The 'EIFL Big 6'
- 6 key research literacy skills every researcher should have –

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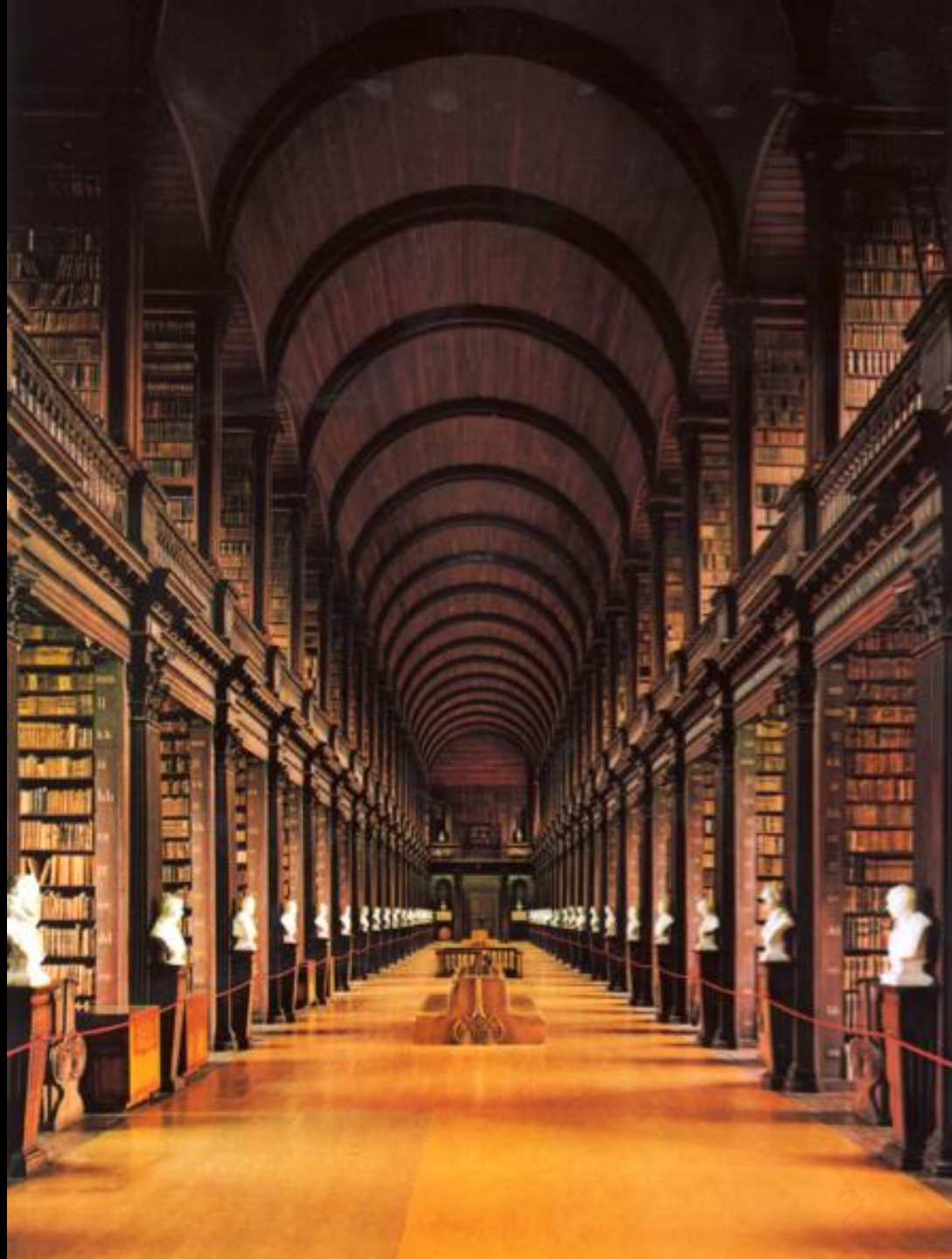Trinity College Dublin
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The Research Informatics Unit, The Library, Trinity College Dublin

