3<sup>rd</sup> Open Science Train the Trainer Bootcamp

22<sup>nd</sup>-26<sup>th</sup> May 2023

# Research Assessment & Open Science

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Assessing individuals

**publication counts** – how many articles an author published in his lifetime or specific period of time

**citation counts** – number of citations per article, per number of articles within a time period

**Quantity over quality?** 

# THE EVOLUTION OF HCHDEMIR



Facebook.com/pedromics



# Assessing individuals: H-index

H-index: A scientist has index h if h of his or her Np papers have at least h citations each and the other (Np - h) papers have ≤ h citations each." (Hirsch, 2005)

- h-index will vary based on the dataset (WoS/ Scopus/ Google scholar)
- there is no weighing an individual author's contribution to the articles
- citation counts do not equal quality of research







Halt the *h*-index The need for alternative approaches for evaluating researchers





https://doi.org/10.5281/zenodo.4635648



# Journal Impact factor

The **Journal** Impact Factor is calculated by dividing citations to recent items by the number of recent items.

JIF was created by Eugene Garfield as a tool for management of library journal collections Journal IFs were not intended to be used as a measure or proxy of performance for individual papers or authors

### Calculation

Journal Impact Factor <sup>™</sup> is calculated using the following metrics:

Citations in 2021 to items published in 2019 (111) + 2020 (147)	_	258	_	1 622
Number of citable items in 2019 <b>(72)</b> + 2020 <b>(87)</b>	-	159	-	1.623

### **Example from Journal Citation Reports**



https://clarivate.com/webofsciencegroup/essays/impact-factor/#T1

# Limitations

### Your (real) Impact Factor



• If-citation

- Authorship
- Splitting outputs into many articles
- Editorial policies favoring certain types of articles, cartelization, ...

JORGE CHAM © 2008 WWW. PHDCOMICS. COM

# Publishing in indexed journals



Subject area	Enter subje	ct area							
Filter refine list Apply Clear filters		43,68	5 results		速 Download Scopus	Source List	(i) Learn more about View metrics for year	2021	ce List
Display options	^		Source title $\downarrow$	CiteScore 🗸	Highest percentile ↓	Citations 2018-21↓	,	% Cited ↓	>
<ul> <li>Display only Open Access journals</li> <li>Counts for 4-year timeframe</li> <li>No minimum selected</li> </ul>		1	Ca-A Cancer Journal for Clinicians	716.2	99% 1/360 Oncology	76 632	107	91	Ĩ
Minimum citations     Minimum documents     Citescore highest quartile	•	2	Nature Reviews Molecular Cell Biology	140.9	99% 1/386 Molecular Biology	28 743	204	90	
Show only titles in top 10 percent		3	The Lancet	115.3	99% 1/826 General Medicine	198 711	1723	76	
2nd quartile 3rd quartile 4th quartile		4	New England Journal of Medicine  Pail Text Fielder  Biblioteca	110.5	99% 2/826 General Medicine	261 485	2367	85	
Source type	^	5	Reviews of Modern Physics  Pull Text Finder  Biblioteca	102.0	99% 1/240 General Physics and Astronomy	14 489	142	97	
Book Series Conference Proceedings		6	Chemical Reviews	98.8	99% 1/409 General Chemistry	92 317	934	97	

