IDENTIFIERS AND THE OPEN RESEARCH INFORMATION INFRASTRUCURE

FDP MEETING | 08 JANUARY 2018

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OPEN RESEARCH VISION

- Researchers share information easily
- Information source and provenance is clear
- Rigor and reproducibility enabled through transparent experimental methodology, observation, and data collection


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INTERLEAVED PROBLEMS WITH RESEARCH INFORMATION

- **Duplicate data and wasted effort** – Researchers have to curate and combine data that is scattered across public and private sources and must do this multiple times in multiple systems
- **Poor tracking and measurement** – Funders can't track their impacts on researcher careers, especially across different funders
- **Inefficient research networks** – Researchers and associated groups do not use modern technology for networking and hiring (e.g., finding mentors, collaborators, employees, reviewers, etc.)
- **Bad incentives** – Current measures of research productivity do not adequately incentivize openness, rigor and impact. Fragmentation of information and reporting make new measures difficult to implement

INFO INFRASTRUCTURE

Needs to be open, persistent, reliable, resilient, and collaborative

- Providers are mission-oriented and non-profit
- Tools and services are platform neutral
- Supported and governed by the community
- Open source software
- No cost to researchers

http://dx.doi.org/10.6084/m9.figshare.1314859

IDENTIFIERS

Clarify components of a contribution:

- the **persons** carrying out the project
- the **project**
- the **resources** used
- the **organization** educating or employing the researchers
- the **facilities** and **funders** supporting the project
- the research **papers**, **data**, and other products.

WHAT IS AN IDENTIFIER?

- A **persistent identifier** (PID) is a long-lasting reference to a digital object.
- Persistent identifiers are **"digital names"** created to enable accessibility over the Internet.
- Persistent identifiers must be ***unique*** and ***resolvable***

https://en.wikipedia.org/wiki/Persistent_identifier

IDENTIFIERS FOR PEOPLE

- **ORCID iDs for people:** researchers, contributors, innovators, administrators, program staff

MultiCellDS: a standard and a community for sharing multicellular data

Samuel H. Friedman, Alexander R.A. Anderson, David M. Bortz, Alexander G. Fletcher, Hermann B. Frieboes, Ahmadreza Ghaffarizadeh, David Robert Grimes, Andrea Hawkins-Daarud, Stefan Hoehme, Edwin F. Juarez, Carl Kesselman, Roeland M.H. Merks, Shannon M. Mumenthaler, Paul K. Newton, Kerri-Ann Norton, Rishi Rawat, Russell C. Rockne, Daniel Ruderman, Jacob Scott, Suzanne S. Sindi, Jessica L. Sparks, Kristin Swanson, David B. Agus, Paul Macklin

doi: https://doi.org/10.1101/090696

bioRxiv beta
THE PREPRINT SERVER FOR BIOLOGY

WHAT IS ORCID?

- An identifier for researchers
- A registry
- A set of standard procedures for connecting researchers to their affiliations and activities
- A committed community building connectors
- A global-scale open research effort

THE ORCID COMMUNITY

- 4.25m researchers, 1.6m records with at least one connection: 26m works, 380K grants, 206K reviews, 2.1m education and 1.7m employment items
- More than 700 integrations across all sectors of the research community
- Over 800 members from 42 countries. Consortia in the UK, Finland, Sweden, Norway, Denmark, Netherlands, Belgium, Germany, Italy, South Africa, Taiwan, Australia, New Zealand, Brazil, Canada, and the US

https://orcid.org/statistics

IDENTIFIERS FOR PLACES

- **ORG IDs for organizations:** funders, employers, educators, publishers…

GRID

Russian Academy of Sciences

grid.4886.2

Metadata:

ID	grid.4886.2
Types	Government
Established	1724 CE

External links:

