10

ORCID's First Decade:

From Startup to Sustainability

ORCID

10th

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Foreword

Chris Shillum
Executive Director

Linda O'Brien
Board Chair

With ORCID's 10th anniversary still on the horizon a couple of years ago, the ORCID Board started to discuss the importance of documenting ORCID's history—something that would help tell the story of a community coming together to create the sustainable, open-research infrastructure service that has now become essential for so many stakeholders around the world. As part of ORCID's focus on good governance, Board members are limited to a maximum of two three-year terms. The last of the founding Directors left the Board in 2020, and nearly all of the original staff members have moved on to pastures new (several to our fellow scholarly infrastructure organizations). We wanted to capture ORCID's "origin story" whilst the people involved were still around to tell the tale. Getting ORCID off the ground was no small feat; anyone can have a vision for starting a new service, but it takes a special kind of collaboration, determination, and sense of purpose to turn that vision into a sustainable operation that has outlived all of its founders. In ORCID's case, we take the "P" in Persistent IDs seriously, and are committed to providing unique identifiers to researchers and contributors in perpetuity. That's quite an undertaking.

Earlier this year, we commissioned John Lehmann-Haupt, a writer familiar with the PID universe and with many years of experience in corporate communications in scholarly publishing, to interview many of the key people involved in the startup of ORCID and to capture their experience in a narrative form. The result, ***ORCID's First Decade: From Startup to Sustainability***, aims to tell the story from the point of view of those involved.

Rather than trying to create a full accounting of every detail involved in the creation of an organization as complex and broadly based as ORCID, we instead decided to focus on celebrating the individuals and organizations who got ORCID off the ground and then worked toward organizational sustainability. As well as the interviews, conducted with numerous board members, alumni, and key players from across our stakeholder community who were involved in the founding, John trawled through ORCID's archives and accessed our library of previous blog posts. Our hope is that anyone interested in following in our founders' footsteps and creating a community-led infrastructure organization will be able to use this document as a case study on one way to navigate the journey from idea to scalability and sustainability, and gain greater insight into some of the challenges and pitfalls ORCID encountered along the way.

ORCID has experienced explosive growth in a short decade. Perhaps most notably, ORCID ended its first year in operation in 2012 with over 40,000 records, and now, in 2022, we host 15 million. We are extremely proud of the way that ORCID has grown and recognize that it has done so because of a strong and broad base of supporters from all sectors involved in scholarly communication. As we pause and reflect on the incredible feat of vision, organizing, and funding from a dedicated group responsible for ORCID's early success, we are also excited about the next chapter, how ORCID plans to build value for our members and users in the future. The strong foundation created by their work enables us to contemplate ambitious plans for the next decade. We hope you will join us for the next phase of growth.

An Overview of ORCID's First Decade

mid 1990s research journals start moving online

1997 DOI intruduced

2007 contributor identifier discussions began

2010 ORCID incorporated

October 2012 ORCID registry launched

As the dissemination of research journals began to move online in the mid-1990s, it became clear that to fulfill the promise of a robust, inclusive web of scholarly communications, there needed to be two things: a unique, persistent-identifier system for published works, and another such system for the people creating those works. With that twin foundation in place, discoverability and credit attribution would improve dramatically, opening new channels for collaboration and for tracking and assessing the impact of published research.

With the strong interest of scholarly publishers in establishing an industry-wide system of reference-citation linking for their journals, the initial focus was on a works identifier, resulting in the introduction of the Digital Object Identifier (DOI) in 1997 and its implementation by Crossref, a collaborative publisher organization launched in 2000. The Crossref linking service was soon adopted by all the major publishers, and attention turned to the creation of an identifier for authors and other research contributors. In 2007, discussions of a contributor identifier system began at Crossref, which for a time was considered a possible host for such a service.

But by 2009, the momentum had shifted to an effort guided by key figures at Thomson Reuters and Nature Publishing Group (as they were then known), who marshaled a team of volunteers from across the research community in recognition of the broad base of stakeholders who would benefit by this capability. Through their work, the nonprofit Open Researcher and Contributor IDentifier (ORCID) was incorporated in August 2010, and, with the financial support of startup loans from the publishing community and grants and sponsorships from several organizations, the ORCID service was launched in October 2012.

ORCID Launch, October 2012

The initial uptake of the service substantially exceeded expectations. From the start, ORCID was intended to serve the broadest possible range of stakeholders, spanning researchers, libraries, research institutions, funding agencies, intermediaries, and publishers, with particular emphasis on the needs of researchers. Accordingly, its operation has been guided at every level by a set of founding principles that stress openness, trust, and inclusivity, with no-charge access for researchers, who maintain full control of their data. Developing and refining a consortium-based business model that has allowed it to tap member resources for implementation and support, ORCID has gained a global presence while remaining a small, nimble entity. Attaining financial sustainability in 2019, ORCID has entered its second decade deeply interwoven with the fabric of the global research enterprise.

Before ORCID: The Origins of Persistent Identification

1964
citation index created by Eugene Garfield

The registry of disambiguated names at the heart of ORCID can be traced back to the citation index created in 1964 by Eugene Garfield, who had founded the Institute for Scientific Information (ISI) in 1960. In 1992, The Thomson Corporation acquired ISI, where the citation index database became the basis of its online Web of Science, introduced in 1997.

1997
Thomson Corporation introduced online Web of Science

> *We had hundreds of thousands of authors who were indexed along with their papers and the citations of those papers.*
>
> **Dave Kochalko, ORCID Cofounder**

2008
Release of ResearcherID

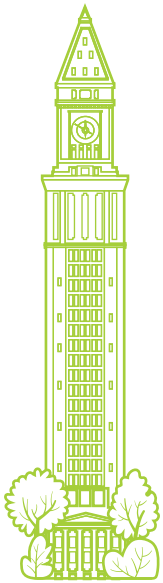
David Kochalko had come to Thomson in late 1992: "We came up with the idea that we needed an internal identifier to use in our system that would enable us to deduplicate and validate authors." The resulting ResearcherID was released in January 2008, allowing authors to self-identify and be validated accordingly.