# Quartiles

#### Clarivate

### Journal Citation Reports<sup>™</sup>



#### Scimago Journal & Country Rank

Journal Cita	tion Reports <sup>™</sup> Journa	ls Cat	egories	Publishers Countries	/Regions			🛇 My fav	orites Sign In Register
21,428	journals		Journ	al name/abbreviation, ISSN/	eISSN, category, publisher, country/reg	ion	۹		GD 🛃 Copy query link Expert
							Indicators: Default	•	🏟 Customize
Filter	Journal name 👻	ISSN	eISSN	Category	Total Citations -	2021 JIF 👻	JIF Quartile	2021 JCI	% of OA Gold 👻
	CA-A CANCER JOURNAL FOR CLINICIANS	0007-9235	1542-4863	ONCOLOGY - SCIE	61,124	286.130	Q1	76.09	98.80 %
	LANCET	0140-6736	1474-547X	MEDICINE, GENERAL & INTERNAL - SCIE	403,221	202.731	Q1	21.81	22.12 %
	NEW ENGLAND JOURNAL OF MEDICINE	0028-4793	1533-4406	MEDICINE, GENERAL & INTERNAL - SCIE	506,069	176.079	Q1	22.26	0.00 %
	JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATIO	0098-7484 N	1538-3598	MEDICINE, GENERAL & INTERNAL - SCIE	242,479	157.335	Q1	10.32	1.49 %
	NATURE REVIEWS MOLECULAR CELL BIOLOGY	1471-0072	1471-0080	CELL BIOLOGY - SCIE	66,072	113.915	Q1	8.39	2.16 %
	NATURE REVIEWS DRUG DISCOVERY	1474-1776	1474-1784	Multiple Y	47,615	112.288	Q1	9.68	1.69 %
	NATURE REVIEWS IMMUNOLOGY	1474-1733	1474-1741	IMMUNOLOGY - SCIE	67,751	108.555	Q1	7.56	1.08 %
	Lancet Respiratory Medicine	2213-2600	N/A	Multiple ~	29,214	102.642	Q1	13.47	12.74 %

	Title	Туре	↓ SJR	H index	Total Docs. (2021)	Total Docs. (3years)	Total Refs. (2021)	Total Cites (3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc. (2021)	
1	Nature Reviews Molecular Cell Biology	journal	33.213 Q1	452	111	338	9025	13797	161	38.55	81.31	35
2	Cell	journal	25.716 Q1	814	517	1727	33658	73240	1639	45.00	65.10	
3	Nature Medicine	journal	24.161 Q1	576	419	1161	12511	39532	656	35.09	29.86	NK SK
4	Nature Reviews Genetics	journal	23.027 Q1	384	123	323	8119	8039	158	24.80	66.01	No.
5	Nature Biotechnology	journal	20.120 Q1	463	356					— whisker		1
									7	5th percen	tile	
								+		-mean		
										median		

-25th percentile

whisker

Quartiles within a category

## Thematic Lists of journals





You will be asked to update your details if you have registered before and are logging into AJG 2021 for the first time.

Register/Login to view the guide

### Advised lists of journals and/ or prizes for publication

#### The purpose of the Academic Journal Guide

The purpose of the AJG is to assist researchers to make informed judgements about the outlets they may wish to publish in. It provides details on a wide range of journals, stretching across fields that are either central or salient to business and management studies; in other words, it aims to encompass a broad set of journals in which business and management academics may seek to publish their research.

The AJG's ratings are based upon peer review, editorial and expert judgements following the evaluation of many hundreds of publications and is informed by statistical information relating to citation.

The AJG is distinctive in that, unlike other journal ratings, it is not based purely on a weighted average of journal metrics. Rather, the AJG is <u>informed</u> by metrics. The ratings of journals reflect the outcomes of consultations carried out by the subject experts of the Scientific Committee with expert peers and scholarly associations as to the relative standing of journals in each subject area.

We advise that users read the AJG's Methodology to understand the aims of the 2021 edition and how journal ratings are judged.

Download the Methodology



# Discussion

- Prevalence of articles above other types of publications (books,...)
- Distortion of metrics (cartelization, self-citation, ...)
- Prevalence of some areas of knowledge over others (STEM/ SCH)
- Prevalence of English above other languages



https://theplosblog.plos.org/2019/08/the-canadian-open-neuroscience-platform-catching-up-to-plan-s-and-going-further/

# Metrics versus OS Principles

- Accessibility vs Subscrition (closed) databases
- No reusability of datasets
- Lack of transparency
- Conflict of interest





# San Francisco Declaration on Research Assessment

### **General Recommendation**

Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions. (2012)

More than 20,000 individuals and 2,800 institutions across 160 countries have signed DORA so far







### For funding agencies / institutions

- Explicit criteria used in evaluating the scientific productivity; emphasis on content
- Value and impact of all research outputs

### For publishers

- Reduced emphasis on the journal impact factor as a promotional tool
- Range of article-level metrics
- Responsible authorship practices
- No reuse limitations

### For organizations that supply metrics

- Openess and transparency by providing data and methods used to calculate all metrics
- Provide the data under a licence that allows unrestricted reuse, and provide computational access to data
- Be clear that inappropriate manipulation of metrics will not be tolerated



# Leiden Manifesto

"As scientometricians, social scientists and research administrators, we have watched with increasing alarm the pervasive misapplication of indicators to the evaluation of scientific performance. (...)

