ORCID AND THE IDENTIFIER INFRASTRUCTURE

7TH INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE

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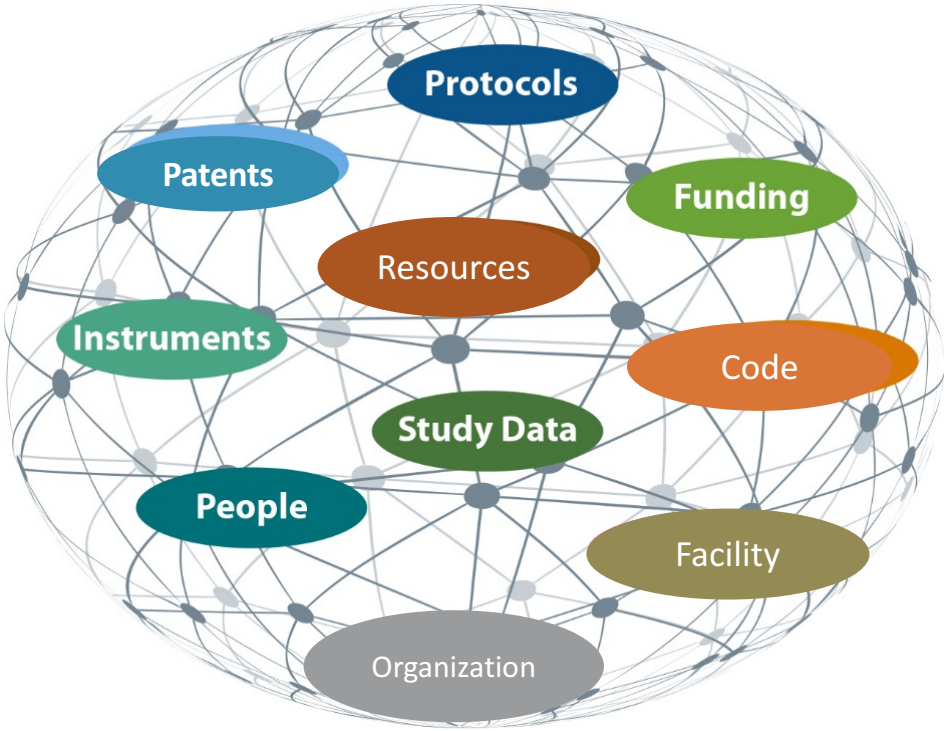
OPEN RESEARCH VISION

- Researchers share information easily
- Information source and provenance is clear
- Research graph of trusted connections between people, places, and objects.

RESEARCH ECOSYSTEM GRAPH



POINTS:

- Contributions (DOIs)
- People (ORCID iD)
- Institutions (org iDs)

EDGES: Connections between researchers, contributions. and organizations

Together, these points and edges create a **graph** describing the research ecosystem.

Web-based communication of research and scholarship requires *machine readable* information

IDENTIFIERS ENABLE MACHINE READABILITY

Clarify components of a research 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 **data** and **publications**

