computing systems and communication networks or any other research and innovation infrastructure of a unique nature which is open to external users.

Open Science

Movement to make scientific research (including publications, data, physical samples, and software) and its dissemination accessible to all levels of an inquiring society, amateur or professional. Open science is transparent and accessible knowledge that is shared and developed through collaborative networks.

Open Source

Open source is source code that is made freely available for possible modification and redistribution. Products include permission to use the source code, design documents, or content of the product. It most commonly refers to the open-source model, in which open-source software or other products are released under an open-source license as part of the open-source-software movement.

Persistent Identifier (PID)

A persistent identifier is a long-lasting reference to a digital resource. For Example: DOI, Handle, URN.

Repository

Repository is defined as the infrastructure and corresponding service that allows for the persistent, efficient, and sustainable storage of digital objects (such as documents, data, and code).

Research Data

By digital research data we mean all digitally available data that is created during the research process or are its results.

Research and Scholarship:

Research and Scholarship is characterised by originality, has investigation as a primary objective, has the potential to produce results that add to humanity's stock of knowledge (theoretical or practical) and is deemed so by public scrutiny by being challenged and tested through peer appraisal. It gives meaning to isolated facts and putting them into perspective through synthesis; applies knowledge through problem-solving or transforms and extends our understanding/knowledge. It must be published, disseminated or made publicly available in the form of assessable research outputs.

It includes work of direct relevance to the needs of commerce, industry, and to the public and voluntary sectors; the invention and generation of ideas, images, performances, artefacts including design, where these lead to new or improved insights; and the use of existing knowledge in experimental development to produce new or improved materials, devices, products, and processes, including design and construction.

It excludes routine testing and routine analysis of materials, components, and processes such as for the maintenance of national standards, as distinct from the development of new analytical techniques. It also excludes the development of teaching materials and Continuing Professional Development (CPD)/training.

Research Outputs:

Outputs of a research project or programme are the deliverables from that programme or project. They may be explicit, the things identified in the project's description of work, or derived from the work (publications, reports, software, etc) or implicit, PhD students that worked on the project and successfully graduated, materials, new opportunities, etc.

Appendix 4: Survey Responses

Q 2: Does your university have any arts and humanities disciplines? (Arts and Humanities disciplines are disciplines that are not Science, Engineering or Computing - for example Business, Social Sciences and Architecture).

University	Response	Disciplines
TU Dublin	College of Arts and Tourism, College of Business, Conservatoire of Music and Drama and Dublin School of Architecture, Dublin	Applied Arts Business, Music, Social Sciences, Law, Languages

	School of Creative Arts. Disciplines include Fine Arts, Photography, Performing Arts, Social Sciences, Law, Culinary Arts.	
h_da	Architecture, Social sciences, Social work, Economics and Media	Business, Social Sciences
UTT	Management & Social sciences	Business, Social Sciences
RTU	RTU has 8 Faculties, including Faculty of Architecture, Faculty of Engineering Economics and Management, Faculty of E-Learning Technologies and Humanities (languages)	Architecture E-learning Languages,
TUS	Economics, industrial management, strategic management, industrial design, sociology, organisational behaviour, business ethics, marketing, law, human resources management, accounting, innovations management, entrepreneurship, knowledge management, philosophy of science, etc.	Social Sciences Business
UPCT	Business Faculty & School of Architecture	Business, Architecture
CUT	Culinary Arts	Applied Arts
UTCN	Languages	Applied Arts

Q 3 Do you think as a university you are well advanced with regards to open research? Score from 1 to 5, 5 being well advanced.

University	Score
TU Dublin	3
h_da	3
UTT	3
RTU	3
TUS	4
UPCT	2
CUT	4
UTCN	2

Q 4. Is your university working to a national framework on open research? If so please outline it briefly and link to an informational website?

University	Framework	Policy	Link
TU Dublin	National Open Research Forum, representative of all stakeholders https://norf.ie/. The Forum has produced a National Framework on the Transition to an Open Research Environment https://repository.dri.ie/catalog/0287dj04d	Yes	www.norf.ie https://repository.dri.ie/catalog/0287dj04d
h_da	h_da is part of the national research data infrastructure in specific subjects: h_da is also part of the Hessian Research Data Initiative and the Hessian Network for CRIS systems funded by the Hessian Ministry of Higher Education, Research, Science and the Arts	Yes	https://www.nfdi.de/en-gb NFDI4Ing: https://nfdi4ing.de/ NFDI4Culture: https://nfdi4culture.de/ NFDI4Memory: https://4memory.de/ Punch4NFDI: https://www.punch4nfdi.de/ Text+: https://www.text-plus.org/en/home/ h_da is also part of the Hessian Research Data Initiative and the Hessian Network for CRIS systems funded by the Hessian Ministry of Higher Education, Research, Science and the Arts: https://www.uni-marburg.de/en/hefdi
UTT	Plan national pour la Science Ouverte which aims to: 1. Make open access mandatory when publishing articles and books resulting from government-funded calls for projects. 2. Create an Open Science fund.	Yes	https://www.ouvrirlascience.fr/national-plan-for-open-science-4th-july-2018/

	3. Support the HAL national open repository and simplify the publication filing procedures for researchers who publish through open access platforms around the world. 4. Make open access dissemination mandatory for research data resulting from government-funded projects. 5. Create the post of Chief Data Officer and the corresponding network within the relevant institutions. 6. Create the conditions for and promote the adoption of an Open Data policy for articles published by researchers 7. Develop open science skills, especially in postgraduate schools. 8. Encourage research performing organisations and universities to adopt open science policies. 9. Actively contribute to structuring European data in the European Open Science Cloud and by participating in GO FAIR.		
RTU	There is no national framework on 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 University of Latvia is	No	National Open Access Service https://www.napd.lu.lv/

	disseminating information on Open Access initiative and Open Research and organizing workshops and webinars on Open Access and Open Research.		
TUS	On 25th Jan. 2021 the Ministry of Education and Science has endorsed a National Plan for development of the Open Research initiative in Republic of Bulgaria file:///C:/Users/Lidia/Downloads/plan-otvorena-nauka_130121.pdf. The plan sets the strategic goals, the steps and the instruments needed for the transition towards open science and its upgrade to a standard research practice. Part of this plan is the development of the Bulgarian portal for open research https://bpos.bg/ supported by the National Centre for Information and Documentation (NACID) https://www.nacid.bg/ as well as institutional repositories. The Technical University of Sofia has already started building its own institutional repository. As a part of the open science initiative the TU-Sofia provides open access to all conference proceedings and scientific journals that are issued by the university https://tu-sofia.bg/collections/index	Yes	Bulgarian portal for open research https://bpos.bg/ supported by the National Centre for Information and Documentation (NACID) https://www.nacid.bg/ as well as institutional repositories.