- Current Research Information System (CRIS);
- Institutional Repository (TARA);
- Metrics tools & resources: expertise, training & reporting;
- Research evaluation & reporting, internal & external;
- Academic Junior & Senior Promotions; Research indicators process;
- Social/public engagement / involvement: reporting;
- Impact capture & reporting;
- Accreditation process on selected programmes eg Business School accreditation
- Research data management (guidance on DMPs etc.);
- Special Projects (OpenAIRE-Advance; National Bibliometric Project; National Open Research Forum…);
- ePublishing (journal archiving & publishing);
- eThesis Process;
- Training, workshops etc. at all levels;
- More…
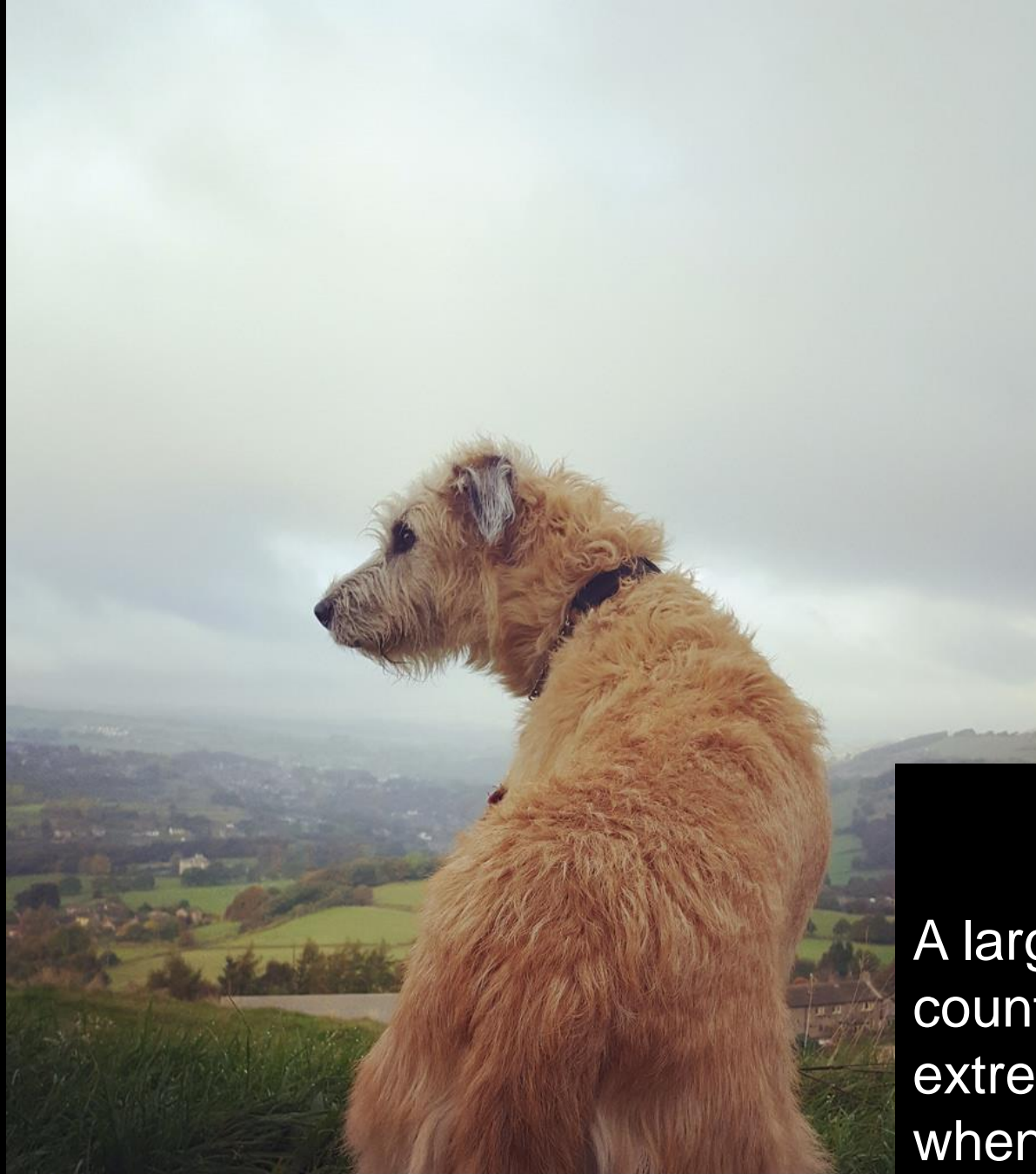
Irish Wolfhound

A large dog from a small country. Strong, gentle and extremely brave (especially when encountering wolves).

The Research Information Landscape

Research Profiles owned and edited by you

- University CRIS /IR profile
- ORCID profile
- Google Scholar profile
- ResearcherID profile
- Scopus profile
- Researchgate/ Academia.edu (etc.)

Citation & metrics sources

- Scopus
- Web of Science
- Dimensions
- Google Scholar
- Publish or Perish
- Altmetrics.com
- PlumX
- Impact Story
- Kudos (etc.)