ResearcherID was very successful within the domain of Thomson Reuters (as the company was by then known), but there was an obstacle to its expansion into the broader community. "We were a private corporate entity," said Kochalko, "and there was reluctance on the part of individuals to have their identity depend upon a commercial entity. We started talking internally about how we could take what was clearly a valuable innovation and open it up."

At this point, Nature Publishing Group had a strong working relationship with Thomson Reuters, and with Web of Science in particular, and early in 2008, Kochalko met with Howard Ratner from Nature to explore what they might collaborate on; Nature's Timo Hannay and Thomson Reuters's Renny Guida were also in attendance. "One of the ideas was to create what we at the time were calling Open Researcher ID, using the technology that Thomson Reuters had already developed," said Ratner. With the central component in place, it was a compelling possibility, and the group launched a project to develop it on April 28, 2009, holding follow-up meetings in June and July.

During this time, Crossref had been discussing its own proposed initiative, known as Crossref Contributor ID and based on a proof of concept developed by then-Director of Strategic Initiatives Geoffrey Bilder. But the Crossref people were not yet aware of the Thomson Reuters–Nature effort.

A New Name Identifier Emerges



9 Nov
2009
Name Identifier Summit

Understanding that they had reached the point where they needed to seek and gauge stakeholder support, Ratner and Kochalko planned an open meeting, the Name Identifier Summit, scheduling it for 9 November, 2009, in Boston to coincide with Crossref's annual meeting, thereby facilitating attendance by interested parties from that community.

"We understood that we didn't know everybody who was going to be in the name identifier space," said Ratner, "so we ran up the flag to see whom it would attract." The Summit drew attendees from 21 organizations representing the publishing, library, scholarly society, technology, research, and funding sectors. It also marked the debut of the ORCID name, with "and Contributor" added to Open Researcher ID to reflect the appreciation Kochalko and Ratner had gained from stakeholders for the role of contributors, who provide important material to research projects but have not traditionally received formal recognition.

The Summit was enthusiastically received, and a stakeholder meeting followed on 2 December at Olympia Exposition Hall in London, UK, keyed to the London Online and STM Innovations meetings. Attendance at this second gathering was substantially greater, again reflecting a broad stakeholder spectrum.

By this point, the necessity for ORCID as a separate entity had become clear. "The Crossref community understood they were primarily a publisher forum, and that ORCID, while it had a role to play with publishers, had a much bigger role to play outside of publishing," said Ratner.

In the meantime, Kochalko had been working in the background to shore up support for the venture at Thomson Reuters. "A fair amount of capital had been invested in ResearcherID, and I spent many months negotiating internally, explaining our concept and why it would be a benefit not only for the broader research community but also for our own business," said Kochalko. The success of his efforts was borne out by the support Thomson Reuters provided in the ensuing months.

From December 2009 to February 2010, Kochalko and Ratner, now the designated co-chairs of the project, built the preliminary framework for the new organization with the help of the Business/Policy Working Group, headed by Craig Van Dyck of Wiley and Bernie Rous of the Association for Computing Machinery (ACM); the Technical Working Group, under Ratner; and the Communications Working Group, under Kochalko. The ORCID.org website was created.

10 Feb
2010
First Participant's Meeting

The next milestone was the 10 February, 2010, Participant's Meeting, a virtual session that drew 30 new individuals in addition to attendees of the two earlier meetings.

> *We all decided we wanted to build an alpha version of the system.*
>
> **Howard Ratner, ORCID Cofounder**

April 30
2010
Participant's Meeting at Thomson Reuters Boston office

Thomson Reuters recommended that the participants enter into a memorandum of understanding, providing the services of Assistant General Counsel Michelle Lin pro bono to help them navigate the process.

A second Participant's Meeting, on 30 April, was held at Thomson Reuters's Boston office. "Thomson Reuters donated critical resources," said Ratner, "including the services of Brian Wilson, who did an enormous amount of technical work as head of the group that delivered the alpha prototype on 10 June."

August
2010
ORCID was incorporated

On 5 August, 2010, ORCID was incorporated in the US state of Delaware, governed by a 14-member Board of Directors, drawn from the initial stakeholder organizations.

Following a participant update on 17 September, 2010, the first in-person meeting of the Board was held at the New York office of Nature Publishing Group, on 8 October.

"We had now migrated from a loose group to a structured entity complete with bylaws and a certificate of incorporation," said Ratner, who was elected Chair of the Board at the 8 October meeting. Kochalko was elected Treasurer, and Amy Brand, who had recently moved from Crossref to Harvard University's Office of Scholarly Communication, was elected Secretary. Liz Allen of Wellcome Trust, Craig Van Dyck, and Bernie Rous were elected to the Executive Committee, and Martin Fenner, a physician in Hannover, Germany, with expertise in software design, was appointed Chair of the Outreach Working Group. Additionally, Crossref donated Geoffrey Bilder's services as Interim Technical Director.

Gathering Funding

44
initial sponsors
$245K

The earliest funding for ORCID came in the form of sponsorships, a total of $245,000 from 44 organizations of various types, supplemented in February 2011 by a $45,000 grant from the Mellon Foundation.

"The Plan was to raise loans as we had for Crossref, and it was very successful.

Ed Pentz, founding Board member

2011
Mellon Foundation
$45K

"The grant allowed us to hire consultant Raym Crow [of Chain Bridge Group] to work with the Board on putting the plan together and generating a final report." said MacKenzie Smith, a founding Board member who at the time was Research Director for MIT Libraries and served as Principal Investigator for the Mellon grant. The report provided cost and revenue models for the 10 years beginning in 2012, noting that ORCID had already progressed further than earlier name identifier systems that had emerged within various communities, because of its engagement with all the stakeholders necessary to success.