UPCT	Spain does not have a national framework towards open science, but the Spanish Universities Rectors Conference (CRUE) has a statement on open science. The main development related to open science is in the sphere of open access for scientific production. Researchers are bound by the law (Act 14/2011 https://www.boe.es/buscar/pdf/2011/BOE-A-2011-9617-consolidado.pdf) to publish open access research results that have been funded with the General Budget of the State and also doctoral thesis (Royal Decreet 99/2011 https://www.boe.es/buscar/act.php?id=BOE-A-2011-2541)		Researchers are bound by the law (Act 14/2011 https://www.boe.es/buscar/pdf/2011/BOE-A-2011-9617-consolidado.pdf) to publish open access research results that have been funded with the General Budget of the State and also doctoral thesis (Royal Decreet 99/2011 https://www.boe.es/buscar/act.php?id=BOE-A-2011-2541)
CUT	No	No	
UTCN	No	No	

Q 5 Are there other national policies/bodies working in the area of open research. If so please provide links to these policies/groups

TU Dublin	The Royal Irish Academy has produced a document "The Appropriateness of Key Performance Indicators to Research in Arts and Humanities Disciplines". https://www.ria.ie/sites/default/files/key-performance-indicators-2011-full-pdf.pdf.pd. This provides a benchmark for discussion on open research in the Arts and Humanities
h_da	German Research Community: https://www.dfg.de/en/index.jsp German Council for Scientific Information Infrastructures (RfII): https://www.rfii.de/en/home/ German Science Council: https://www.wissenschaftsrat.de/DE/Home/home_node.html (only in German) Joint Science Conference: https://www.gwk-bonn.de/en/
UTT	COSO : Comité pour la Science Ouverte (Comitee for Open Science) : https://www.ouvrirlascience.fr/the-committee-for-open-science/

RTU	No
TUS	National bodies working in the area of open research are Ministry of Education and Science, National Centre for Information and Documentation and the Libraries of other Bulgarian universities and academic institutions. There is also Foundation Open Science https://www.openscience.bg/
UPCT	CRUE (Spanish Universities Rectors Conference) https://www.crue.org/wp-content/uploads/2020/02/2018.03.05-Pto.-9-Compromisos-Crue-Open-Science-ENG_revFINAL.pdf. La FECYT (Spanish Foundation for Science and Technology) https://www.fecyt.es/es/tematica/ciencia-abierta
CUT	No
UTCN	https://uefiscdi.gov.ro/open-science-hub

Q 6 How many staff support this activity. Options 1-5, 5-10, 10-15, 15 plus

TU Dublin	1-5
h_da	1-5
UTT	1-5
RTU	1-5
TUS	5-10
UPCT	1-5
CUT	1-5
UTCN	1-5

Q. 7: Is Open Research mentioned in the strategic vision or mission of the university or is it mentioned in any important document/statements?

Q. 8 Please provide a link to the document

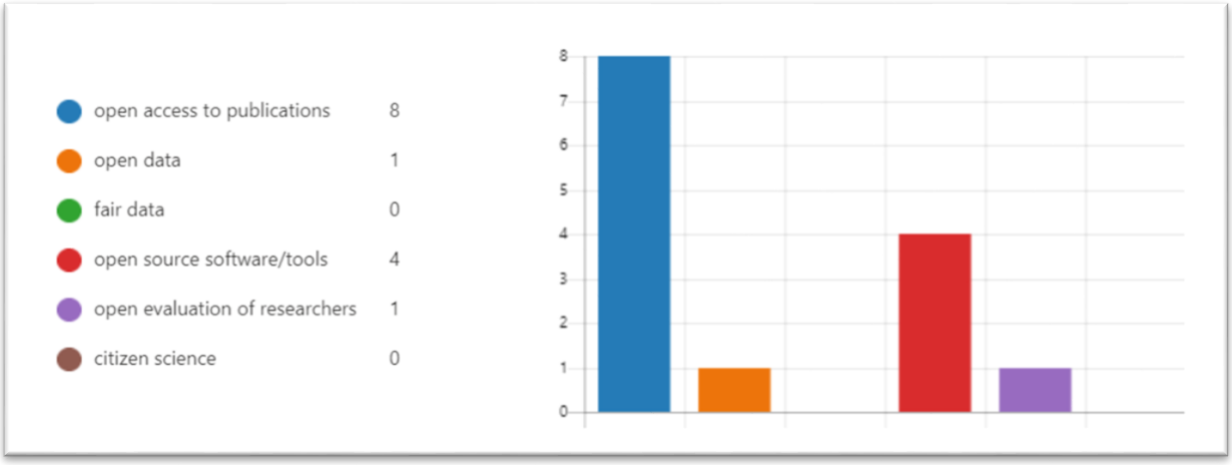
TU Dublin	https://www.tudublin.ie/explore/about-the-university/strategicplan/2030/..under section delivering shared impact entitled Open Science, Open Innovation, Open to the World
h_da	https://bib.h-da.de/fileadmin/Einrichtungen/Bibliothek/Dokumente/Leitlinien_Forschungsdaten_h_da.pdf
UTT	https://entreprises.utt.fr/plan-strategique-utt-2030/valeurs
RTU	Not mentioned
TUS	Not mentioned
UPCT	Need link?
CUT	Not mentioned
UTCN	https://www.utcluj.ro/media/decisions/2020/10/26/Plan_Strategic_UTCN.pdf

Q.9 Is open research promoted on your university's website?

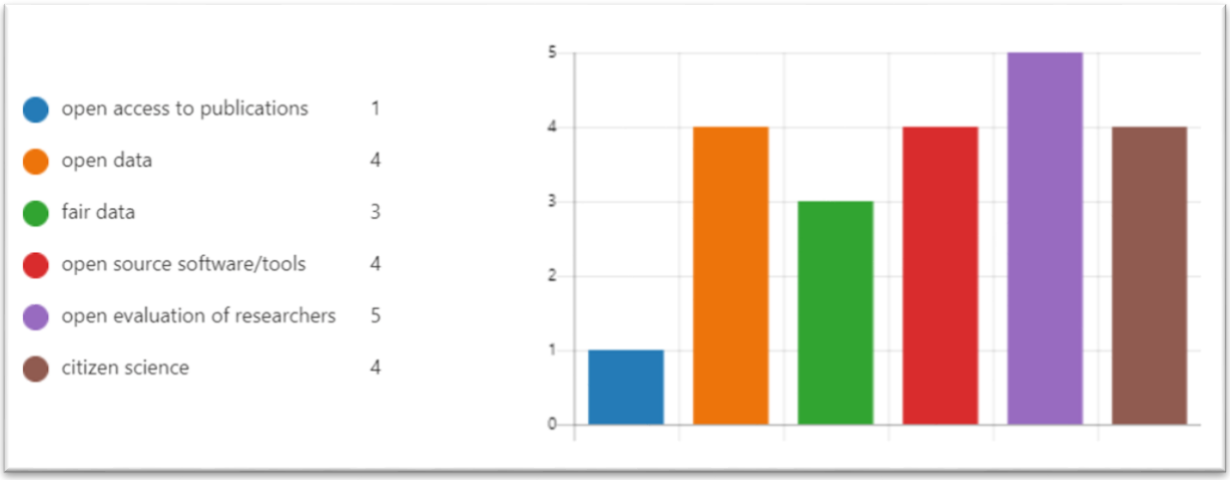
Q10 Is there a formal group/coordinating body overseeing open research with a governance structure and an open research strategy?