Identifiers

- ORCID number
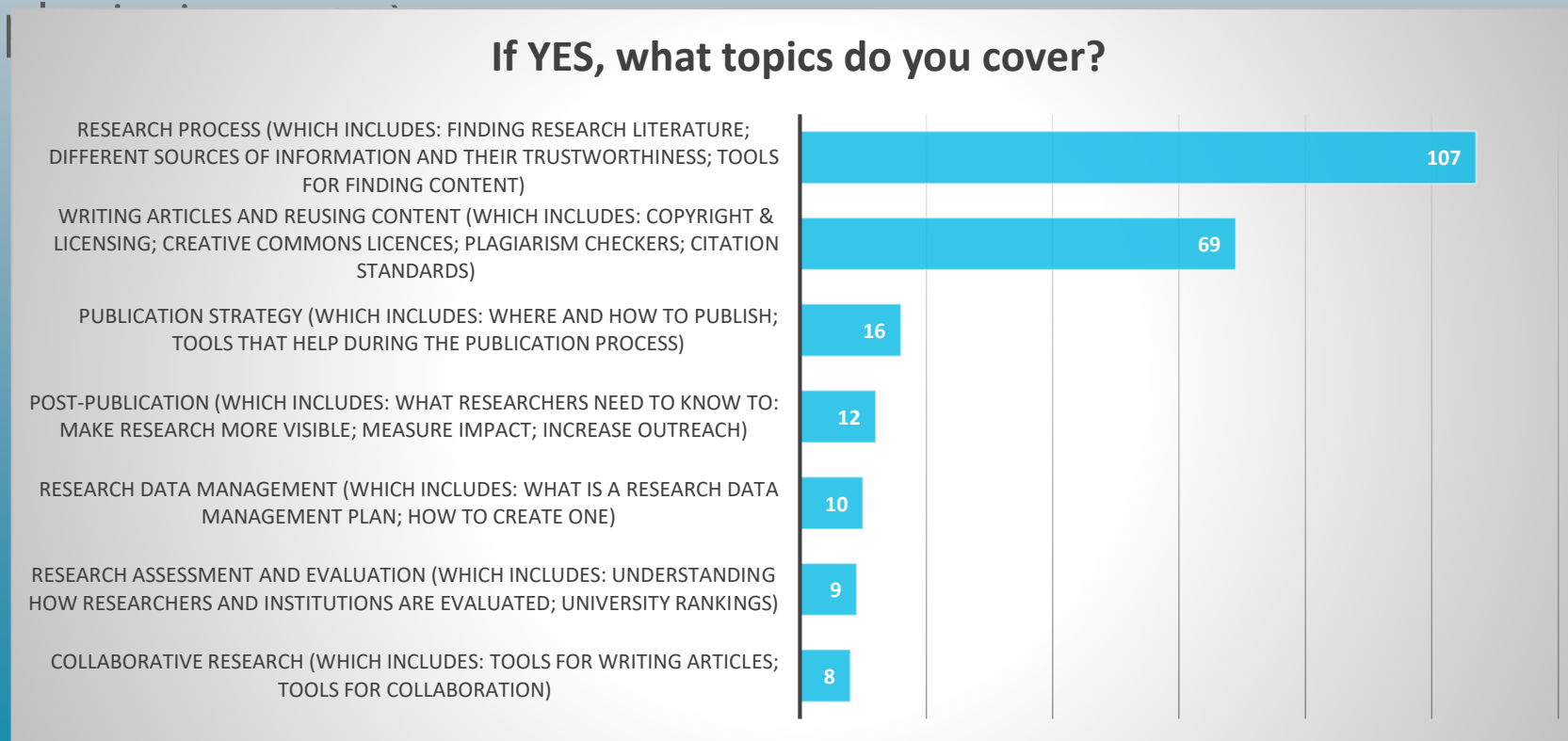- Researcher ID
- Scopus ID
- DOIs
- Others…

Repositories/Platforms: Archiving, Management & Dissemination Resources

- Institutional Repository
- Subject Repositories
- PubMed Central
- Data repositories (commercial & open source)
- Publishing platforms
- Publishing tools
- Data Management: resources
- Impact case studies: resources