2013
Publisher Loans
$2.1M

The bulk of startup funding, however, came in the form of loans from the publishing community. "Howard Ratner and I went to the Frankfurt Book Fair in October 2011 and met with all the big publishers after the STM conference," said Ed Pentz, Executive Director of Crossref, a founding member of the ORCID Board and its second Chair from 2014 to 2017. "The plan was to raise loans as we had for Crossref, and it was very successful. It was clear that having publishers include ORCID in their workflows and manuscript submission systems would be crucial for its uptake, so their support was critical. But it was always clear there needed to be a broader group of stakeholders involved, and that once things got going there would be a sort of second phase, with the focus on universities, libraries, and funders, and with researchers at the center of things."

The publisher loans, a total of $2.1 million, were delivered in three rounds, the final arriving in 2013.

A Broad Coalition of Support

November
2010
ORCID's 10 Founding Principles

ORCID's 10 Founding Principles were codified at the Board meeting of 18-19 November, 2010, hosted in the UK by Wellcome Trust, a global philanthropic foundation that provided early support to the organization.

> *Very early on, we spent an enormous amount of effort talking about what became the ORCID Principles.*
>
> **Simeon Warner, founding Board member**

Simeon Warner was then Director of Library Linked Data and Repository Architecture Cornell University. "The foundation of openness we established is very important. And then we spent a lot of time working out how to implement a system that stood up to these principles and yet still delivered on the promise, because there's an inherent tension between privacy and identification.", he said. "For example, birth years are often used to help distinguish book authors, but this kind of personal information isn't usually shared within the research community or associated with scholarly articles. So, while asking for a birth year as part of an ORCID record might have helped with disambiguation or reconciliation tasks, we favored researcher privacy."

ORCID's principles around openness can also be seen as balancing the concerns of commercial and noncommercial stakeholders. "The vision that some of us had early on was that, through this identifier for researchers, we would create a kind of open metadata commons, with comprehensive data on the outputs associated with individuals," said founding Board member Amy Brand, now Director and Publisher, The MIT Press. "But the prevailing view was that all we actually needed for disambiguation was partial data, and that if we created a robust data set and put it out in the open, we could be seen as competing with commercial entities that sell services based on such data." The researcher-driven model that ORCID arrived at provided a data set that left room for supplementation and editorial enhancement, affording other organizations (both commercial and nonprofit) ample opportunity to create additional services.

Although Ratner and Kochalko's plan for ORCID incorporated the Thomson Reuters ResearcherID system, that choice was not in fact set in stone, and there were early discussions of possible alternatives, notably ISNI (International Standard Name Identifier), at the time a draft ISO standard. But factors emerged that eliminated it from contention as a viable option.

April
2012
ORCID EU
(now disscolved)

"ISNI was based on the combination of rights workflow and library authority use cases, with the scope of people who could have an ISNI those who had contributed to a creative work such as a book, recording, or movie," said founding Board member Chris Shillum of Elsevier, who in October 2020 became ORCID's second Executive Director, having left Elsevier the prior year. "For historical reasons, people who have published only in the journal literature are not included in library authority files and are thus out of the scope of ISNI, which would have been incompatible with ORCID's primary use case of scholarly attribution." Additionally, ISNI's practice of ID assignment by registration agency conflicted with ORCID's assertion that researchers would control their own records, and its fee-per-ID model was counter to the founding principle that the ID be free for researchers to obtain and use.

Ultimately, Thomson Reuters donated the ResearcherID code to ORCID under a perpetual license with royalty-free use, allowing ORCID not only to develop it in accordance with ORCID's principles and use cases but also to make it available to the public under open-source standards. ORCID and ISNI later signed an Memorandum of Understanding agreeing to establish interoperability between the two systems.

From the beginning, the ORCID Board was representative of the international stakeholder community, including not only members based in the US and the UK but also Hideaki Takeda, of Japan's National Institute of Informatics (NII); Martin Fenner, of Hannover, Germany; and Salvatore Mele, of the European Organization for Nuclear Research (CERN).

> *In the interest of broadening as early as possible the reach and diversity (as well as the acceptance and legitimacy) of ORCID, CERN lent its name to the initiative.*
>
> **Salvatore Mele, CERN**

"With our Director General, Prof. Rolf Heuer, providing a quote for one of the earliest press releases: 'At the dawn of a new age of discoveries in physics, where experiments that probe the structure of the universe are carried out by international teams of scientists that number in the thousands, correct attribution of research contribution is of crucial importance. I welcome this joint initiative of stakeholders in scholarly communication to work together on these issues.' We also helped found ORCID EU [since dissolved] in April 2012, which obtained grants that funded European outreach and integration with other mostly European initiatives."

Making it Happen: ORCID's Early Days

April
2012
Laure Haak
Founding
Executive Director

On 20 April, 2012, Employee Number One came on board—Founding Executive Director Laure Haak. "Laure had been working in my group at Thomson Reuters as Chief Science Officer," said Kochalko. "I thought she would be a good fit for the role and introduced her to Howard [Ratner]. As it turned out, she was a splendid fit."

Laure Haak, Founding Executive Director, April 2012

One of the first challenges Haak faced was the question of exactly what the ORCID service would be—an identifier system, or a profile system. "There were very strongly held opinions on this," she said. "Are we just providing an identifier, with information connected to it that can be pulled into other systems, or something bigger, allowing individuals to present information as a CV, in the manner of existing profile systems?" As mentioned earlier, the question had been explored during the formulation of the Founding Principles, but discussions now moved to a more pragmatic level. "There were decisions about the growth of the organization, both technically and socially, that depended on this distinction," continued Haak. "I felt that, strategically, the narrower our scope, the better. We didn't want to be in competition with any of our stakeholders, and with the focus on the identifier, ORCID would be an enabler—an asset, not a competitor." And as a nonprofit with a small budget, ORCID would be better served by a leaner offering.