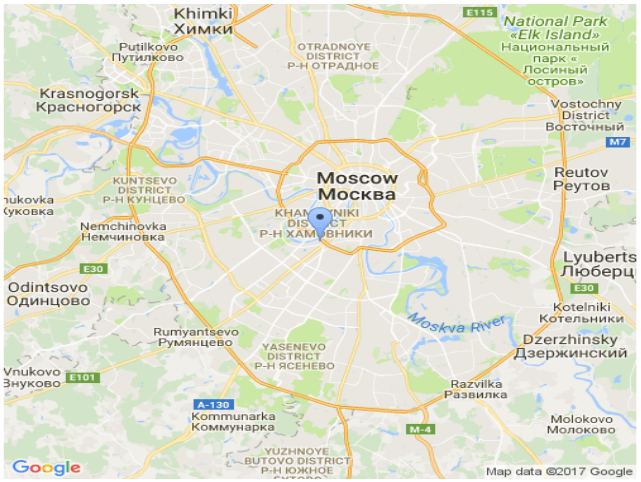
Institute Links	http://www.ras.ru/
Wikipedia	http://en.wikipedia.org/wiki/Russian_Ac...
isni	0000 0001 2192 9124
Crossref	501100002674
OrgRef	374556
	Q83172
	* Preferred ID

Alternate Labels:

Aliases	Rossíiskaya akadémiya naúk
Acronyms	RAS
Russian	Российская академия наук

REPORT AN ERROR

Moscow - Russia



GeoNames

https://www.digital-science.com/products/grid/

IDENTIFIERS FOR OBJECTS

- **DOIs for digital objects:** papers, datasets, research resources, compositions, videos

Crossref

DataCite

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

PLOS COMPUTATIONAL BIOLOGY