- EIFL The survey on digital research literacy

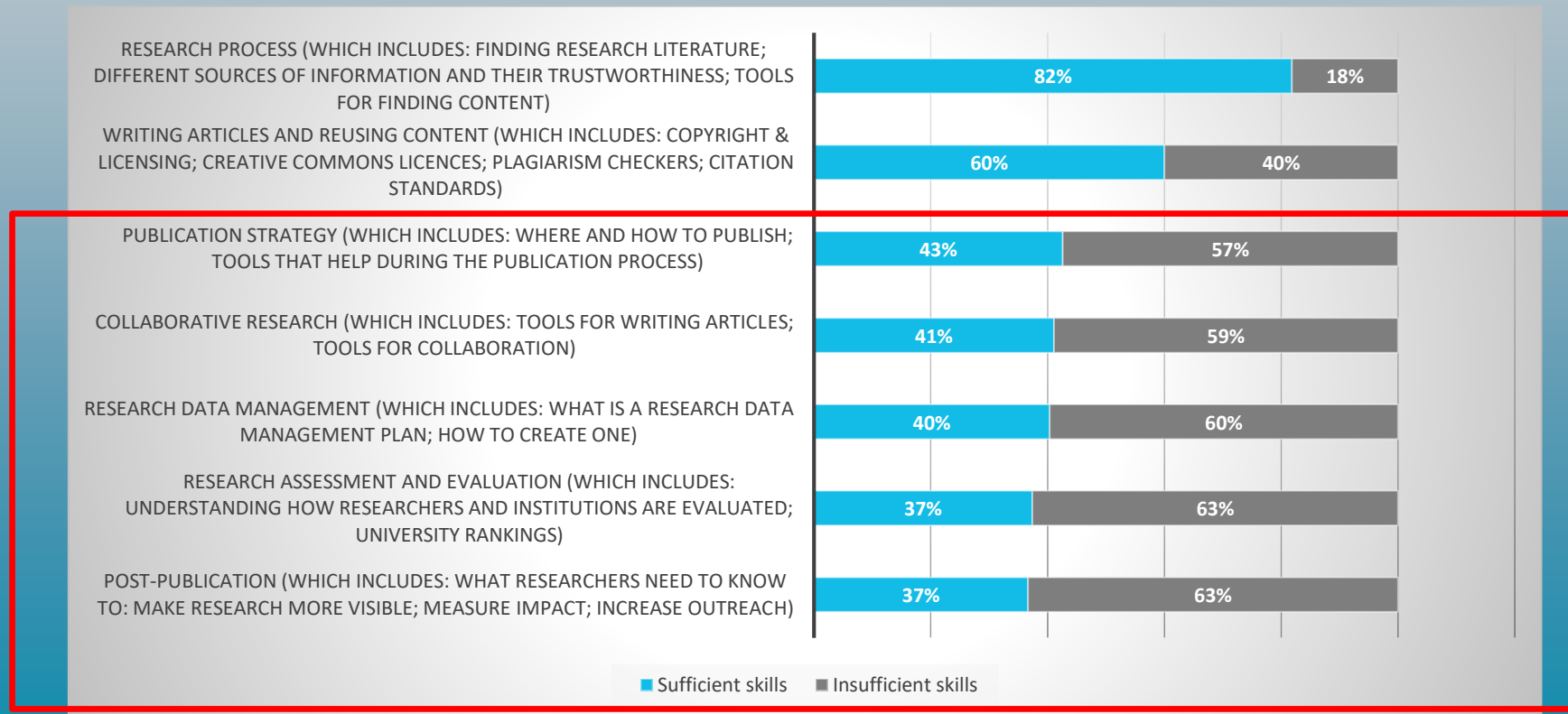# Training for researchers – topics

The training is mainly covering research process (e.g. information searching, access to different e-resources, evaluation process, etc.) and writing articles and reusing the content (e.g. copyright, open access, citation and referencing,

If YES, what topics do you cover?

Topic	Value
RESEARCH PROCESS (WHICH INCLUDES: FINDING RESEARCH LITERATURE; DIFFERENT SOURCES OF INFORMATION AND THEIR TRUSTWORTHINESS; TOOLS FOR FINDING CONTENT)	107
WRITING ARTICLES AND REUSING CONTENT (WHICH INCLUDES: COPYRIGHT & LICENSING; CREATIVE COMMONS LICENCES; PLAGIARISM CHECKERS; CITATION STANDARDS)	69
PUBLICATION STRATEGY (WHICH INCLUDES: WHERE AND HOW TO PUBLISH; TOOLS THAT HELP DURING THE PUBLICATION PROCESS)	16
POST-PUBLICATION (WHICH INCLUDES: WHAT RESEARCHERS NEED TO KNOW TO: MAKE RESEARCH MORE VISIBLE; MEASURE IMPACT; INCREASE OUTREACH)	12
RESEARCH DATA MANAGEMENT (WHICH INCLUDES: WHAT IS A RESEARCH DATA MANAGEMENT PLAN; HOW TO CREATE ONE)	10
RESEARCH ASSESSMENT AND EVALUATION (WHICH INCLUDES: UNDERSTANDING HOW RESEARCHERS AND INSTITUTIONS ARE EVALUATED; UNIVERSITY RANKINGS)	9
COLLABORATIVE RESEARCH (WHICH INCLUDES: TOOLS FOR WRITING ARTICLES; TOOLS FOR COLLABORATION)	8

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Confidence and skills in digital research literacy

The only two areas where over 50 percent of respondents feel fully or partly confident in their skills are "Research process" and "Writing articles and reusing content". For all other subject areas respondents either need help or have no skills at all.

	Sufficient skills	Insufficient skills
RESEARCH PROCESS (WHICH INCLUDES: FINDING RESEARCH LITERATURE; DIFFERENT SOURCES OF INFORMATION AND THEIR TRUSTWORTHINESS; TOOLS FOR FINDING CONTENT)	82%	18%
WRITING ARTICLES AND REUSING CONTENT (WHICH INCLUDES: COPYRIGHT & LICENSING; CREATIVE COMMONS LICENCES; PLAGIARISM CHECKERS; CITATION STANDARDS)	60%	40%
PUBLICATION STRATEGY (WHICH INCLUDES: WHERE AND HOW TO PUBLISH; TOOLS THAT HELP DURING THE PUBLICATION PROCESS)	43%	57%
COLLABORATIVE RESEARCH (WHICH INCLUDES: TOOLS FOR WRITING ARTICLES; TOOLS FOR COLLABORATION)	41%	59%
RESEARCH DATA MANAGEMENT (WHICH INCLUDES: WHAT IS A RESEARCH DATA MANAGEMENT PLAN; HOW TO CREATE ONE)	40%	60%
RESEARCH ASSESSMENT AND EVALUATION (WHICH INCLUDES: UNDERSTANDING HOW RESEARCHERS AND INSTITUTIONS ARE EVALUATED; UNIVERSITY RANKINGS)	37%	63%
POST-PUBLICATION (WHICH INCLUDES: WHAT RESEARCHERS NEED TO KNOW TO: MAKE RESEARCH MORE VISIBLE; MEASURE IMPACT; INCREASE OUTREACH)	37%	63%

■ Sufficient skills   ■ Insufficient skills

Topic	What	How	The EIFL Big Six Focus
Research Data Manage-ment	Creating & maintaining research data management plans (DMPs)	Use of tools/resources eg: • DMP Online • FAIR Data Wizard	**Data Management via Data Management Plans (DMP) – Outline/Initial, Full, Final**
Collaborat-ive research	Tools for writing articles; tools for collaboration.	Google Drive, Dropbox, Open Science Framework, Partner-finding, networking tools.	**ORCID number** **Validated, Current Research profile** **Metrics**
Publication strategy	Where & how to publish; tools that help during the publication process	Audience & potential impact analysis (using metrics tools)	**ORCID number** **Metrics** **Open Access**
Post-publication	How to make research more visible; measure impact; increase outreach	Use of all available scholarly communication tools as well as social media. Gain further impact by monitoring & reporting impact.	**ORCID number** **Validated, Current Research profile** **Metrics** **Open Access** **Data Management** **mpact statement**
Research assessment and evaluation	How researchers and institutions are evaluated; University Rankings	Metrics + Reputation (using bibliometrics tools & reputational surveys, publishing tools etc.) + [for rankings]: Institutional demographics (staff/student ratio etc.)	**ORCID number** **Validated, Current Research profile** **Metrics** **Open Access** **Data Management** **Impact statement**

Well camouflaged, can be almost invisible…
Breaks cover to gain impact i.e. if it wants to eat.