- Universities: position in global rankings
- Researchers: citations and h-index
- PhDs facing pressure to publish in high-impact journals

 Home
 News & Comment
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 Current Issue
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 For

 Archive
 Volume 520
 Issue 7548
 Comment
 Article

Bibliometrics: The Leiden Manifesto for research metrics

Diana Hicks, Paul Wouters, Ludo Waltman, Sarah de Rijcke & Ismael Rafols

22 April 2015

Use these ten principles to guide research evaluation, urge Diana Hicks, Paul Wouters and colleagues.

街 PDF 🔍 Rights & Permissions

ubject terms: Careers · Research management · Publishing



lustration by David Parkins

http://www.leidenmanifesto.org/



https://www.nature.com/articles/520429a



https://vimeo.com/133683418

# Evaluation of research careers fully acknowledging open science practices (2017)

OS-CA	<b>M</b> , a d	custo	mised	d mat	trix	Slide de Bernard Rentier	European Commission
Soc	Engineeri Humanities ial <sub>R1</sub>	R.I	R2 R2 R2	R3 R3	R4 R1		Evaluation of Research
Earth Life Sciences	R1	R2	R3	R4			Careers fully acknowledging Open Science Practices Rewards, incentives and/or recognition for researchers practicing Open Science
Research output	+	++	+++	++++			
Research Process	+	+++	++++	++++			
Service & Leadership		+	+++	++++			
Research Impact	+	++	+++	++++			Written by the Working Group on Rewards under Open Science July - 2017
Teaching & supervision	(++)	+	++	++++	-		
Professional Experience		+	+++	++++			



https://op.europa.eu/pt/publication-detail/-/publication/47a3a330<sub>1</sub>c9cb-11e7-8e69-01aa75ed71a1

# **Open Science Career Assessment Matrix**

## 1. Research output

- Research activity
- Publications
- Datasets
- Open source
- Funding

### 2. Research Process

- Stakeholder engagement/citizen science
- Collaboration & interdisciplinarity
- Research integrity

# Risk management **3. Service & Leadership**

- Leadership
- Academic standing
- Peer review
- Networking

## **4. Research Impact**

- Communication & dissemination
- IP (patents, licenses)
- Societal impact
- Knowledge exchange

### 5. Teaching and supervision

- Teaching
- Mentoring
- Supervision

# 6. Professional Experience • Continuing professional development

- Project management
- Personal qualities

evaluation under a combination of criteria and research outputs and tasks



Example Indicators

numerical indicators

# Hong Kong principles (2019)

Principle 1: Assess researchers on responsible practices from conception to delivery
Principle 2: Value the accurate and transparent reporting of all research, regardless of the results
Principle 3: Value the practices of open science (open research)—such as open methods, materials, and data

Principle 4: Value a broad range of research and scholarship, such as replication, innovation, translation, synthesis, and meta-research
Principle 5: Value a range of other contributions to responsible research and scholarly activity, such as peer review for grants and publications, mentoring, outreach, and knowledge exchange



https://doi.org/10.1371/journal.pbio.3000737

# Fostering bibliodiversity in scholarly communications

Diversity is an essential characteristic of an optimal scholarly communications system. Diversity in **services and platforms, funding mechanisms, and evaluation measures** will allow the research communications to accommodate the different **workflows, languages, publication outputs, and research topics** that support the needs and epistemic pluralism of different research communities. In addition, diversity reduces the risk of vendor lock-in, which inevitably leads to monopoly, monoculture, and high prices. Fostering Bibliodiversity in Scholarly Communications: a call for Action! (2020)

Jussieu Call

for Open science and bibliodiversity

https://jussieucall.org/jussieu-call/#call



# Reforming assessment



Scoping Report

Home > News > Process towards an agreement on reforming research assessment
NEWS | 18 January 2022 | Brussels, Belgium | Research and Innovation
Process towards an agreement on reforming research
assessment

The Commission has called for organisations to express their interest in being part of a coalition on reforming research assessment.