MAGERI: Computational pipeline for molecular-barcoded targeted resequencing

Mikhail Shugay, Andrew R. Zaretsky, Dmitriy A. Shagin, Irina A. Shagina, Ivan A. Volchenkov, Andrew A. Shelenkov, Mikhail Y. Lebedin, Dmitriy V. Bagaev, Sergey Lukyanov, Dmitriy M. Chudakov

Published: May 5, 2017 https://doi.org/10.1371/journal.pcbi.1005480

https://www.crossref.org https://www.datacite.org

CONNECTIONS

We need to be able to make connections between people, places, and objects.

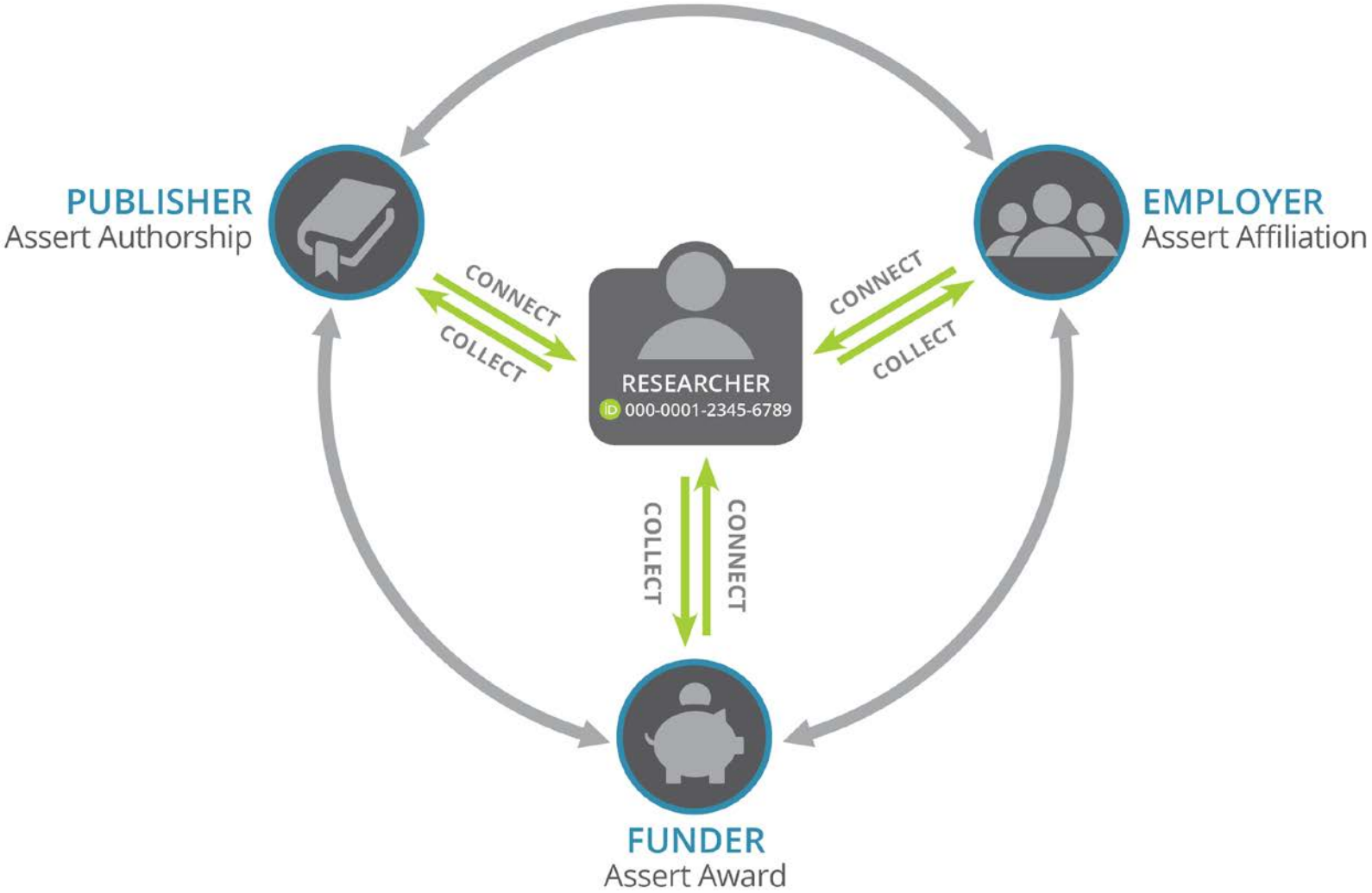
We do this using APIs and opt-in collection of identifiers when researchers interact with research systems.