The EIFL Big Six

1. ORCID number

The ORCID number is essential for author disambiguation. The ORCID profile is internationally recognized. It is increasingly used in national research evaluations. It is quick and FREE for individual researchers.

It should be USED:

- Included on research profiles, including in Scopus, Web of Science etc.
- Included on personal addresses, email & business cards
- Cited when publishing journal articles.

- Library staff should lead by example!

Strong presence.
Clear reputation,
commands esteem

2. Validated, Current Research profile [/s]

Researchers need to maintain at least 2-3 research profiles:

1) An institutional/university research profile (if it is available)
2) An ORCID profile
3) A 'portable' bibliometric/impact profile [e.g. Google Scholar profile]

- Research profiles should be linked to one another, if possible.
- They should be used on research webpages & business cards
- Their data should be automatically updated whenever possible.
- They should be kept current and validated.
- Specialist / commercial profiling resources may be used optionally eg ResearchGate, Academic (with caveats).

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Big – powerful in the right environment, frequently misunderstood.
To be treated with respect and care.

3. Metrics: Bibliometrics (citations, h-index etc.); Altmetrics (media, social media, web impact…]; Open Research metrics.

a) Skills in the use of Web of Science, Scopus, Dimensions and/or Google Scholar are necessary to find and update standard bibliometric statistics about a researcher, research group or institution. Not suitable for all subject areas or for many types of research outputs (eg Arts, Humanities / books, chapters)

b) An understanding of Altmetrics and the tools supporting 'next generation metrics' should help produce information to balance the bibliometric data with data on a broader type of impact (news items, references in policy papers, social media, Wikipedia entries, etc.

c) Open Research metrics: very useful for tracking interdisciplinary impact & non-academic usage. (Hits, downloads, country, source).
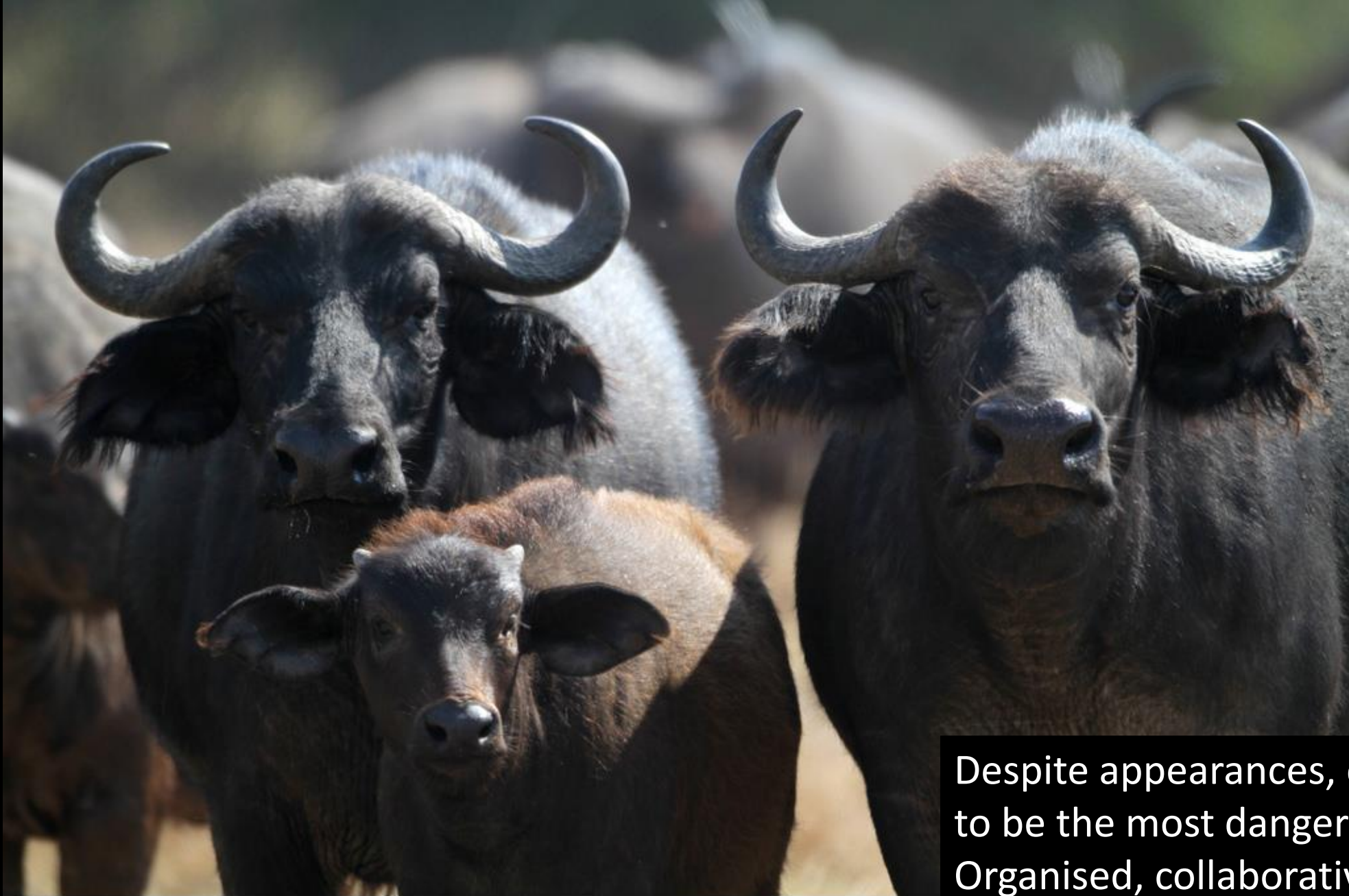
Despite appearances, considered to be the most dangerous animal. Organised, collaborative, free-ranging... highly disruptive**.**