TU Dublin	TU Dublin Open Research Action Group (TUDORAG) is a meeting of all stakeholders reporting to the VP for Research & Innovation who also leads the official project established under the strategic plan to develop open research. Currently setting up an Open Research Support Unit that will report to TUDORAG and to the Project Governance Body.
h_da	not yet, but there is an informal initiative between library and the hessian research data infrastructure project
UTT	No
RTU	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 IT department and the Scientific Library of RTU.
TUS	Yes, recently a Committee of Fostering and Promoting Open Research Policy has been appointed.
UPCT	Working on it
CUT	No
UTCN	Dedicated scientific research rectorate

Q.14 Please indicate areas you feel your university has been most successful in.



Q.15 Please indicate areas you feel your university has the least success in



Q. 16 Does your university formally report on open research?

Q 17 Do different offices/departments in your university work together on open research (Library, Human Resources, and Research Office etc.)?

TU Dublin	Library research team works closely with the Research Office
h_da	Somewhat at the moment, but there are plans for closer integration in the future.
UTT	Library and research office
RTU	The Research Department coordinates the implementation of open research in RTU in collaboration with the IT Department, Library, Projects Department, Human Resources Department
TUS	Library and Research and Development Sector (Office) work together on all open research issues.

UPCT	Library and research
CUT	Library and research
UTCN	Research protectorate

Q18 Does your university have a CRIS system. If so, please provide a link

TU Dublin	In train to implement PURE research information System to be in place by September, 2021
h_da	The CRIS system is in the process of being developed; so far there is a publication portal: https://my.h-da.de/qisserver/a/fs.res.frontend/pub/search
UTT	No
RTU	RTU has developed Research information management system ZDAS which synchronizes data across the departments of RTU. https://ortus.rtu.lv/science/en/
TUS	https://ras.nacid.bg/dissertations-search
UPCT	Currently Intranet only but are investigating the acquisition of a more modern system.
CUT	Repository acts as a cris https://ktisis.cut.ac.cy/
UTCN	Research Portal https://research.utcluj.ro/index.php/simac.html

Q 19 Please describe the main features of your ORI e.g. Developed training programmes, publishing platforms, data stewards

TU Dublin	Complete and comprehensive suite of e resources. Ongoing training in use of resources. Training in all aspects of open research. Open Research Support Unit will work with 3 pilot projects over 3 years to standardise and evaluate ongoing training projects. We are also hoping to employ a data steward in 2021.
h_da	Data sharing applications for research projects (Nextcloud) Training and consulting on research data management issues (one fulltime employee.) Open Access Repositories for research data and publications are being planned
UTT	None
RTU	RTU scientific journals are published in Open Journal System . Research Department organizes workshops on open research for researchers and administrative staff.
TUS	Not applicable
CUT	Publishing platform
UTCN	Not applicable

Q.20 Please name and describe the systems/software used to support open research

TU Dublin	Scopus, Web of Science, Scival, Arrow@TU Dublin (repository) and currently local in- house project management database to be replaced by Pure Research information system
h_da	Sync and share Cloud Services for data sharing: Video-Conferencing Tools based on open source software: Gitlab version control for source code and data planned: OPUS repository software (Open Acces Publicationserver) DSpace repository for research data RDMO Research Data Management Organiser https://rdmorganiser.github.io/en/
UTT	HAL (Hyper-articles en ligne) : a national open archive, that allows universities to open institutional repositories. No local repository
RTU	RTU has developed Research information management system ZDAS
TUS	No response
UPCT	No response
CUT	Dspace-CRIS The researchers are connected to the institutional repository KTISIS with their ORCID account. Ktisis collect research data from Scopus Wos and ORCID.
UTCN	No response

Q 21 How many staff support this activity (infrastructure). Options 1-5, 5-10, 10-15, 15 plus

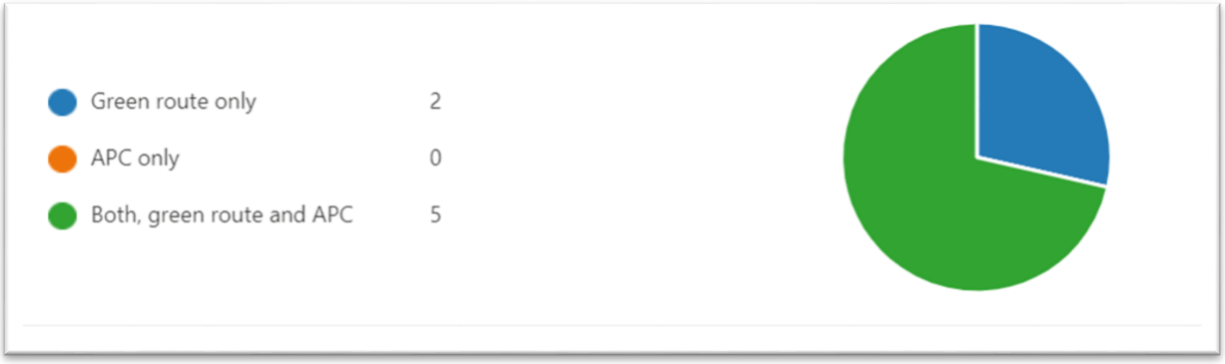
TU Dublin	1-5
h_da	1-5
UTT	1-5
RTU	1-5
TUS	5-10
UPCT	1-5
CUT	1-5
UTCN	1-5

Q 22 and Q 23 Does your university have an institutional repository, if so please provide a link and indicate whether it was built internally or is hosted externally?