API: Application programming interface. Think of it as a translator service that allows databases to exchange information

These connections matter because research progress is based on the communication of ideas – between individuals, and organizations – and research credit and careers are built on the quality and success of those communications.

INTEROPERABILITY

ENTER ONCE
REUSE OFTEN



WHAT IS WORKING NOW?

- **Publishers** – journals collecting ORCID iDs from authors and reviewers and putting article information into ORCID
- **Universities** – several starting to collect iDs from faculty, staff, and students and putting affiliation information into ORCID
- **Funders** – starting to collect iDs from applicants and putting award information into ORCID

Photograph: Erica Dufour

Over 8000 journals are collecting ORCID iDs from authors, including requirements by over 1400 journals. Several journals are also collecting iDs for reviewers.

THE ROYAL SOCIETY Publishing blog

From January you'll need an ORCID

7 December 2015 by Phil Hurst

Mandating the use of Open Researcher and Contributor ID (ORCID) by submitting authors.

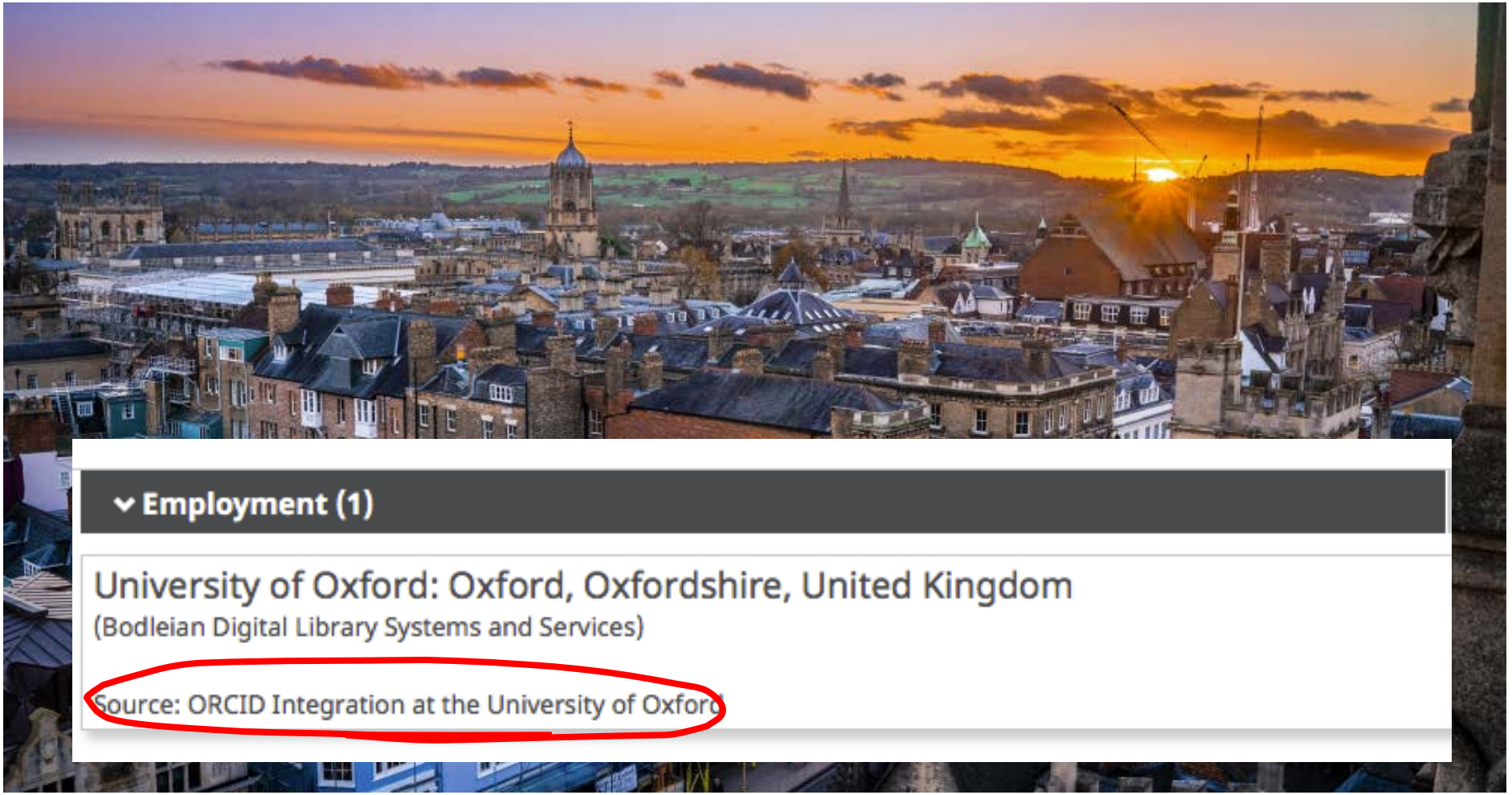
ORCID provides a unique identifier for all researchers that can be linked to their different research works and activities across multiple platforms. It also serves to distinguish authors with similar names and simplify searching of publications databases (such as PubMed, Scopus, etc.) to avoid retrieving articles by authors with similar names. Close to 1.8 million researchers have already created their ORCID iD. The service is non-profit and community driven.

From 1 January 2016, we will require the submitting author to provide an ORCID identifier as part of the manuscript submission process. Details of the practicalities will be provided shortly, but don't worry, it takes less than a minute to register for an ORCID iD and it's free of charge. A recent survey carried out by ORCID indicates strong support in the research community for mandates by publishers, funders, and universities.

"Over 10,000 authors have used our manuscript submission system since we launched the requirement in January. We have received only one complaint."