4. Open Access – top publications must be Open Access (and tracked for impact).

a) All researchers at every level, regardless of field/discipline need to understand Open Access, copyright policies and how to make their work openly available.

b) At a minimum, a researcher should start strategically by ensuring his/her top 5 publications are fully Open Access along with 'hot' new work.

This is required for:
➢ Compliance with funder/institutional policies
➢ Attracting citations
➢ Maximising societal impact
➢ Attracting collaborators & funding
➢ Attracting students, especially international students

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Untold potential, generally hidden and vulnerable, needs ongoing care and support.

5. Data Management via DMPs

Outline/Initial, Full, Final

Research Data Management is now required by many funders and institutions worldwide. Data Management Plans are tools to support this. DMPs are required at the proposal stage, project start, review and final stages of the research. At a minimum, a researcher should ensure that legal and ethical standards for research data (especially for human subjects) are kept and that the data are stored, backed-up and preserved correctly. & open if possible, restricted if necessary.

This is required for:
➢ Compliance with funder/institutional policies
➢ Publishers, for verification/reproducibility of results
➢ If accessible, can attract citations
➢ If accessible, can maximising societal impact
➢ If accessible, can attract collaborators & funding
➢ If accessible, can attract students, especially international students

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Capable of real impact – but elusive. Increasingly rare, much sought after. Sometimes attributed with magical properties.

6. Impact statement/case study. Societal, economic, cultural impact.

Major funders and many national research evaluation analyses are now more focused on Societal, Economic & Cultural Impact. This includes the European Commission as part of its new programme, 'Horizon Europe' which is 'mission-based' & linked with the UN SDGs. Writing an Impact case study is a skill all researchers need to develop. It is always written in lay-person's terms and is about the *change* brought about by the research. This supports:

➢ Compliance with funder/institutional policies
➢ Academic promotion
➢ Attracting collaborators & funding especially in fields which might find it difficult to get funding.
➢ Can attract students, especially international students

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Digital research literacy training for librarians

Only a bit more than 1/3 currently offer digital research literacy training for librarians. Another 70 percent are planning to do such training next year. Trends for training languages, format and topics are the same as for researchers.

Do you currently offer any training to LIBRARIANS on digital research literacy?

- YES 36%
- NO 64%
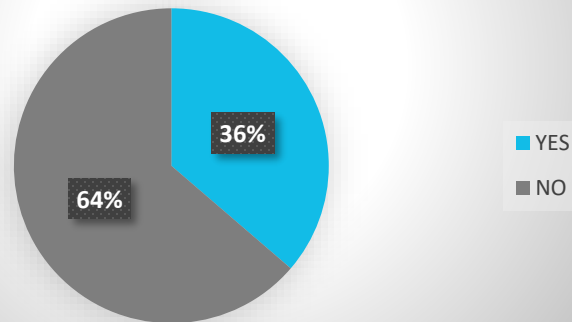
If No, are you planning to offer training in the next year?

- YES 70%
- NO 27%
- Blank 3%
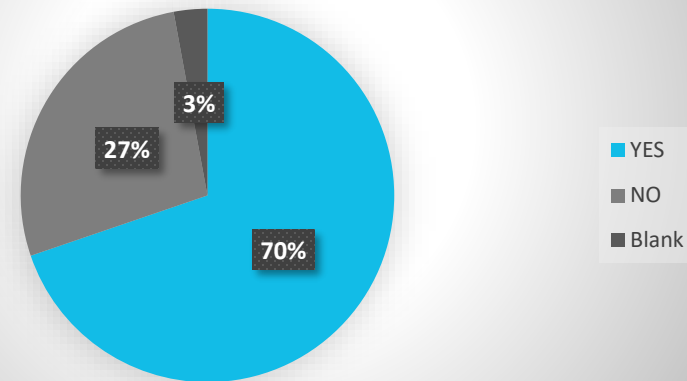
Library Staff & Digital Research Skills Literacy

Expert

They have in-depth knowledge of all aspects; specialist skills which are regularly refreshed via conferences/webinars, CPD, professional networking. Responsible for training the trainers, designing training materials & updating the webpages, trouble-shooting, writing and informing policy.

Trained

Subject / faculty liaison librarians: they run workshops and one-to-one consultations with faculty and students. They support researchers by assisting with profiles, open access, citation analysis & reporting.

Informed

All staff need to be informed about scholarly communication in general and kept abreast of developments. They should know where to direct reader queries and where the webpages and official policies and training schedules are.

First Stage Researcher (R1)

Includes individuals do[...] supervision in industry, r[...] [...] It includes [...] [...] with this profile will:

[...] research under supervision.