Collaboration among a mixed stakeholder group such as the ORCID Board, representing varied professional cultures, could itself be a challenge. "We had people from industry and academia working together, and they have very different approaches," Haak said. "Industry people tend to be iterative, putting together small packages and refining them along the way, while academics want to have

> *Howard and Dave were the ones who set the initial vision.*
>
> *Laure and Laura were the ones who figured out how to get it done.*
>
> **Chris Shillum, Executive Director**

October
2011
U.S. National Science Foundation Grant

June
2012
Laura Paglione Founding Technology Director

October
2012
ORCID Service Launch

the whole product in a box, as perfect as possible, before unveiling it. So while on the one hand we were discussing what the scope of the service would be, on the other hand there was the question, when will we release it to the world?"

But launching the ORCID system was an undeniable priority. Fortunately, a grant from the US National Science Foundation (NSF) that had been awarded in October 2011 via the University of Chicago provided the funds to hire a technical team, and in June Laura Paglione joined ORCID as Founding Technology Director. (Paglione also brought formidable strategic expertise, in 2016 taking on the role of Director of Strategic Initiatives.)

Once on board, Paglione set the launch for 16 October, 2012, an ambitious target leaving her just four months to prepare. Aside from the technical challenges, the organization was in a nascent state, with Crossref initially helping to carry out financial administrative tasks, so there were challenges on a number of levels.

"Although Geoffrey [Bilder] and his team had done a lot of development work on the original ResearcherID code base, it wasn't yet ready for launch," said Paglione. "But we managed to do it. And had it not been for the scaling issues at our hosting provider, everything would've been fine!"

At the time, the data center ORCID was using had recently switched to a new platform with an undetected bug that prevented its accommodating an unexpected load. "We got way more traffic than expected the first day," Paglione said. "I was basically up all night talking to them. But we got it fixed the next day."

Paglione quickly began to build a team, bringing on Cat (Catalina) Wilmers as Customer Support Lead in the launch month and Rob Peters as Lead Developer in December; Technical Support Specialist Liz Krznarich came on later, in July 2014. Paglione also changed the external development provider from a UK-based firm to the Colombia, South America-based Avantica, a "nearshore" option in the same time zone as ORCID that was also more cost effective. "Then we brought on a couple of the Avantica people in early 2013, so that all our development work was done in house, making it much more efficient to update the code," said Paglione.

Paglione's Team for the ORCID Service Launch

Haak commented on the unexpected surge of early registration for ORCID iDs. "There were bets as to how many people would have registered by year's end; the highest was 10,000. We had 5,000 registrants before the end of the week. And we had 50,000 by the end of the year."

Entering the Ecosystem

By design, ORCID was intended to be a trusted source of information that would both disambiguate registrants and document aspects of their professional achievements, dovetailing with the systems and workflows of stakeholders—universities and scholarly societies tracking the research output of their constituencies, funding agencies informing their grant decisions and tracking their impact, publishers enhancing their submission systems and their ability to locate potential peer reviewers, and researchers themselves, ensuring attribution and seeking collaborators while benefiting from the ease of managing and sharing the information in their ORCID records.

From this perspective, the strong early registrations were encouraging—a testament to the trust the organization had already engendered—but by no means a guarantee of success.

"What's fascinating about ORCID is that the value of it depends on so many integrations," said Veronique Kiermer, Chief Scientific Officer at PLOS, a Board member (with a brief hiatus) from 2013 to 2022 and serving as Chair from 2017 to 19. "At the beginning, when you asked researchers to sign up, you were really selling a promise. The fact that in such a short time it went from the promise of value to something that is every year providing more value is remarkable."

Haak and Paglione initiated an ongoing campaign of programs very early on to promote such integrations, beginning with the Launch Partners Program, through which 17 participating organizations helped test ORCID's APIs and developed use cases and workflows in the run-up to the launch. As noted in the 2012 ORCID Annual Report, "At launch, researchers were able to register and obtain an ORCID, search for their publications and import metadata, link to external IDs, and link to ORCID from manuscript tracking systems…these integrations have been responsible for upwards of a third of the traffic to the ORCID Registry." As of mid-2022, there are more than 4,000 live ORCID integrations.

ORCID team at the ORCID–CASRAI meeting at the University of Barcelona, May 2015

2013
ORCID's Adoption and Integration Program

A 2013 grant from the Alfred P. Sloan foundation funded the influential Adoption and Integration Program, through which nine organizations chosen through a competitive solicitation were awarded cash and publicity for their integrations of ORCID into their repositories and personnel management systems.

"We understood that to encourage organizations to join ORCID, it would be very helpful if they could see it working somewhere," said Haak. "The idea of the Adoption and Integration Program was for each participating institution to get together a group that crossed departments—library, research, office, IT—and pitch us a project. We gave the winners grants in the $15,000 range and a year of free ORCID membership, and showcased their work prominently."

Board member Simeon Warner spoke of Cornell University's project, the integration of ORCID with VIVO, a system used by institutions to help curate staff profiles. "It had particular adoption in the health sciences sphere, where its ability to support very fine-grained descriptions of work can help experts find collaborators in their areas," he said. "There was a clear utility to doing an integration with ORCID, because inside a VIVO installation, you want to be able to pull in fresh publications without anyone at the institution having to enter them. With ORCID iDs coming from Crossref along with new publications, you had a beautiful source of material for VIVO."

Although the Adoption and Integration Program was limited to US and Canadian participation, its impact was international. "These early adopters really showed the possibilities of ORCID, and made it possible for places in Europe, Australia, and New Zealand to say, 'We can make that happen here, too,'" said Haak. "It was hugely important. The project concept was reimplemented in the UK and became the foundation of the UK ORCID consortium."