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

IDENTIFIER 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

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

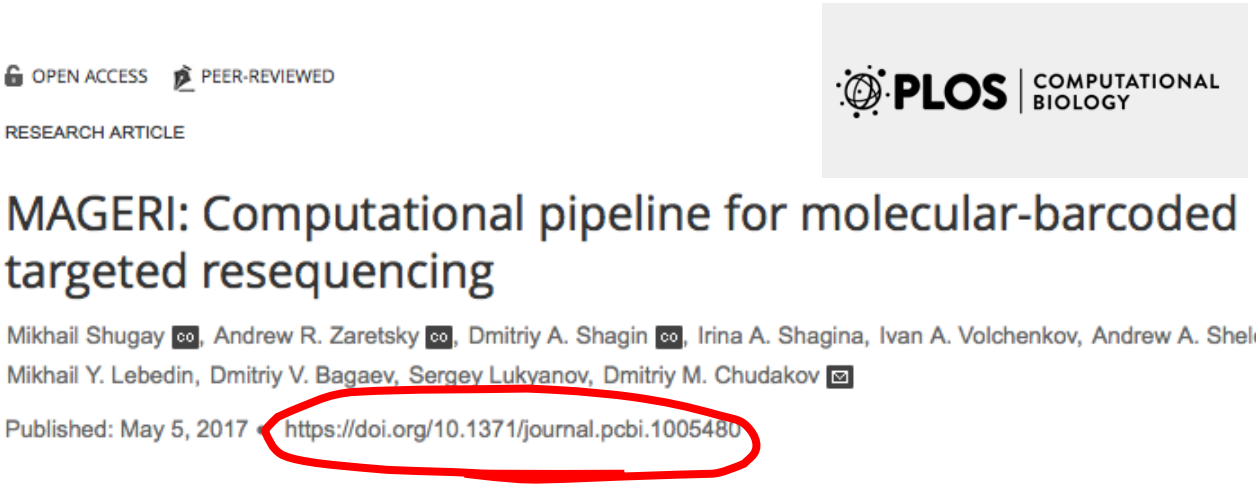
doi: https://doi.org/10.1101/090696

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

IDENTIFIERS FOR PLACES

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

Russian Academy of Sciences

grid.4886.2

Metadata:

ID	grid.4886.2
Types	Government
Established	1724 CE

External links:

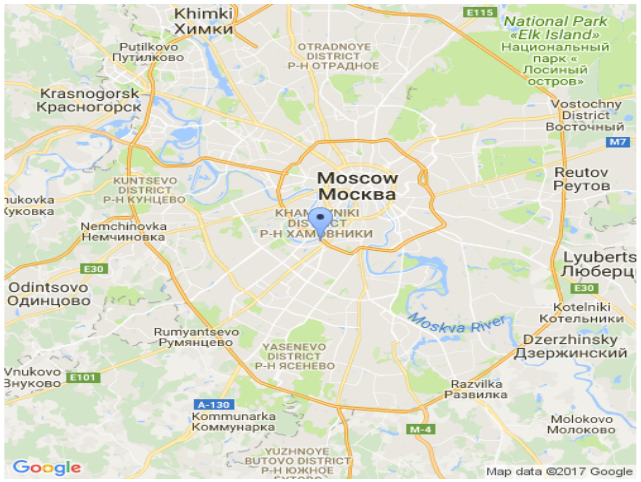
Institute Links	http://www.ras.ru/
Wikipedia	http://en.wikipedia.org/wiki/Russian_Ac...
isni	0000 0001 2192 9124
Crossref	501100002674
OrgRef	374556
	Q83172
	* Preferred ID

Alternate Labels:

Aliases	Rossíiskaya akadémiya naúk
Acronyms	RAS
Russian	Российская академия наук

Moscow - Russia

REPORT AN ERROR



GeoNames

ASSERTING CONNECTIONS

We need to be able to trace not just the **points** on the graph, but also the **edges**: who asserted the connection.

This means that connections need to be made in a *digital context*, a controlled transaction during which an electronic statement is created that connects the researcher, their contribution or affiliation, and the source.

These connections matter because they underpin the communications necessary for research and reputation.