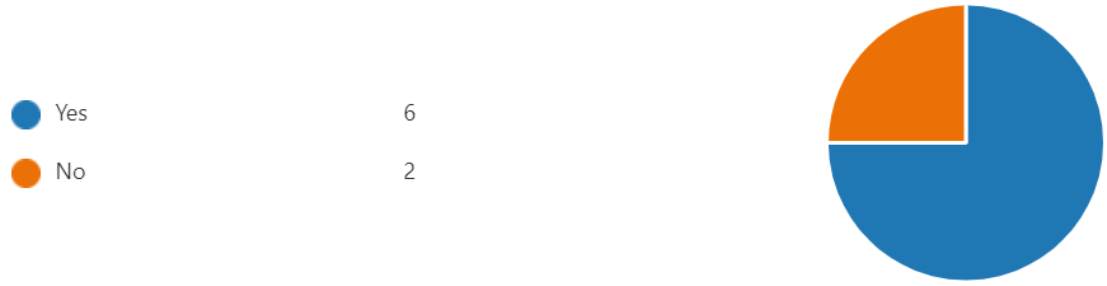
TU Dublin	Arrow@TU Dublin https://arrow.tudublin.ie/	Hosted externally. Supplied by Digital Commons, paid for by annual subscription. Unlimited storage.
H_a	not yet - but will be available within weeks	OPUS 4 repository software, hosted externally

		https://www.kobv.de/entwicklung/software/opus-4/ -
UTT	HAL UTT : hal-utt.archives-ouvertes.fr	HAL is a national platform where authors can deposit or index their work. Institutions can ask for their institutional archive. It is hosted externally.
RTU	https://ortus.rtu.lv/science/en/publications/	The repository was internally developed and its administration is coordinated by the Research Department.
TUS	Repository is nearly finished. The link will be provided shortly.	
CUT	https://ktisis.cut.ac.cy/	https://ktisis.cut.ac.cy/
UTCN	Not applicable	Not applicable

Q. 24 Does your university favour the green route to open access through the repository of does it support the payment of article processing charges or both?



Q. 25 Do you have the capacity to provide doi's (digital object identifiers)?



Q 26 How many staff support the institutional repository? Options 1-5, 5-10, 10-15, 15 plus

TU Dublin	1-5
h_da	1-5
UTT	1-5
RTU	1-5
TUS	5-10
UPCT	1-5
CUT	1-5
UTCN	1-5

Q 27 Please provide a contact name for the repository

TU Dublin	Aisling Coyne aisling.coyne@tudublin.ie
H_da Representative	
UTT	Jean-Baptiste Vu Van (vu_van@utt.fr)
RTU	Elza Vecpuise (Elza.Vecpuise@rtu.lv)
TUS	Christina Dimitrova hdimitrova@tu-sofia.bg
UPCT Representative	
CUT	Marios Zervas marios.zervas@cut.ac.cy
UTCN	Not applicable

Q.28 Which of these object identifiers does your university use? Please check all that apply.

Q. 29 Does your university have an academic press?

Q 30 Please provide a brief description of its activity

RTU	RTU Press is a leader in science and engineering publishing in Latvia. Its mission is to produce and deliver scientific literature to the students and faculties of RTU. Now its major publishing languages are Latvian and English. RTU Press is an autonomous department specializing in science publishing within the RTU structure and is under the direct supervision of the Vice-rector for Research. The RTU Press Regulation is strictly observed. It is professional and follows the best practices standard for academic publishing. RTU Press publish annually approximately twelve scientific journals, twenty academic books & scientific monographs, one hundred promotional summaries, and about forty scholarly aides and materials for media and advertising distribution. RTU Press publish for a wide, international audience and use the latest e-platforms and tools, and apply digital and offset printing. The RTU Press is a member of AEUP Association of European University Presses and CrossRef.

TUS	The publishing house of the Technical University of Sofia (PTUS) is unit in the structure of the Research and Development Sector. The main scope of activity includes: publishing and distribution of monographic research books, textbooks and study literature; publishing of scientific papers and conference proceedings and Dissertation summaries; as well as a variety of copying and printing services
UPCT	We give support to the initiatives for the development of scientific, educational and cultural content for the university community.
UTCN	The publishing house is profiled on the edition of books for didactic purpose, mainly university courses, laboratory and design guides, the authors being teachers of the Technical University. At the same time, scientific books of teachers are published. Over the 25 years of existence of nationally accredited publishing house, a number of over 1,600 titles have been published, these books having a number of over 1100 authors. If at first the books were only in print, then those in electronic format on CD-DVD and online appeared. Under the auspices of the publishing house, several scientific journals also appear, both in printed and electronic format.

Q 31 Does the Academic Press publish material that is free to read?

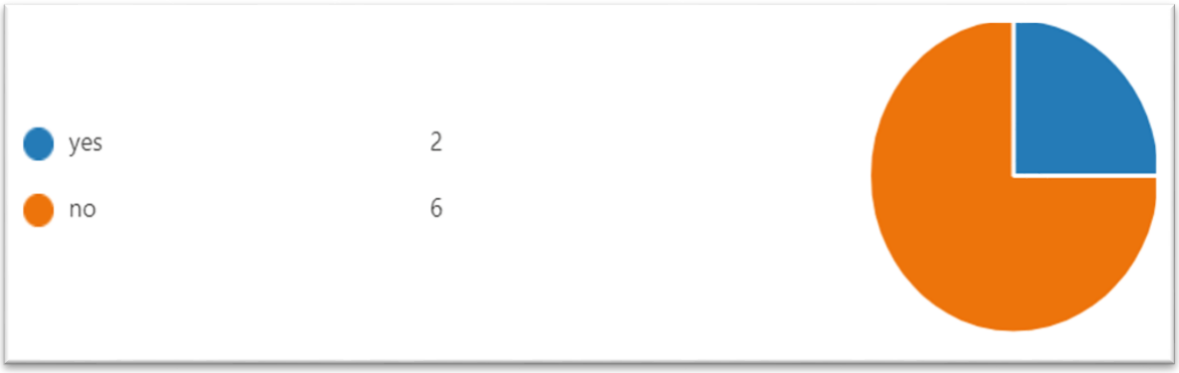
Q 32 Is the Academic Press cost neutral (ie covering costs by sales) or is it supported by the University?

Q 33 How many staff support the Academic Press?

Q 34 Please supply a contact name for the academic press

Representative of RTU
Representative of TUS
Representative of UPCT
Representative of UTCN

Q 35 Does your university have an institutional data repository?



Q 36 Please provide a link to the data repository

TU Dublin	https://arrow.tudublin.ie/data/
RTU	https://ortus.rtu.lv/science/en/datamodule/

Q 37 How many staff support the data repository? Options 1-5, 5-10, 10-15, 15 plus

TU Dublin	1-5
h_da	1-5

Q 38 Describe the system used for your data repository and whether it has been built internally or hosted externally?