ORCID's Adoption and Integration Program

May 2016
ORCID's Collect and Connect Program

A little further along, the Collect and Connect program was another initiative that proved useful in promoting integrations. "It was a big program designed to increase both the collection of ORCID iDs and the actual use of the ORCID platform through integrations," said Paglione. "We provided branding that allowed participating members to highlight their achievements." Launched in May 2016, the program encouraged funders, publishers, and research institutions to complete a four-step process: collect validated ORCID iDs, ensuring that their owners were correctly associated with their affiliations and contributions;

AUTHENTICATE

DISPLAY

COLLECT

CONNECT

SYNCHRONIZE

display the iDs, as a signal to researchers that an information system was plumbed to support the use of ORCID; connect information about affiliations and contributions to ORCID records; and synchronize between systems for faster and more accurate reporting, with a reduced data entry burden for researchers and administrators alike.

As Alice Meadows (then Director of Community Engagement and Support) wrote in the ORCID announcement of Collect and Connect, "Our ultimate goal is for individuals to register for an ORCID iD and, simply by using it as you work and make contributions, enabling your information to be automatically connected to all the other research and scholarship systems you use." In her June 2017 follow-up post, Meadows reported that a significant number of integrations had been executed, with a group of members awarded badges for completion of at least two of the four steps. She went on to emphasize a critical point: "Underpinning everything is authentication—requiring users to log into their ORCID record to share their iD, rather than keying in or pasting their ORCID iD into a data field."

Paglione described a twofold challenge often encountered in soliciting the adoption and integration of ORCID: demonstrating its value to organizations, and developing relationships with the intermediaries that would actually implement the integrations.

"The need for ORCID is obvious from the community perspective, but if you dial it back to what an individual company needs, it wasn't always immediately clear that ORCID solved their problem," she said. Publishers, for example, didn't always see the point of collecting and displaying an ORCID iD, when the names and affiliations of a published paper's authors, perhaps with some contact information for the corresponding author, were generally included.

The potential of a disambiguated identifier within the greater context of the ecosystem was not obvious to all, and explaining how authentication would fit into the workflow was not always easy. She cited the integration of ORCID with eXtyles, a widely used suite of editorial and XML tools offered by INERA, as exemplary of the three-party dynamic (put simply, this integration ensures that authenticated ORCID iDs are accurately included in a manuscript's final XML file). "We worked to make it a partnership between the publisher, the vendor, and us," she said, "providing as much technical support as we could to make it happen. eXtyles is widely used, so having INERA incorporate ORCID into their tools opened the door for a lot of publishers to participate in ORCID."

Outreach to communicate the value of ORCID has been ongoing, with the development of a new set of value stories delineated by ORCID's stakeholder groups in 2021, and offerings such as the "I'm a Member, Now What?!" webinar series launched in summer 2022.

Committed to Researcher Control

Although it was always a given that researchers would have complete control over the content of their ORCID records, there was a major policy question early on as to whether the organizations they were affiliated with would be given the power to create ORCID iDs on their behalf. Initially, it seemed that granting this power would be a highly efficient way to populate ORCID with registrations, but when the approach was implemented, problems emerged.

"By way of example, MIT registered ORCID iDs for all their researchers," said Chris Shillum. "What we found was that many of them didn't even know they had an ORCID iD, so that later, perhaps when submitting a manuscript, they would inadvertently create a second one, resulting in duplication and defeating the whole purpose."

Simeon Warner noted another issue. "There's also the danger of annoying the researchers," he said. "People tend not to like it when things are created for them and put on the web without their knowledge."

By late 2015, ORCID had tested and implemented an opt-in program known as Create on Demand, through which researchers were alerted by their institutions to the availability of ORCID iDs and invited to create them. "At a university, this usually comes in the form of a message from the provost, greatly reducing the likelihood of researchers dismissing it as spam or a phishing attempt," said Haak. Subsequently, this system was enhanced by the Affiliation Manager, a simple tool allowing institutions to add affiliation data to their researchers' ORCID records, again contingent on their permission.

An interesting dynamic of ORCID is that while researchers are its cornerstone, they do not contribute to it financially; its revenue derives from membership fees paid by member organizations. And there can be a certain tension between what researchers want and what their institutions want, marking an area where the maintenance of trust is paramount.

"Some of the services that are a priority for members might not be a priority for researchers," said Salvatore Mele. "If I'm a researcher, I may have written a couple of papers I'm not very proud of, and I don't want them listed in my ORCID record. But the consortium is interested in metrics, in creating comprehensive lists of publications by university, by year, for example.

"So, those who pay can be perceived by the researchers as wanting to track them, measure them, box them, in ways they don't want. We have been successful in avoiding this by giving the researchers tools from very early on to add only the information they choose."

An 'Angel' Steps in; ORCID Staff Expands

2014
National Science Foundation Grant Cancelled

April 2015
Leona M. and Harry B. Helmsley Charitable Trust

October 2016
Leona M. and Harry B. Helmsley Charitable Trust

In its first couple of years of operation, ORCID had made impressive progress in terms of both the number of researcher registrations and the range of member adoptions and integrations. But its finances remained precarious, a cause for concern. The anticipation that the startup loans would provide sufficient breathing space for the organization to develop a sustainable business model had not been met, with the expenses involved in scaling it to be a global venture still not covered by its revenue.

On top of this, in 2014, a grant that had been initially approved by the National Science Foundation to fund the implementation of ORCID in the data management processes of a group of major universities was canceled following a financial audit. "We had put together the whole program early in the year and hired people based on the approval," said Haak. "A few months later, they reversed themselves; we had to let one person go by way of mitigation.

"And then some angel stepped in, to this day I don't know who, and I got a phone call from the Helmsley Foundation asking how they could help. I went to them with a short proposal for promoting international ORCID adoption and integration through staff expansion, regional workshops, and localized member technical support.