[...]ave the ambition to develop knowledge of research methodologies and discipline.

• Have demonstrated a good understanding of a field of study.

• Have demonstrated the ability to produce data under supervision.

• Be capable of critical analysis, evaluation and synthesis of new and complex ideas.

• Be able to explain the outcome of research and value thereof to research colleagues.

Desirable competences

• Develops integrated language, communication and environment skills, especially in an international context.

ADDED:

Open Science competences:
Research integrity/ethics, Information literacy, open access, publishing/dissemination, DMPs etc.

Optimal training/learning modes & incentives.
Formal, structured, learning, standardised, accredited and badged. Use of hands-on, applied, PBL.

Mentoring by senior researchers

Integrated with Researcher Career Development.

Recognised Researcher (R2)

◆ Doctorate degree (Ph... established a...

... experience and

... competences (*All competences of 'First Stage Researcher' plus:*)

• Has demonstrated a systematic understanding of a field of study and mastery of research associated with that field.

• Has demonstrated the ability to conceive, design, implement and adapt a substantial programme of research with integrity.

• Has made a contribution through original research that extends the frontier of knowledge.

• Demonstrates critical analysis, evaluation and synthesis of new and complex ideas.

• Can communicate with their peers - be able to explain the outcome of their research and value thereof to the research community.

• Takes ownership for and manages own career progression.

• Co-authors papers at workshop and conferences.

ADDED:

Desirable competences

• Understands the agenda of industry and other related employment sectors

• Understands the value of their research work in the context of products and services from industry & related employment sectors

• Can communicate with the wider community, and with society generally

• Can be expected to promote technological, social or cultural advancement in a knowledge based society

• Can mentor First Stage Researchers

Open Science competences: as per R1 plus impact, innovation, research evaluation level 1.

Optimal training/learning modes & incentives: Structured, accredited professional development training; Mentoring, rewards & funder incentives.

Established Researcher (R3)

Includes: Researchers ~~~~~~~~~ ndence.

N~~~~~~~~~~~~~~~~~~~~~~~~ ~~~able competences of

~~~~~~~~~~~~~~~~~~~~ ~~~eputation based on research excellence in their field

~~~~~~~~~~ ~~~positive contribution to the development of knowledge,
~~~~earch and development through co-operations and collaborations.

• Identifies research problems and opportunities within their area of expertise.

• Identifies appropriate research methodologies and approaches.

• Conducts research independently which advances a research agenda.

• Can take the lead in executing collaborative research projects in cooperation with colleagues and project partners.

• Publishes papers as lead author, organises workshop or conference sessions.

Desirable competences

• Establishes collaborative relationships with relevant industry research or development groups.

• Communicates their research effectively to the research community and wider society.

• Is innovative in their approach to research.

• Can form research consortia and secure research funding / budgets / resources from research councils or industry.

• Is committed to professional development of their own career and acts as mentor for others.

ADDED:

Open Science competences: as per R2 plus impact, innovation, research evaluation level 2, funding proposals, research management.

Optimal training/learning modes:
Structured, accredited professional development training; Mentoring, rewards & funder incentives.

Leading Research~~~~4)

This is a resea~~~~ include the tea~~~~aboratory. In ~~~~perate as lone

~~~~mpetences (All necessary and most desirable competences of ~~~~ablished Researcher' plus:)

• Has an international reputation based on research excellence in their field

• Demonstrates critical judgment in the identification and execution of research activities.

• Makes a substantial contribution (breakthroughs) to their research field or spanning multiple areas.

• Develops a strategic vision on the future of the research field.

• Recognises the broader implications and applications of their research.

• Publishes and presents influential papers and books, serves on workshop and conference organising committees and delivers invited talks.

Desirable competences

• Is an expert at managing and leading research projects.

• Is skilled at managing and developing others.

• Has a proven record in securing significant research funding / budgets / resources.

ADDED:

Open Science competences: as per R3 plus impact monitoring and reporting, innovation, research evaluation level 3, funding proposals, research project reporting; communication and engagement with policy-makers, media. Open Science leadership.

Optimal training/learning modes
Integrated into accredited institutional senior management training programmes + prestigious external leadership courses.
Open Science Leadership accreditation required by funders for all funded PI's. plus evidence of open access track record.

The EIFL Big Six

1.ORCID number

2.Research profile

3.Metrics

4.Open Access

5.Data Management

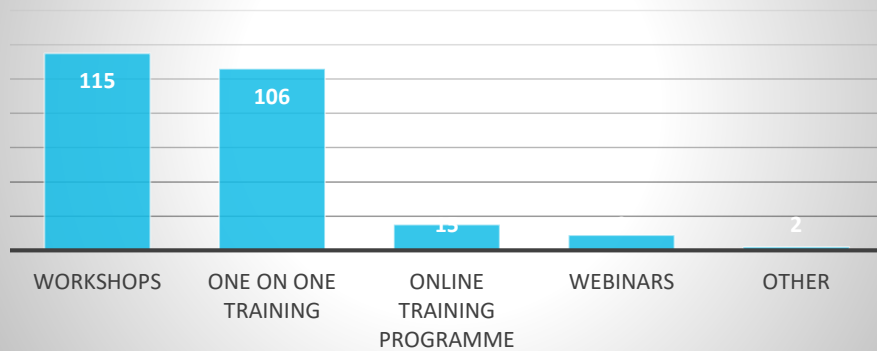6.Impact statement

The EIFL Big Six

1. **ORCID** number
2. Validated, Current **Research profile** [/s]
3. **Metrics**: Bibliometrics (citations, h-index etc.); Altmetrics (media, social media, web impact...]; Open Research metrics.
4. **Open Access** – top publications are Open Access (and tracked for impact).
5. **Data Management** via DMPs – Outline/Initial, Full, Final
6. **Impact statement**/case study. Societal, economic, cultural impact.