MAKING CONNECTIONS

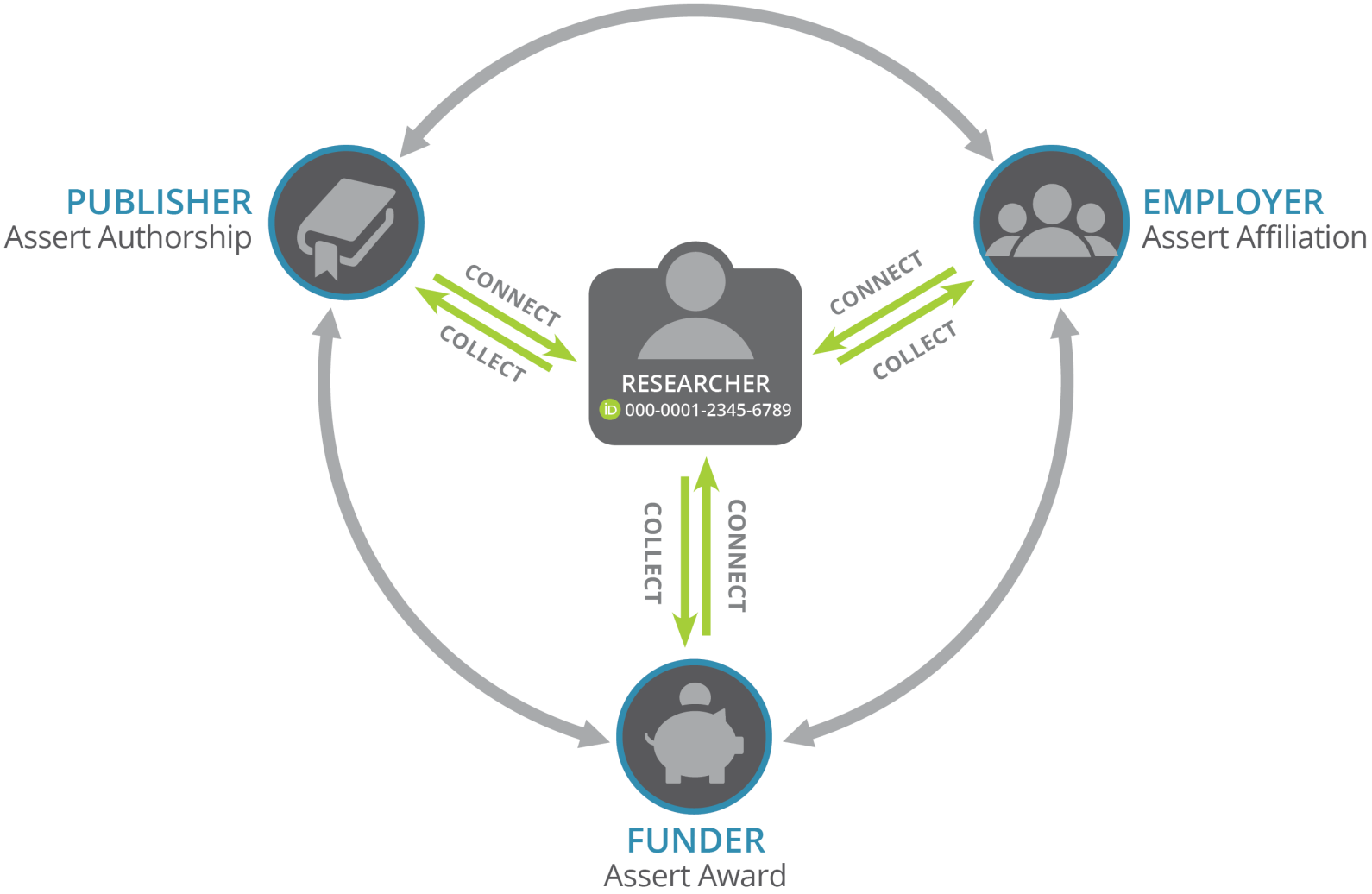
Researchers should each have a unique identifier and use it as they transact with research systems

Research institutions, Funding organizations, and Publishers should each:

- have a unique organization identifier
- using an electronic “handshake” to collect identifiers from the researchers that interact with their systems
- assert a digital connection between the researcher, organization, and contribution indicated by the transaction (such as, student, thesis committee, employee, project, review panel, article, dataset, editorial service)

INTEROPERABILITY

ENTER ONCE
REUSE OFTEN



At each transaction, the electronic assertion created can be easily shared by the researcher as they interact with the next system. Over time, these assertions combine to build the research ecosystem graph, edge by edge.

WHY AUTHENTICATE?

https://orcid.org/blog/2017/02/20/whats-so-special-about-signing

AUTHORITY CONTROL AND THE ORCID RECORD

The ORCID record lists information that the researcher has ***chosen*** to connect to their iD. The researcher ***owns*** the record, and ***decides*** how (or if) it is shared.

Researchers ***add*** their iD using an electronic “handshake”, as they interact with research systems, for example during manuscript submission, or during grant application.

The iD is ***embedded*** in the researcher’s work by the publisher or funder system, asserting a ***connection*** between the work and the researcher.

HOW DOES IT WORK?