"They gave us $3 million."

Ultimately, the grant from The Leona M. and Harry B. Helmsley Charitable Trust came in two stages: the initial $3 million announced in April 2015 as an 18-month award, followed by an additional 18-month award of $1.84 million announced in October 2016.

ORCID's Team Expansion, 2016

The grant funded an immediate expansion of the ORCID team, with the hiring of Alice Meadows as Communications Director and Douglas Wright as Membership Director, as well as a Global Membership Team comprising Josh Brown, Regional Director, Europe; Matthew Buys, Regional Director, Africa and Middle East; Nobuko Miyairi, Regional Director, Asia-Pacific; and Lilian Pessoa, Regional Director, Latin America.

The expansion made possible by the Helmsley grant proved transformational for ORCID, fueling the development of its consortium activity into the critical element enabling it to be fully supported by membership fees.

The Consortium: ORCID at Scale

2014
Spanish ORCID Consortium

February 2016
Australian ORCID Consortium

2017
Linda O'Brien
ORCID Board Member

2020
Linda O'Brien
ORCID Chair

ORCID's consortium model evolved dramatically from its earliest iteration, emerging from a simple transactional mechanism for revenue generation to become a portfolio of partnerships that share the load of adoption and integration, shaped by the varied dynamics of governmental involvement with research and education around the world.

"When we first launched the membership model, we were looking for ways to encourage organizations to join," said Haak. "We made a decision very early on to offer a three-year subscription for the price of two, with payment up front so we'd have the resources to do outreach. Out of that, we generated two memberships, in Spain and Denmark, where there was also interest in joining on the country level; that was where the idea for national-level ORCID consortia first came from." (The Consortium of Andalusian University Libraries [Consorcio de Bibliotecas Universitarias de Andalucía, or CBUA] and a group of Danish universities and research institutions both became ORCID consortia in the later part of 2014.)

Veronique Kiermer recalled another early member whose inclusion moved the needle, although it wasn't technically a consortium: Fundação para a Ciência e a Tecnologia (FCT), the Portuguese national funding agency. "It marked a strong showing of government interest in ORCID," she said. "FCT made the policy decision that every researcher seeking national funding needed to have an ORCID iD. We had a flood of applications for ORCID records overnight."

Underlying the evolved ORCID consortium model is the concept of reciprocity—that while the consortium enjoys a group discount on behalf of its members, the benefit comes with a responsibility to help implement ORCID as an integral part of their systems and workflows.

As it turned out, Australia presented the right combination of elements to provide a "best practices" scenario for an ORCID national consortium: strong government involvement in research infrastructure, a tightly interconnected research community, and a "can-do" entrepreneurial spirit.

"Around 2014, I was involved in the national research infrastructure conversation in Australia, and, as Chair of the Council of Australian University Libraries Research Committee, I was approached to see if I would partner with the Australian National Data Service [ANDS] to bring Laure out for a workshop around ORCID," said Linda O'Brien, who was at the time Pro Vice Chancellor, Information Services, at Griffith University. (O'Brien joined the ORCID Board in early 2017, becoming Chair in 2020.) "I partnered with Ross Wilkinson, the ANDS Executive Director, and we put together a workshop with Laure and a group of key stakeholders from across all the connected parts of the Australian research landscape. By the end of the day, I was very excited by the potential and saying, 'We have to do something with this.'"

Australian ORCID Consortium Officiall Launch

From the start, O'Brien was impressed by the benefit to researchers, who would save a great deal of time by simply plugging in their ORCID records whenever needed rather than having to provide the same information repeatedly ("enter once, reuse often" is an ORCID mantra). But she was equally struck by the benefit to institutions, and by the opportunity to demonstrate national impact within the global research community more effectively.

"We set up a small working group, with representation from the research granting bodies, the IT community, the library community, and, very importantly, research management offices, glued together by some of the national agencies, like ANDS," said O'Brien.

Within institutions, the group reached out to all the key stakeholders with a document O'Brien had initially drafted with Natasha Simons of ANDS, which was improved and ratified by the working group, outlining the benefits of ORCID to researchers and their institutions, and the potential national benefit as well.

"We went to the research office, the university librarian, and the director of IT simultaneously, to ensure that when the Vice Chancellor was approached to join the consortium, all key stakeholders were aware of the opportunity," said O'Brien. They also arranged to house the home office with the Australian Access Federation (AAF), which, as provider of the national authentication service, shared the values and approach of ORCID.

The venture was undertaken with the understanding that there would need to be staff on the ground to provide support, enabling the realization of the national benefits. "Within the Australian consortium, we have a technical person manning a help desk for members so they don't need to go directly to ORCID for assistance with integrations and other issues," said O'Brien. "We have a website, we have training materials, and we share information that members can use to build interest in their researcher communities." These resources are funded by having each member pay a consortium fee along with the ORCID membership fee.

2018
LYRASIS Consortium for all US Universities

2019
ORCID reached financial breakeven

2020
U.S. Government ORCID Consortium DOE OSTI

2020 2021
ORCID posted surplus

The Australian ORCID consortium launched in February 2016, with Canada and New Zealand soon drawing on its example in forming their own consortia.

But in the US, the situation was more complicated, presenting a different constellation of challenges. "We started with publishers, and since there are a limited number of big players, we could cover their membership fairly easily," said Veronique Kiermer. "But there was a very strong case for academic research institutions, which were more complicated, because it wasn't immediately clear whom to talk to. Is it the library? Is it the administration?"

Initially, a one-by-one approach was deployed, which could be helpful by way of demonstration; having signed up at Harvard, for example, could be very influential when talking to other prospects. But it was obvious this method would never scale effectively, and the focus shifted to consortium membership.