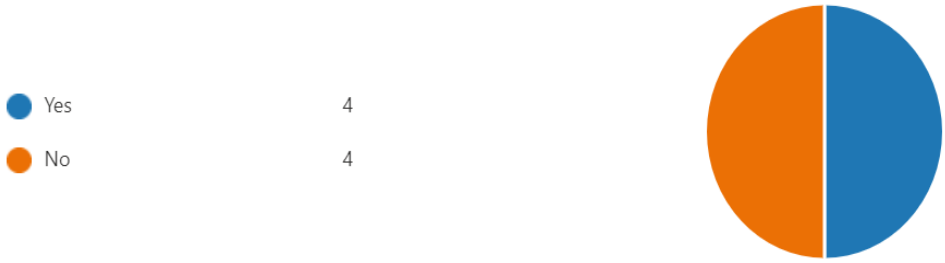
TU Dublin	Digital Commons Software, hosted externally
h_da	Opus software, hosted externally

Q 39 Please outline how your university deals with research data

TU Dublin	Currently up to researchers to self- archive in the data portal
h_da	Scientists are encouraged to deposit their data in public or subject-specific repositories. The institutional repository is currently under development.
UTT	No policy in this area currently.
RTU	RTU has a research data policy that states all research data from research that is funded by RTU must be as open as possible and deposited in a data repository (any data repository). Also, RTU has developed RDMP for researchers, but there is a lack of monitoring of RDMPs
TUS	At present research data is hosted internally and accessed only by the researchers directly involved in the specific research. Unless part of the original research group, scholars will not have free access to that data before it is officially published

UPCT	We recommend researchers to publish their research data on data repositories such as Zenodo or Dataverse.
UTCN	Several scientific journal in different domains do exist. Each journal has its own repository in open access.

Q 40 Do you have the capacity to provide doi's (digital object identifiers) for data?



Q41 Does your university employ data stewards or staff whose job it is to support researchers with managing their data? If so, please outline how they do this ie formal training, supporting projects etc.

TU Dublin	Not yet but soon. The first data steward will work with the pilot projects to help manage their data and will provide training in conjunction with the Open Scholarship Librarian
h_da	Yes - one person (in fulltime) who offers training and consultation regarding research data management
UTT	No
RTU	No, RTU does not employ data stewards. But if someone has a question about dealing with their research data, we always try to give an answer to help and solve the issue. People in the department for Research Coordination and Information are working on those issues. Also provide training to teach about research data and data repositories and DMP.
TUS	No
UPCT	No
CUT	No
UTCN	No

Q 42 How does your university support the creation of fair data

TU Dublin	In theory yes but doubtful we have the resource or infrastructure to support it
h_da	FAIR data is mentioned in every research data management training and it is advised to follow FAIR data standards
UTT	No support for FAIR data
RTU	There are no specific day to day activities for support of FAIR data. There has been some workshops about FAIR data.
TUS	No support
CUT	No support
UTCN	no

Q 43 Does your university have a policy around archiving research data

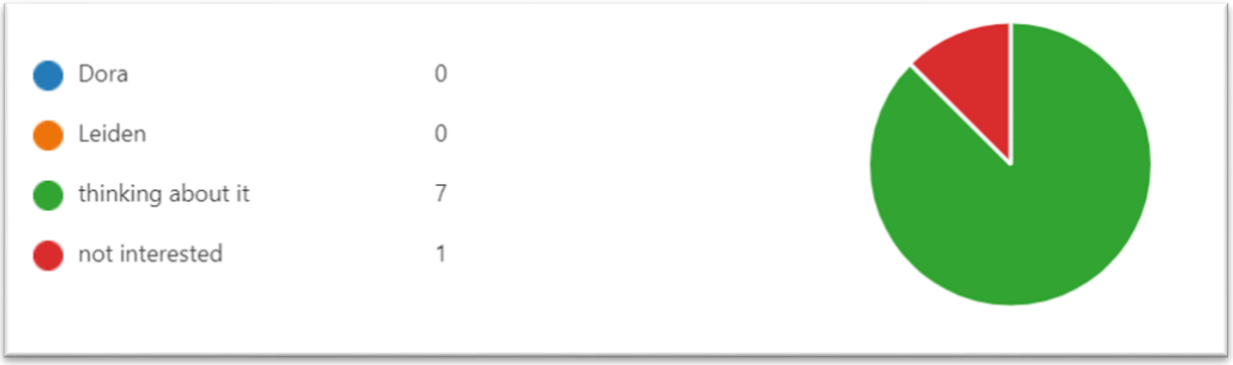
TU Dublin	No
h_da	Yes
UTT	No
RTU	No
TUS	No
UPCT	No
CUT	No
UTCN	No

Q 44 How are researchers evaluated in your university ie citation count, journal quality, funding etc.?

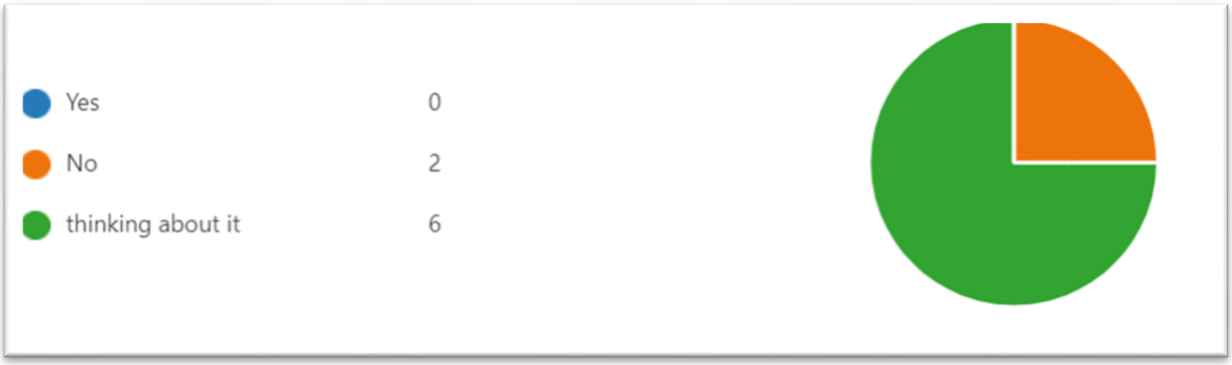
TU Dublin	Generally traditional metrics such as funding, citation counts, high quality journals, some qualitative statements
h_da	Every 5 years professors are required to submit a report about their work (Hessian science law), but there is no formal standard of the process/evaluation criteria. Sometimes Web of Science is used for special purposes.
UTT	Research teams are evaluated by a national committee (HCERES - High council for education and research of higher education) under the following indicators are : 1) Knowledge production, activities and academic collaborations contributing to the scientific influence and attractiveness, 2) Interactions with the non-academic environment, impacts on the economy, society, culture, health and 3) Involvement in training through research.

RTU	Number of publications in total, number of publications in SCI databases, journal quality, citation count, H-index.
TUS	We have an internal system for evaluation of researchers SOPCONI and also NACID (of the Ministry of Education and Science). Among the main criteria of evaluation arethe number of publications in SCOPUS and WoS, citation count, H-index, journal quality, publications in Open access journals, projects funding etc.
UPCT	Based on results: publications, patents, transfer and funded projects. Citation count, H-index, Scopus SJR and Wos JCR
CUT	Based on results: publications, patents, transfer and funded projects. Citation count, H-index, Scopus SJR and Wos JCR
UTCN	All of the above mentioned criteria

Q 45 Has your university signed up to DORA or Leiden?