The coalition will bring together research funding organisations, research performing organisations, national/regional assessment authorities or agencies, associations of research funders, of research performers, of researchers, as well as, learned societies and other relevant organisations, all willing and committed to implement reforms to the current research assessment system.

This follows a year of extensive consultations with stakeholders, as described in this report 🕑 .

The coalition will remain open to new members at all time.

Access the call for expression of interest

Organisations that express their interest will be involved in the drafting process of the agreement on reforming research assessment, including discussions on its governance and in other preparatory activities.

About the agreement drafting process

AGREEMENT ON REFORMING RESEARCH ASSESSMENT

20 July 2022

Search





# COARa

### **The Commitments**

1. Recognise the diversity of contributions to, and careers in, research in accordance with	~
the needs and nature of the research	

2. Base research assessment primarily on qualitative evaluation for which peer review is central, supported by responsible use of quantitative indicators

3. Abandon inappropriate uses in research assessment of journal- and publication-based vertics, in particular inappropriate uses of Journal Impact Factor (JIF) and h-index

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4. Avoid the use of rankings of research organisations in research assessment

5. Commit resources to reforming research assessment as is needed to achieve the organisational changes committed to

546 organisations have signed the agreement (as of may 2023)

Signatories commit to start the process of reviewing or developing criteria, tools and processes within a year of signing

6. Review and develop research assessment criteria, tools and processes

7. Raise awareness of research assessment reform and provide transparent communication, guidance, and training on assessment criteria and processes as well as their use

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8. Exchange practices and experiences to enable mutual learning within and beyond the Coalition

9. Communicate progress made on adherence to the Principles and implementation of the Commitments

10. Evaluate practices, criteria and tools based on solid evidence and the state-of-the-art in research on research, and make data openly available for evidence gathering and research



# Discussion

Many criticism to research asessment as is, but... How to change?

Main obstacles:

- Effort
- Inertia/ old habits
- Competition





# Resumé for Research/ Narrative CVs

### THE ROYAL SOCIETY

me Fellows Events Grants, Schemes & Awards

### https://doi.org/10.5281/zenodo.5799413

- 1. How have you contributed to the generation of knowledge?
- 2.How have you contributed to the development of individuals?
- 3. How have you contributed to the wider research community?
- 4. How have you contributed to broader society?

<u>Résumé for Researchers suggested</u> <u>template</u>

- Creation of shared definition of what Narrative CVs are and what objectives they aim to achieve
- Train reviewers, applicants and staff at funding organizations to improve consistency in the evaluation process
- Monitor the effectiveness of narrative CVs to continually optimize their utility as a tool for robust research assessment.



# Good examples

- Diversifying carreer paths
- Focusing on quality
- Achieving balance between individuals and the collective
- Stimulating open science
- Stimulating academic leadership

Room for everyone's talent

### Room for everyone's talent

towards a new balance in the recognition and rewards of academics





Search case studies		Open University	15 April, 2021
Enter kaywords Q		The European Molecular Biology Laboratory FRANCE, GERMANY ITALY, SPAIN, UNITED KINGDOM	26 March, 2021
Country ~		The Latin American Forum for Research Assessment	12 Merch, 2021
Reset	Ś	Tampere University	4 November, 2020
Case study selection process		University College London	2 November, 2020
		University of Nottingham Ningbo China	29 October, 2020
	Jan	Ghent University	20 October, 2020
	艦	Universities Norway	13 October, 2020
		The Dutch Recognition & Rewards Programme	13 October, 2020
	題	Open University of Catalonia	7 October, 2020
		University of Bath	7 October, 2020
		Responsible Research Network, Finland	5 October, 2020
	<b>Financia</b>	University Medical Center Utrecht	29 September, 2020

https://sfdora.org/dora-case-studies/

#### SPARC\* Europe

#### **CASE STUDY REPORT**

**Reimagining Academic** Career Assessment: Stories of innovation and change



Reimagining academic career assessment stories of innovation and change

### **RETHINKING RESEARCH ASSESSMENT** .E. TO EVOLVE ACADEMIC ASSESSMENT

A RUBRIC FOR ANALYZING INSTITUTIONAL PROGRESS INDICATORS AND CONDITIONS FOR SUCCESS

Research and researcher assessment is a systems challenge, suggesting that institutions that prioritize developing infrastructures to support their efforts may be better positioned to achieve their goals than those focused only on individual solutions.