At the time, there were three regional US library consortia: NorthEast Research Libraries (NERL), Greater Western Library Alliance (GWLA), and Big Ten Academic Alliance. Institutions that had originally joined ORCID on their own began to be amalgamated into these consortia; Cornell University, for example, which had originally signed up as an individual member, became part of NERL and from then on participated in ORCID through it. But these consortia were primarily buying cartels, without a strong sense of reciprocity.

"And then an amazing thing happened," said Haak. "In 2018, these library consortia got together to form a single ORCID consortium for all US universities, with LYRASIS, a nonprofit member organization, as the administrative home. They've done a great job, providing a single point of contact and fabulous support. And that is how we were able to transform the way ORCID is managed in the US from a straight-on subscription model into an actual community."

ORCID US Community, as the unified library consortium is known, now has more than 150 members. A separate consortium, US Government ORCID Consortium, led by the US Department of Energy Office of Scientific and Technical Information (DOE OSTI), was formed in 2020 to accommodate the administrative requirements of federal agencies, but the two entities "talk" to each other regularly.

Within the EU, countries have adopted a range of consortium models; most are community driven, some are government driven, and some are a mix. By way of example, the Italian consortium is government funded, while the Netherlands consortium is fully community driven and funded, comprising all the Dutch universities as well as GEANT, a pan-European data network for research and education, and the Royal Netherlands Academy of Arts and Sciences (KNAW). While the EU itself has played no role in the formation of ORCID consortia within its member states, it has helped motivate consortium initiatives through efforts like Horizon 2020, a research and innovation funding program that ran from 2014 through 2020.

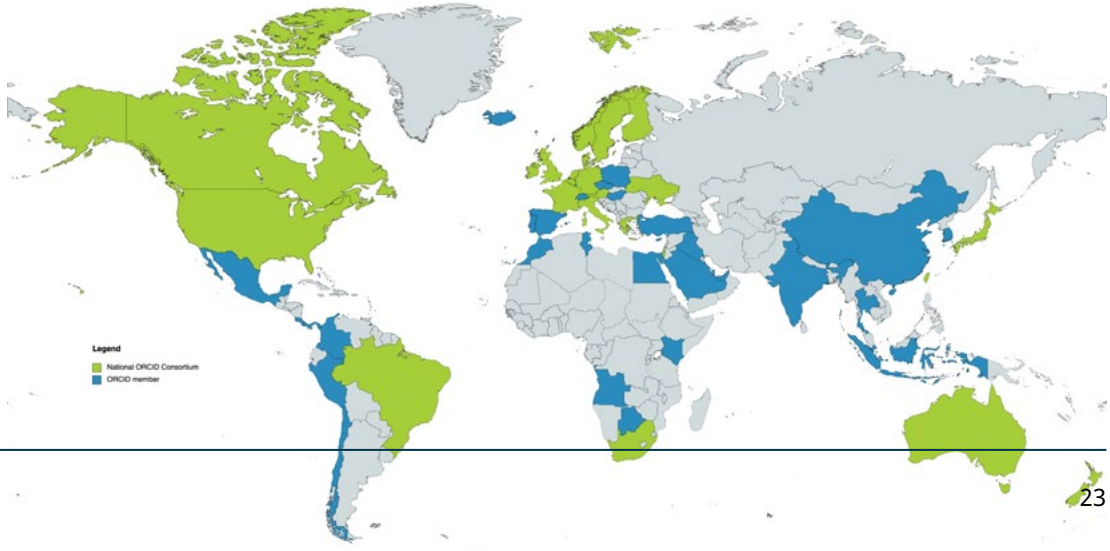
2022
25 national ORCID consortia across 6 continents

During the first few years of all this, the Board had deliberated extensively on what the consortium business model would be, setting pricing and size requirements and determining that only nonprofit organizations could be members. Their findings marked a significant departure from the business plan developed through the Mellon grant. "That plan had one cost model for universities, another for publishers, and yet a third for government agencies," said Haak. "But if you look at France, for example, that doesn't work. How would CNRS [Centre national de la recherche scientifique] join? Is it a university, a federal agency, or a publisher? It's all three; they're merged entities."

On the international level, ORCID has recognized the achievements of its national consortia through an awards program, citing Italy's CINECA for centrally managing an ORCID integration of 74 universities, Germany's TIB for delivering an exhaustive legal analysis of ORCID's privacy policy to accommodate the country's stringent regulations, and South Africa's TENET for its focus on establishing ORCID within its trust and identity services, to mention a few. And LYRASIS was cited for its communicative excellence in bringing four distinct and far-flung communities together into a single, successful community of practice.

As of mid-2022, there are 25 national ORCID consortia spread across six continents. Their operations have allowed the organization to scale up its global presence effectively and efficiently, with the added benefit of giving ORCID a channel for participation in policy discussions within the countries of those consortia.

In 2019, ORCID broke even. In both 2020 and 2021, it posted a surplus.



The Trust Program

From the earliest days of ORCID, it was understood that trust would be the sine qua non of its operation, "a handshake between the individual and all the different stakeholders in the system," as Haak put it. This understanding informed the creation of the 10 Founding Principles, which are centered on openness, transparency, inclusion, and collaboration.

Paglione described how this framework has played out in day-to-day life. "When people suggested ideas, Laure and I would go back to the principles, and sometimes we'd say, 'The principles don't allow it,'" she said. "They were very clear that the iD and all the information related to it was owned by the individual, and that ORCID is there just to serve the needs of the community. We never compromised on that, sometimes to people's annoyance, but I would say that that is the reason ORCID became such a trusted organization."

Then, in 2016, a small security incident occurred, triggering a major initiative that gave rise to the ORCID Trust Program, launched in October of the year. Because of a system bug, information that ORCID users had designated as "private" in their records was exposed for a short time. "Even though much of the information was publicly accessible elsewhere, the individuals hadn't given ORCID permission to share it.," said Paglione. "Although this bug affected only 2.5% of ORCID records, we personally reached out to everyone affected and apologized, but we also resolved to earn back their trust, to demonstrate that we deserved it."