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Training for researchers – format

If YES, in which way is training done?

WORKSHOPS	ONE ON ONE TRAINING	ONLINE TRAINING PROGRAMME	WEBINARS	OTHER
115	106	15		2

Very Desirable:

- Structured, standardized courses eg the EIFL Big Six.
- Accreditation / recognition / rewards / badging in liaison with Human Resources, Promotions & Staff & Student Evaluation & Assessment.
- Link with other Institutional Policies (eg Research Strategy)
- Trained & informed library staff (generic & specialist)
- Liaison with Research Office, Computing Services, Data Protection Officer etc.

Formats & essential resources:

- Lectures/Workshops/Seminars; One-to-one; Walk-in clinics; Mentoring; Peer mentoring; Embedded assignments/relevance.
- Online training / webinars / podcasts /recording
- Webpages & handouts (Step-by-step instructions)
- The EIFL 6 and the Research Impact Health check

Adapting the 'EIFL Big 6':

2 examples…

Your Research Impact Health Check
– using the EIFL Big Six –

- ✓ **Get an ORCID number – and USE it**
- ✓ **Validate your research profile/s & keep it updated**
- ✓ **Check how you are featured in Web of Science / Scopus / Dimensions etc. Correct if necessary.**
- ✓ **Record your metrics (your h-index, altmetric score, Impact Story statistics).**
- ✓ **Set up alerts & monitor your citations in WoS, Scopus, Google Scholar etc.**
- ✓ **Make your work available on Open Access & track its online usage.**
- ✓ **Manage your research data using standardised Data Management Plans.**
- ✓ **Write & maintain an impact case study.**
- ✓ **Organise conferences.**
- ✓ **Attend publisher workshops.**
- ✓ **Promote your work via all means including *targeted* social media posts.**
- ✓ **Study best practice & developments in the communication of research impact eg via the LSE Impact Blog.**

CA7000-A-YEAR12-201819 (RESEARCH INTEGRITY AND IMPACT IN AN OPEN SCHOLARSHIP ERA)

Homepage

Announcements
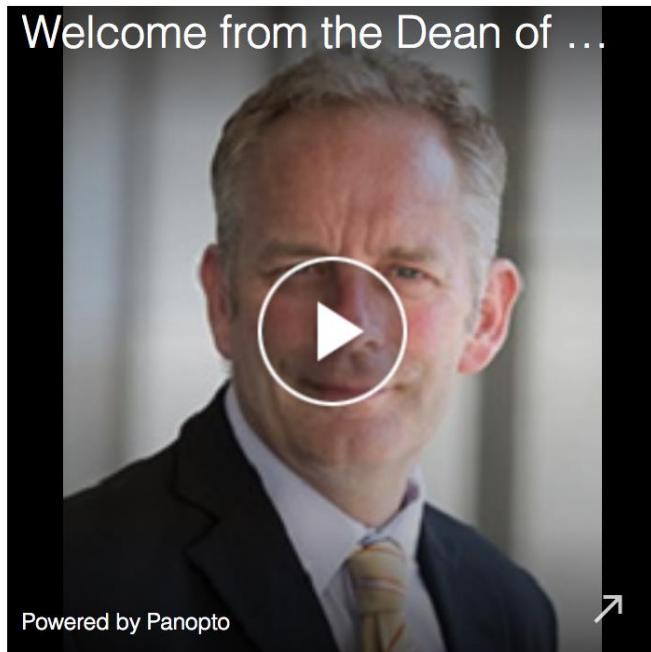
1. Research Integrity ☑

2. Copyright & Data Protection ☑ ▢

3. Data Management & Data Security ☑ ▢

4. Scholarly Communication & Open Research ☑ ▢

5. Research Evaluation & Research Impact ☑ ▢

New compulsory online module for all incoming doctoral students. From TCD Library & Graduate Studies Office

Research Integrity and Impact in an Open Scholarship Era

Welcome from the Dean of …
Powered by Panopto

Rationale

The concept of open scholarship has radically altered the way in which academic research operates in Europe, providing as it does both opportunities and challenges for research students. In addition, funders are increasingly demanding that researchers, including research students, must, as a pre-requisite to securing grant funding, have undertaken some training in research ethics. Finally, there are increasing pressures on students, as they conduct research, to be aware of and comply with obligations under intellectual property and data protection law and indeed to ensure the proper management of their research data. This course seeks to provide all Trinity PhD students with the tools necessary to navigate these issues as they proceed with their research.

This module is mandatory for all incoming PhD students from 2018-19 in line with the decision of Graduate Studies Committee (March 2018) and Council (April 2018).

Module Learning Outcomes

Module Information

Module Title: Research Integrity and Impact in an Open Scholarship Era
ECTS Allocation: 5 ECTS
Module Coordinator: Niamh Brennan

Teaching Staff

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The Arabian Oryx
(national animal of Qatar).

Adaptible even in challenging environments. Inspirational.

Thank you!