#### FROM FOUNDATION ....

THIS MENTION UNI

good citizenship

committees.

Core definitions and shared clarity of purpose

to align with institutional mission and values,

balance across research, teaching, and service

contributions including training, mentoring and

Specific definitions and standards of "quality" with regard to scholarship are articulated and shared across disciplines and review/promotion

traditionally underrepresented, minoritized groups

such as increasing equity and support for

New standards for scholarship consider the

#### TO EXPANSION ....

#### Increased traction and capability development

#### DIST BREATLOOK LIKE Standards are explicitly designed and articulated Scholarship is assessed using diverse indicators (e.g. societal impact), units of assessment (e.g. full body of work v. individual articles), and forms of

output (e.g. non-journal contributions) Indicators of quality recognize non-individualized activities and accomplishments like team science New definitions of "scholarship" are deployed across the full range of institutional disciplines

#### PROCESS MECHANICS AND POLICIES

How are new practices incorporated into review structures, processes, and institutional policies?

**STANDARDS FOR** SCHOLARSHIP

How are new definitions

of "quality scholarship"

formulated and applied?

#### Meaningful and appropriately rigorous qualitative structures for academic assessment, such as narrative CVs, are given due weight and continually maintained Structures and processes are applied consistently Institutions design processes take into account across assessment activities, taking into the resource capacity of committee members to consideration alternate paths and starting points effectively adopt new assessment practices, such as additional burdens on time Use of new assessment mechanics extend beyond traditional evaluative contexts into ensuring Institutions have designated senior functions equitable opportunities, mentoring, and retention or offices to ensure faculty capacity for new to increase research and researcher diversity assessment practices and principles

#### Training on the goals and procedures of Assessment mechanics can be flexibly applied and assessment processes and practices are accessible

a dapted to accommodate diverse disciplines Mechanisms to support practices are codified and written into institutional policies New processes and practices are seamlessly