Q 46 Does your university have any plans to incorporate non-traditional methods of research assessment when evaluating researchers (Altmetrics etc)?



Q 47 Does your university see any conflict arising between open research and the protection of IP?

TU Dublin	no. Have been assured by the Commercialisation Officer that there is no conflict between open research and protection of IP
h_da	Yes
UTT	Yes
RTU	Yes
TUS	Yes, there is a conflict between them, especially in terms of research co-operation with industry. Most of the research resulting from co-operation with industrial enterprises is subject to confidentiality and protected by IP. Partner companies are not interested in disclosing such data to the wider public and to their competitors. The. Intellectual Property Committee and Committee of Fostering and Promoting Open Research Policy assess the research and describe how much can be made open
UPCT	We respect the copyright agreements between editorials and researchers.
CUT	No
UTCN	Not sure

Q. 48 Does your university use Scival (Scopus) and/or Incites (Web of Science) for research evaluation?

Q 49 Does your university have any experience with Citizen Science?

Q 50 Please outline your programmes

TU Dublin	Limited experience but have the Programme for Students Learning with Communities. This programme involves lecturers and students working with community partners (charities, not for profit organisations etc) to develop real life projects. Projects are designed to help all participants.Posters for these projects are on the institutional repository at https://arrow.tudublin.ie/comlinkoth/
UTT	During the COVID-19 pandemic, the Research Unit CREIDD created a weekly meeting open to the public to discuss how the pandemic was changing normal life
UPCT	We have the Scientific Culture and Innovation Unit to promote research activities such as a project to raise young people awareness of sea garbage and microplastics.

	https://www.upct.es/unidad-cultura-cientifica/es/inicio/

Appendix 5: Scopus data

Acquired 13.04.2021.

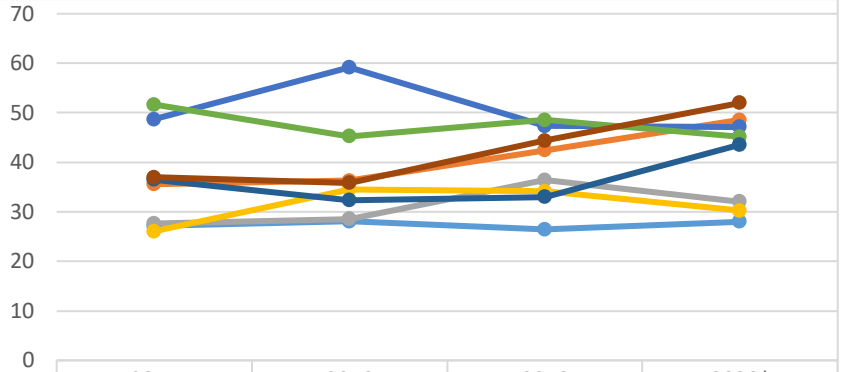
All – all publications

OA – open access publications

% - percentage of open access publications

	2017			2018			2019			2020		
	ALL	OA	%	ALL	OA	%	ALL	OA	%	ALL	OA	%
Technical University of Sofia	413	112	27	612	172	28	877	232	26	692	194	28
Cyprus University of Technology	402	143	36	397	144	36	441	187	42	492	239	49
University of Technology of Troyes	246	68	28	252	72	29	302	110	36	256	82	32
Hochschule Darmstadt, University of Applied Sciences	92	24	26	113	39	35	120	41	34	86	26	30
Technological University Dublin	524	255	49	502	297	59	513	243	47	537	253	47
Riga Technical University	991	512	52	820	371	45	873	424	49	733	331	45
Technical University of Cluj-Napoca	913	333	36	832	269	32	970	320	33	909	396	44
Technical University of Cartagena	468	173	37	497	178	36	575	255	44	606	315	52
Average			36			38			39			41

Percentage Open Access Publications



	2017	2018	2019	2020*
Technical University of Sofia	27	28	26	28
Cyprus University of Technology	36	36	42	49
University of Technology of Troyes	28	29	36	32
Hochschule Darmstadt, University of Applied Sciences	26	35	34	30
Technological University Dublin	49	59	47	47
Riga Technical University	52	45	49	45
Technical University of Cluj-Napoca	36	32	33	44
Polytechnic University of Cartagena	37	36	44	52

EUT+ Workpackage 8.6.7 report 28 October, 2021

This work package is concerned with open research and with 2 specific deliverables

1. Institutional Repository for the EUT+
2. Academic Press for the EUT+

It would be fair to say that there is a great deal of variation among the member institutions with regards to open research, open access to publications and open data. All member institutions are comfortable with open access to publications but not so much with other areas in particular open access to data. In addition, many national evaluation systems assess research quantitatively i.e. citations and journal impact factor and do not take open research into account.

The first year of the project was concerned with establishing the degree of openness in each institution culmination in a landscape report in April 2021. This made a number of recommendations

1. EUT+ should adopt, as far as possible, a common approach to OR including a Statement of OR Principles and a common OR dictionary.

2. EUt+ should develop a common training and awareness programme across all aspects of OR both for researchers, research managers, students and others for whom it is relevant.

3. EUt+ should examine ways to leverage existing CRIS and OR infrastructure to support OR. Specifically, a common presentation layer for individual Institutional Repositories providing for a real ‘window’ on EUt+ outputs.

4. EUt+ should consider leveraging the existing 4 Academic Presses within the network. A sub-group of Academic Press managers should be set up to study the feasibility of providing an Academic Press across the network using a combination of the existing 4.

5. EUt+ should establish a subgroup to examine the feasibility of introducing a common DORA or Leiden type evaluation framework for research within the network.

6. EUt+ should establish a subgroup to examine the feasibility of coordinating RGMSs, CRISs, or RIMs. While this is more broadly applicable than just supporting OR, the potential to rapidly build new research teams, research income and to increase the variety and quantity of research outputs

It was felt that as all institutions were currently providing training and support in this area it was better to concentrate on 4 of the recommendations and leave number two to a later date. Four sub-groups were established to look at a common research information system, a common repository, an academic press and a group to look at responsible metrics and evaluation. These 4 groups commenced work in June, 2021. All groups report back to the general meeting of Workpackage 8.6.7 which takes place several times a year.