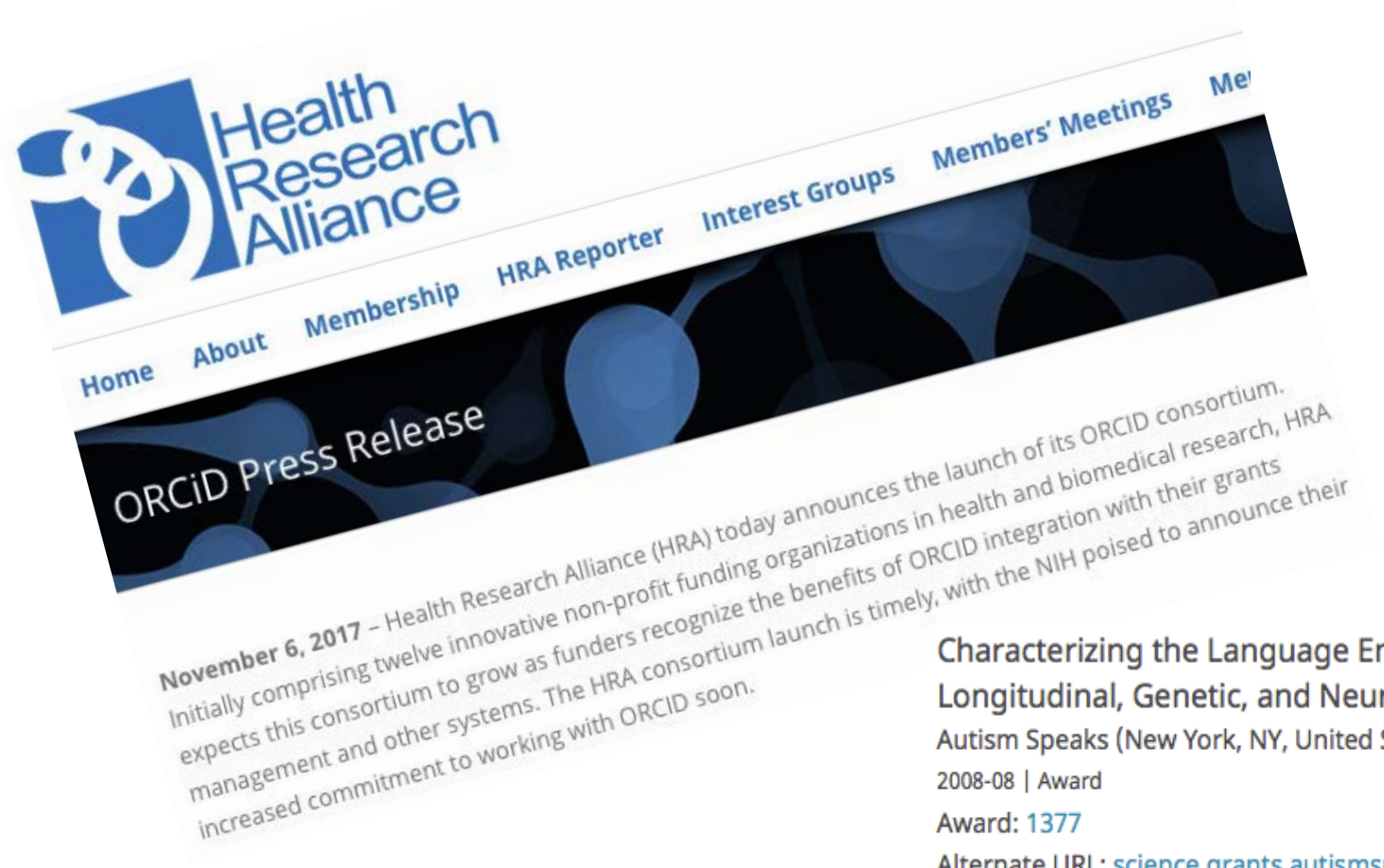
--Brooks Hanson, AGU

AFFILIATIONS



Sheng Peng, https://medium.com/@OxfordGradStudy/a-year-in-oxford-instagram-f068325708ed

Funders around the world are collaborating to embed identifiers into grants workflows



Characterizing the Language Endophenotype in Autism: Longitudinal, Genetic, and Neuropsychological Correlates

Autism Speaks (New York, NY, United States)

2008-08 | Award

Award: 1377

Alternate URL: science.grants.autismspeaks.org/search/grants/charact

Source: Autism Speaks Grants System

https://www.healthra.org/orcid-press-release/

ORCID
Reducing
Burden and
Improving
Transparency

THE ORBIT PROJECT

The ORCID Reducing Burden and Improving Transparency (ORBIT) project engages funders to use persistent identifiers (PIDs) to streamline the flow of research information between systems.

The goal is to optimize an open infrastructure that supports open research.

THE ORBIT PROJECT

- **Funder Working Group**: A funder network with the aim of exploring the use of PIDs in enabling research information sharing, access, and accountability.
- **Pilot Projects**: Practical demonstration projects to enable data connections in their systems using PIDs.

WHO IS IN ORBIT?

- Australian Research Council - ARC (Australia)
- BBSRC (UK)
- Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - CAPES (Brazil)
- Howard Hughes Medical Institute - HHMI (USA)
- Japan Science and Technology Agency - JST (Japan)
- Kenneth Rainin Foundation (USA)
- Ministry of Business, Innovation, and Employment - MBIE (New Zealand)
- Natural Sciences and Engineering Research Council of Canada - NSERC (Canada)
- Swiss National Science Foundation - SNF (Switzerland)
- US National Institutes of Health - NIH (USA)
- Wellcome Trust (UK)

- Automatic update of ORCID and any connected system (such as a funder reporting site) means less time doing reporting tasks and more time for research
- Accurate attribution means improved discoverability in publication databases and more reliable usage statistics – in any platform

WHAT CAN UNIVERSITIES DO?

- Work with ORCID to enable verified affiliation assertions for your faculty, staff, and students
- Collaborate on ORBIT project on reporting needs and data sources
- Help communicate ORCID to researchers

Spend more time making contributions and less time managing them

orcid.org/register

Enter Once | Reuse Often