TO SCALING

goals

Accelerated uptake and continuous improvement

Faculty have the ability to customize success

New standards, definitions, and criteria for

new assessment practices

measures to reflect their research interests and

evaluating the quality and impact of scholarship

are integrated into the language and processes of

integrated and widely adopted

DORA

### https://doi.org/10.5281/zenodo.4927605

# SPACE

ACCOUNTABILITY	TRANSPARENCY AND CLARITY OF GOALS	ADHERENCE THROUGH COMMITMENT	PROACTIVITY IN ENGAGEMENT
How are individuals and institutions held liable for executing on new assessment practices?	THE INCREMENT. The goals, principles, and practices of academic assessment and review, promotion, and tenure (RPT) activities are transparent and clearly articulated, and agreed upon by all participants Institutions have clearly defined expectations for adherence to academic assessment practices Examples of "what good looks like" are collected and shased to more concretely illustrate target outcomes and behaviors	DUT ANOT EXOC LEFF. Research evaluators self-menitor a dherence to academic assessment principles and practices Senior leaders and committee members actively stipulate equitable assessment practices during both formal and informal career development contexts Institutions model ecosystem-level accountability, such as ensuring that system-level accountability, with and support agreed upon principles and practices	Individuals a clively contribute to the developmen and review of new practices and principles Departments proactively broaden and conduct outreach a divider to include new or minoitized applicants Faculty serve as "armbassadors" for new academic assessment practices, such as when serving as external committee members
CULTURE WITHIN	INCLUSION AND ACCESS	ADVOCACY AT INSTITUTIONAL LEVELS	REFLEXIVITY THROUGH REFLECTION
INSTITUTIONS	thes Might spok sing .	THE MEANTLOOKLESS.	THE MEAN DON'S RE.
How are assessment practices perceived and adopted both within and outside of formal evaluation activities?	More diverse types of individuals are involved in both defining and participating in career advancement processes, such as including early career researchers on RPT committees Representation of minoritized applicants meets or exceeds equity goals for both new hires and researcher retention Career growth and mentoring systems are intentionally designed to provide ongoing support for underrepresented hires	Adoption of new assessment mechanisms is supported and advocated for by departmental and institutional leaders All individuals actively contribute to building more equitable practices—not just minoritized ones New research assessment norms are increasingly adopted as a default by facelty, administraten, and applicants	"Positive friction," or intentional pause points to reflect on assessment practices and slow down business-a-susual processes is incorporated into both formal and informal assessment practices All participants in assessment activities feel processes achieve a balance of effectiveness and efficiency
EVALUATIVE	ARTICULATION OF DIVERSE INDICATORS	SYSTEMATIZATION TO GAIN CONSISTENCY	IMPROVEMENT USING FEEDBACK LOOPS
AND ITERATIVE FEEDBACK	INES SEGNELOOK LINE_	INES AMERICIDOKLARZ.	INS MIGHTLOOK (MT.
How are intervention	Goals and success criteria for individual academic assessment interventions are well-defined and	Quantitative and qualitative data from interventions are captured in a standardized way	Interventions that don't achieve desired outcomes are considered learning opportunities, not failure
outcomes and progress toward institutional values captured and continually improved upon?	shared Use of leading indicators (e.g. increased diversity of inquiries for open positions) supplements lagging indicators (e.g. increased diversity of hires) when gauging intervention efficacy Goals and success criteria are automatically reviewed whenever initiational stratew is	Mechanisms that capture both quantitative and qualitative feedback are explicitly designed and embedded into assessment processes from the outset Best practices and examples of measurement and/or gathering feedback are codified and shared across disciblines within the institution	Outcomes and data are collected and monitored to ensure high standards of evaluation quality and identify unlettended consequences or adverse effects Feedback and other indicators are refined and/or examined in aggregate to identify and investigate patterns or opportunities for course-correction



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JOURNAL ARTICLES FOR: RESEARCH INSTITUTES

### **Resource Library**

Q

A collection of materials to facilitate the development of responsible research and researcher assessment policies and practices.

123...5 >>

#### Search and Filter

Keywords

#### Resource type

- Advocacy resources (12)
  Case studies (14)
- Good practices (24)
  Initiatives (8)
  Journal articles (15)
- Policies and guidance (14)
  Position papers (20)

Tools (23)



10 Autor this formula prime classic interview.

Per page 🗠

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#### GOOD PRACTICES POSITION PAPERS FOR RESEARCH INSTITUTES

Academia In Motion: Recognition & Rewards at Leiden University

A survey-based analysis of the academic job market

collected survey data from 317 early-career researchers who were in the process of applying for academic...

Understanding the hiring dynamics of the academic job market is an important step for institutions wishing to enhance the transparency of their hiring process and attract talent. To establish the profile and perceptions of academic job seekers, the authors

In support of the Dutch Recognition and Rewards Programme, Leiden University published a position paper "Academia in Motion: Recognition & Rewards at Leiden University" in 2021. In 2020, Leiden University's Executive Board established a Recognition & Rewards steering committee made up of staff from a variety of positions and roles. The goals of the Recognition...

#### JOURNAL ARTICLES FOR: RESEARCH INSTITUTES



To improve research assessment practices in ecademic institutions, it is critical to understand the institutional metrics used to assess research quality for promotion. This article examines traditional and non-traditional criteria used to assess biomedical scientists for promotion and tenure in 92 randomly selected international institutions. The study found that the evaluation of scientists emphasizes traditional.

#### GOOD PRACTICES POSITION PAPERS FOR RESEARCH INSTITUTES



#### Academic Incentives and Research Impact: Developing Reward and Recognition Systems to Better People's Lives

In this article, Jonathan Grant outlines nine cases that highlight examples of new academic incentives at multiple levels (e.g., system, Institution, and Individual level). These include: System-Level Examples like the United Kingdom Research Excellence Framework (REF), which reviews the quality of research conducted at universities in the United Kingdom, including societal impact and research environment...

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### https://sfdora.org/resource-library/



3rd Open Science Train the Trainer Bootcamp

# Thank you

antonia.correia@usdb.uminho.pt