1. **Institutional Repository**

   This subgroup has met twice since June to discuss the issue. Contact was made with OpenAire and a solution for the repository was decided on by using OpenAire. This will be free for two years at least. A memo of understanding between OpenAire and TU Dublin (the lead organisation in the work package) was signed in August 2021. This will provide a full-text, open access repository

with full analytics on downloads, types of materials etc. While most of the existing repositories are already harvested by OpenAire, many need to update their configuration to support OpenAire guidelines for version 4.0 and this task is underway. Another action is to find a name for the EUT+ repository, some current suggestions are EUTility, EUTInfo and EUTOR (EUT open repository). Currently members are looking at existing metadata fields used by the various repository to devise an EUT+ template for OpenAire.

2 Academic Press

After the survey, it was established that the existing academic presses were in various stage of development and were print only. It was decided in the spirit of open research the EUT+ Academic Press will be an open access, online press with a print on demand facility. Book design and layout will be provided by TU Dublin and the print on demand facility by Darmstadt. Given the time constraints (2 years) and a general lack of resources 2 possible models were explored. The first required resources and staff, the second leverages facilities available within in the network. A report and presentation were given to the WP Steering Board and they opted for the second model.

It was felt the publishing platform provided by digital commons software available through the Arrow Repository (TU Dublin) was the most sophisticated one available since it has a journal and book publishing module providing double blind peer review. Two representatives from TU Dublin are currently in negotiation with Elsevier (the owners of the Digital Commons Software) with a decisive meeting to take place early November. It is hoped that the outcome of this meeting will be favourable. In which case the design of the site can go ahead.

In the meantime, the subgroup working on the press has decided to set up an advisory board around the press. This will be made up of academics from each institution (so far 5 from TU Dublin, 3 from Troyes). It is intended that this advisory board will meet before Christmas. The purpose of the board will be to advise on the type of material to be published, to endorse and sanction policies and guidelines and it is hoped in time that an editorial board can be made up from this membership.

Establishing an academic press in the time frame available will provide proof of concept. The subgroup would hope to be in a position to publish material in 2022 but it is important that the correct standards, policies and guidelines are established first and that may take some time. Moreover, there will need to be common approach to promotion and advocacy to encourage academic staff to publish with the press. Indeed, some positive incentives may be needed to encourage early adopters.

Current Research Information System (CRIS)

The first task this group undertook was to assess the current situation in each university, i.e. what software is being used and which research information types are collected. Also, in the case where a university did not have a CRIS, were there plans to establish one. A discussion also took place around what common metadata standard could be used in particular CERIF. This is a common theme in all sub-groups, the need to agree on a common standard and a common approach.

The group has now developed a very basic mock-up for a common research portal based on the OpenAIRE CRIS Guidelines. This to get an idea what such a website could look like and how complicated it will be to implement these data models. The group intends to have a first specification draft for a

common research portal and possible options for an implementation by the end of 2021.

Metrics Sub-Group

Metrics and evaluation of research and researchers in an open research environment is a subject of much debate currently. The sub-group's objectives are:

- to prepare a landscape report on research evaluation in the universities.
- to agree a common approach and provide recommendations for research evaluation based on the DORA and LEIDEN declarations.

The group has held two meetings so far. The first meeting provided a snapshot of how research evaluation is being carried out in the member universities. The group is currently investigated the global situation to see what other countries/ universities have done. At the second meeting, each representative presented their national policies in this area. These presentations will shortly be presented to the larger working group in the form of a document for discussion.

Summary.

Work package 8.6.7 are dealing with come complex matters in regard to open research. It is encouraging that so much in the sense of a common purpose, objectives and understanding has been achieved. The only area currently not being address is a common training policy and that is down to constraints of time. However, in the next survey to be run in April 2022, 2 new sections will be incorporated to include Research Evaluation and Training and Support.

OpenAIRE-NEXUS - European University of Technology
Memorandum of Understanding

Preamble

Whereas, OpenAIRE-Nexus aims to establish an open and sustainable scholarly communication infrastructure responsible for the overall management, analysis, manipulation, provision, monitoring and cross-linking of all research outcomes.The OpenAIRE Research Graph is one of the largest open scholarly record collections worldwide, key in fostering Open Science and establishing its practices in the daily research activities. Conceived as a public and transparent good, populated out of data sources trusted by scientists, the Graph aims at bringing discovery, monitoring, and assessment of science back in the hands of the scientific community.

Whereas to establish an open access gateway on behalf of the European University of Technology (EUt+ https://www.univ-tech.eu) which is an alliance of 8 universities: Technological University Dublin, Riga Technical University, Cyprus University of Technology, Technical University of Cluj-Napoca, Polytechnic University of Cartagena, University of Technology Troyes, Technical University of Sofia and Hochschule Darmstadt.

Parties

This Memorandum of Understanding (MOU), hereinafter referred to as the Memorandum, entered into the following agreement “Agreement”, by and between OpenAIRE-Nexus composed by a consortium of 11 partners and represented by Natalia Manola, the CEO of OpenAIRE A.M.K.E., the organization coordinating the OpenAIRE Nexus consortium, via OpenAIRE A.M.K.E, located at Artemidos 6 & Epidavrou, 15125, Marousi, Greece, VAT number: EL997032008, hereinafter referred to as the "First Party," and Technological University Dublin, Park House, 191/193 N Circular Rd, Phibsborough, Dublin 7, D07 EWV4, . VAT number:IE3574697EH, hereinafter referred to as the "Second Party," and collectively known as the "Parties" for the purpose of establishing and achieving various goals and objectives relating to this MoU.

The OpenAIRE-Nexus project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 101017452.

Relevant Projects

OpenAIRE Nexus: an EU Horizon 2020 project with Grant agreement number 101017452.

Second Party Projects:

- EUt+ Open Research Pilot
- EUt+ Confederal Academic Press
- EUt+ Confederal cRIS

Collaboration Goals

OpenAIRE and EUt+ teams will collaborate to capture and display in a unique, new EUt+ alliance-branded web space selected locally-held institutional and project-based open access content of common interest, improving its discoverability, aggregating work from all partners and showcasing the developing synergies and connections across this European University Network.

OpenAIRE will offer a CONNECT gateway (connect.openaire.eu) as a single entry-point to all research outputs of the Second Party.

Second Party will ensure, with the support of OpenAIRE, its repositories are compliant to the OpenAIRE guidelines (guidelines.openaire.eu) so that their outputs are available in the gateway and counting statistics to measure the uptake of Open Science practices (e.g. Open Access, use of identifiers, links between publications and datasets).

In addition, Second Party repositories will have the possibility to use other services for Open Science offered by OpenAIRE via the Content Provider Dashboard (provide.openaire.eu), such as the service for counting views and downloads (usagecounts.OpenAIRE.eu) to measure the uptake of Open Science, or other stand alone services such as Argos DMP (argos.openaire.eu).