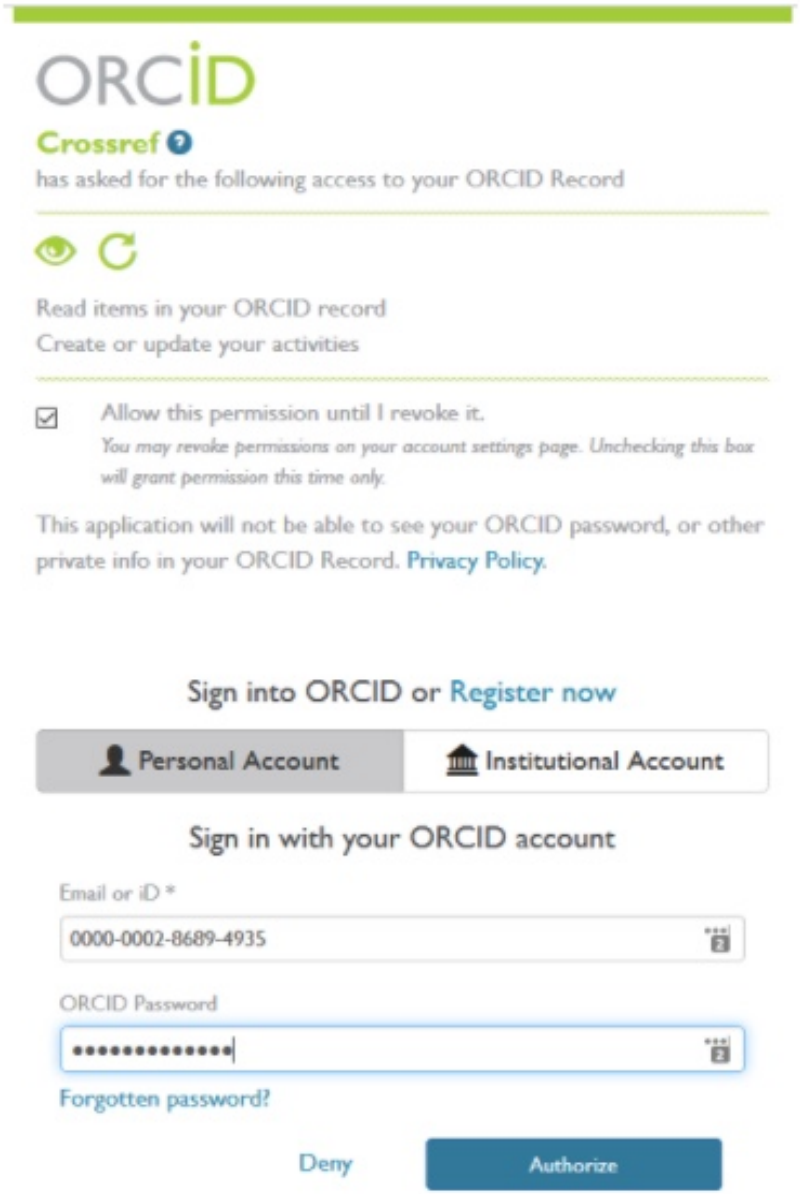
Authentication is quick, easy, and accurate.

It all starts with sign in.
When I sign in to a record, you can be sure that I control that record.

You can ask for permission to:

- Get my iD
- Read my record
- Add to my record
- Update my record

When I sign in and authorize, the ORCID API pushes my iD to your system. You can check my ORCID record for additional info, and monitor it for updates.



BUILDING THE RESEARCH GRAPH IS A COMMUNITY EFFORT

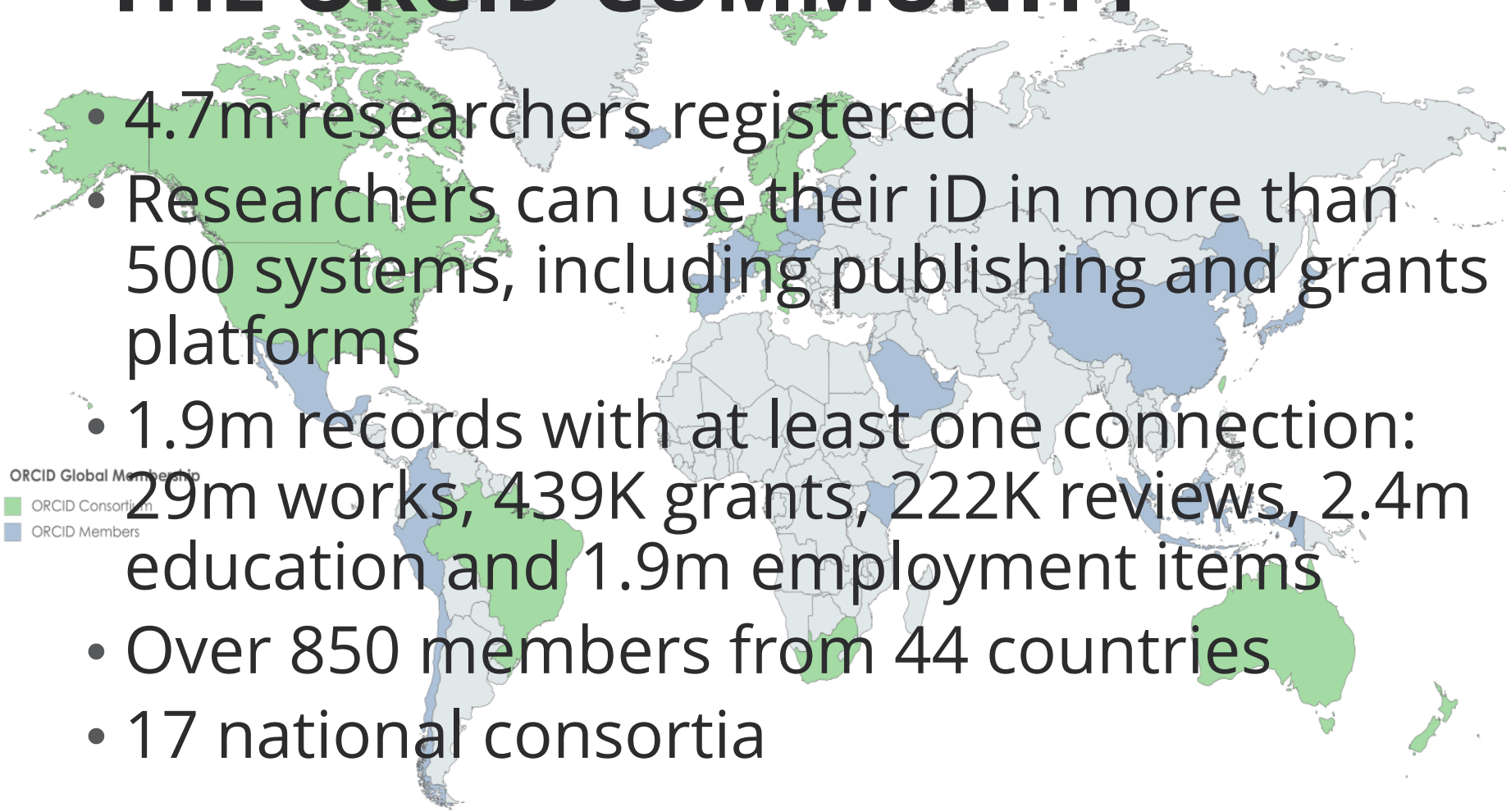
Researchers, institutions, funders, and publishers must use identifiers in research workflows and processes. It is marvelous to see this happening.

WHAT IS WORKING NOW?

- **Publishers** – More than 2000 journals collect ORCID iDs from authors and reviewers and assert article and review information to ORCID
- **Universities** – More than 100 collect iDs from staff and assert affiliation information to ORCID
- **Funders** – Starting to collect iDs from applicants and assert award information to ORCID

Photograph: Erica Dufour

THE ORCID COMMUNITY



- 4.7m researchers registered
- Researchers can use their iD in more than 500 systems, including publishing and grants platforms
- 1.9m records with at least one connection: 29m works, 439K grants, 222K reviews, 2.4m education and 1.9m employment items
- Over 850 members from 44 countries
- 17 national consortia

https://orcid.org/statistics

THE VALUE OF A NATIONAL APPROACH

- Shared research information policy
- Coordinated work on information systems
- At-scale improvements in efficiency and convenience for researchers and administrators
- Better understanding of research impact and challenges
- More time doing research!

ORCID IN RUSSIA

We are pleased to be working with NEICON to support organizations interested in joining the ORCID community:

- Outreach
- Materials
- Technical support
- More soon at **orcid-ru.org**

The research community has the power to improve the **value and openness** of its research information.

Unique researcher identifiers have the potential to **streamline information sharing and bring transparency** to the creation and re-use of that information.