Collaboration Activities - Parties Obligations

Achieving our collaborative goals are specified in the following strands of collaboration and activities

- Compliance to OpenAIRE guidelines
    - EUt+ will involve the EUt+ repository managers working group to ensure the repositories are compliant to the OpenAIRE guidelines.
    - OpenAIRE will provide support for the implementation of the guidelines and the aggregation of metadata from the EUt+ repositories.
- OpenAIRE CONNECT Gateway
    - OpenAIRE will deliver a community gateway where all research outputs and grants from the EUt+ OpenAIRE compliant repositories are made discoverable.
    - OpenAIRE will keep the gateway updated frequently based on the OpenAIRE Research Graph update schedule (currently about once every two weeks).
    - EUt+ will configure the gateway according to the EUt+ alliance brand and verify it is properly configured to include the metadata records from all its repositories
    - EUt+ and OpenAIRE will collaborate to design and possibly pilot an API for the (almost) real time update of the OpenAIRE Research Graph and gateway when a research product is deposited in one of the EUt+ repositories
- AAI
    - OpenAIRE login will be updated, if necessary, to work with the EUt+ edugain to provide EUt+ members a seamless access to all OpenAIRE (EOSC) services
- OpenAIRE Content Provider Dashboard

The OpenAIRE-Nexus project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017452.

        - EUt+ and OpenAIRE will support EUt+ repository managers at using services available via the OpenAIRE Content Provider Dashboard (e.g. UsageCounts, Broker [making metadata records complete])
- OpenAIRE Institutional Monitoring Dashboard
    - EUt+ will use the OpenAIRE OpenOrgs web tool to curate metadata about its universities
    - For interested universities of the EUt+ alliance, OpenAIRE will provide an institutional monitor dashboard
- Other OpenAIRE services: EUt+ will investigate the needs of its members and identify other OpenAIRE services/products to be adopted (e.g. definition of an EUt+ template for Data Management Plans with Argos). The list of available OpenAIRE services/products is available in the Appendix of this MoU.

Timeline

The timeline of the services delivery will be inline with the OpenAIRE-Nexus project duration from the date of the signed MOU until its completion at June 2023. The same applies for the Second Party and any projects that affect the development and completion of the services it will provide.

OpenAIRE and EUt+ agree to organize the activities in three (3) phases, as follows:

- Phase 1A (Fall 2021):
    - EUt+: OpenAIRE compliance of EUt+ repositories
    - OpenAIRE: delivery of the EUt+ gateway
- Phase 1B (Fall/Winter 2021):
    - EUt+/OpenAIRE: presentation and adoption of the OpenAIRE Content Provider Dashboard and its added-value services
- Phase 2 (Winter 2022):
    - OpenAIRE: AAI and EUt+ edugain
    - EUt+/OpenAIRE: institutional monitoring dashboards
    - EUt+: identification of additional OpenAIRE services that can be useful to support the Open Science policies of the EUt+ alliance and its members
    - EUt+/OpenAIRE: design and possibly pilot API for (almost) real time update of the OpenAIRE Research Graph and gateway

Communication and Dissemination

Both parties will commit to communicating this MOU and the successful outcomes via respective communication channels and both will approve any public statements and outcomes. For example: a web page / blog post, reports on the use cases, sharing logos, icons, badges and web-embeddings, presentations on conferences, and a newsletter where we share the experience of working together and the results.

Notice

Any notice or communication required or permitted under this Memorandum shall be sufficiently given if delivered in person or by certified mail, return receipt requested, to the address set forth in the opening paragraph or to such address as one may have furnished to the other in writing.

The OpenAIRE-Nexus project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017452.

Governing Law

This Memorandum of Understanding shall be governed by and construed in accordance with the laws of the EU.

Authorization and Execution

The signing of this Memorandum of Understanding does not constitute a formal undertaking, and as such it simply intends that the signatories shall strive to reach, to the best of their abilities, the goals and objectives stated in this MOU.

This Agreement shall be signed by **Natalia Manola** and **John Donovan** and shall be effective as of **September 1, 2021**.

NATALIA MANOLA
Aug 19 2021 10:19:AM

19 August 2021

(First Party Signature) (Date)

OpenAIRE A.M.K.E. CEO

4 August 2021

(Second Party Signature) (Date)

Director of Research, Enterprise & Innovation Services

The OpenAIRE-Nexus project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017452.

Appendix

For dissemination purposes, the spectrum of OpenAIRE-Nexus services and some OpenAIRE - European Funded tools are presented in this section, to inform the Second Party on further future collaborations that may arise.

OpenAIRE Nexus services

Details: https://www.openaire.eu/openaire-nexus-project

Graph	OpenAIRE Research Graph - an open resource that aggregates a collection of research data properties (metadata, links) available within the OpenAIRE Open Science infrastructure for funders, organizations, researchers, research communities and publishers to interlink information by using a semantic graph database approach. Read more here
PUBLISH	Zenodo - a catch-all repository hosted by CERN, which researchers, communities or Research Performing Organizations, and citizens can use for FAIR sharing and long-term preserving research results
	EpiSciences - a pan-European overlay journal platform, operating on top of OA repositories (e.g. HAL, Zenodo, arXiv), where communities can create and operate high-quality OA journals
	Amnesia - a service to anonymize sensitive research data (GDPR compliant), ready to be embedded in institutional workflows, to remove barriers and facilitate FAIRness of data
	ARGOS - a service for machine-actionable Data Management Plans, guiding researchers towards FAIR, configurable to domain discipline knowledge
MONITOR	MONITOR Dashboard - customized portals as-a-service to funders, institutions and RIs detailing research throughput, output, collaboration and impact, open science uptake. Based on the OpenAIRE Research Graph, a semi-automatically curated catalogue to serve the EOSC and the global research community, which includes all types of scholarly records (publications, data, software, other research artefacts), interlinked via citations, and maintaining provenance information about all actors involved in the research process (researchers, organizations, funders, service providers)
	OpenCitations - an open database that tracks article-article citations
	ScholExplorer - an open database that tracks article-dataset and dataset-dataset citations

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UsageCounts - an open analytics service aggregating and de-duplicating publications DOI usage data

OpenAPC - article and book publishing costs (APC and BPC) from research institutions and funders. Read more here

Open Science Observatory - a dashboard that includes statistics and monitoring information on open science in Europe, with country views

OpenAIRE AAI - Enables Service Providers to deliver services and offer access to resources to research communities and individual researchers, allowing users to use their institutional and community-enabled digital identities.

DISCOVER

PROVIDE Dashboard - a bundle of services for content providers to share and exchange metadata and content using EOSC metadata frameworks and Rules of Participation. The service provides metadata validation, reporting and brokering functionalities, providing feedback about gaps between EOSC data sources, maintaining an up-to-date scholarly record

EXPLORE Dashboard - an AI-driven research search engine allowing cross-disciplinary and scientificintent discovery, additionally providing access to the OpenAIRE Research Graph via open APIs

CONNECT Dashboard - customized portals/gateways as-a-service to research communities (domain specific or regional) with open science practices embedded by design

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