A working group of privacy and data security experts from various community groups, chaired by Board member Richard Ikeda of the US National Institutes of Health, was convened "to help us review and refine the practices and policies underpinning the trustworthiness of ORCID," as Paglione wrote in the announcement of the program. The group's work resulted in a lucid, comprehensive exposition, featured on a dedicated page of the ORCID website, of ORCID's commitments and its means of fulfilling them in the areas of Individual Control, Reliability, Accountability, and Integrity.

The Trust Program, notable for both its thoroughness and its breadth and depth of community input, has drawn wider attention for its effectiveness. Chris Shillum noted that "People often think of ORCID as primarily running a technical infrastructure, but the process of putting together this article has reinforced for me just how central building community and establishing trust has been to ORCID's success."

Community-Driven, Strategic Governance

In ORCID's early days, the Board substantially outnumbered the employees. In 2014, the third year of ORCID's operations, its staff of eight was barely half the size of the Board, with its 15 Directors. Ed Pentz described the dynamic of those times: "For the first couple of years after Laure and Laura came on, the people on the Board were very hands-on, focusing on nuts-and-bolts issues, helping to get things up and running." Board members were involved in marketing, fundraising, setting budgets, and technical matters, things that in a mature organization would be handled by staff. But by the end of 2015, fueled by the Helmsley grant, the staff had grown to 21, and as the venture expanded and evolved towards sustainability, there was a corresponding shift in governance towards a focus that was more strategic, less operational.

That said, Haak emphasized that the foundation in place was a solid one. "The original Board did a terrific job of articulating what ORCID is, and of setting up the initial set of principles," she said. "And [consulting legal counsel] Jackie Ewenstein was fabulous, involved in everything you can imagine having to do with governance, helping me with so many questions as I was learning on the fly."

To advance ORCID's commitment to community-driven governance, and in the context of ORCID's broadened base of support among its institutional members, an amendment to the bylaws was passed that moved the Board from a model of self-perpetuation (voting on its own new or continuing members) to election from and by ORCID's member organizations, starting in 2016.

ORCID's Team, 2015

ORCID Board, 2017

Veronique Kiermer, who served as Chair from 2017 through 2019, a period of strong Board development, spoke of the challenge of reshaping its role: "As the organization scaled, we still had many of the same people on the Board, but the relationship between the Board and the management had to start shifting from a situation where Board members were doing much of the work to one where the organization's leadership was making the decisions, with the Board providing oversight and validation. As Chair, I experienced that as a delicate and difficult shift."

With her extensive background in business management, Board member Linda O'Brien made several important contributions to the process, notably by proposing and drafting a Board Charter (approved in September 2019) that Kiermer characterized as "really helping to crystallize the roles of the Board and the staff."

O'Brien also helped institute a more systematic process of Board self-assessment, and she initiated the expansion and clarification of the Secretary to the Board's role to include taking minutes at meetings, which had previously been done by the Executive Director. The reassignment resulted in more comprehensive record keeping while freeing up the Executive Director to participate fully in discussions.

Kiermer also cited a development in how fiduciary responsibility was upheld. "When I was Chair and met with new Directors to onboard them, I would ask them to state any competing interest they might have," she said, "then we occasionally ran into situations where these potential competing interests had to be declared when discussing a specific topic in a Board meeting. This has now evolved, with Linda [O'Brien became Chair in 2020] asking at the beginning of each meeting whether there are any competing interests for the topics under discussion, a formalization of the process that is much more professional."

To ensure that Board composition includes a strong researcher component, in 2016 a researcher Board seat was established, with a second added in spring 2017. In 2021, the Nominating Committee under Kiermer retooled its solicitation process to attract more researchers and in May 2021, the ORCID Researcher Advisory Council was launched to provide the ORCID Board and staff with input on the organization's policies, strategies, usability, and communications.

Looking Forward

may
2018
Global Participation Program launched

september
2022
15 million ORCID records

In the spring of 2022, with the 10th anniversary of its launch on the horizon, ORCID received a major infusion of support for its global mission in the form of nearly $1 million in startup loan forgiveness. The generous consideration, by 10 of the original lenders, funded the Global Participation Program, providing grants to promote participation in ORCID in currently under-represented regions, including much of the Global South. The program underpins one of the key pillars of ORCID's 2022–2025 Strategic Plan, "From Vision to Value."

With more than 15 million ORCID iDs live as of late 2022, there is no question that ORCID is firmly established in the research community, an achievement that conveys an ongoing responsibility. "One of the lessons we can take from ORCID is that investment in infrastructure, when it's done well, can really pay off," said Kiermer. "There hasn't always been the strongest commitment to that in the scholarly and research ecosystem. ORCID is a good example, and it's very important that we evaluate and improve its processes and governance structure on a regular basis."

That ongoing process of evaluation and improvement is well articulated in the 2022–2025 Strategic Plan, with a road map not only for increasing global participation but also for advancing ORCID's usability and value for members and researchers alike, and for fortifying its sustainability, reliability, and trustworthiness. And while that 15 million is an impressive number, it is likely just part of a much larger pool of potential registrants. "It's not just people with Ph.D.s who contribute to research and development," said Haak.

"There are librarians, grants officers, program managers, and many others who are part of this ecosystem, who contribute more than half of their job time to R&D activities."

From a certain point of view, the story of ORCID is the story of its successful progression through a series of "bubbles," as Salvatore Mele has called them. "In the beginning, there was the publisher bubble, and then the elite institution bubble," he said. "Then there was the funding agency bubble, working through the consortia, and then, around the time I left, in 2020, a Global North research bubble. Every time, ORCID has succeeded in getting out of its comfort zone and bursting the bubble to engage with a wider partnership."

From the beginning, ORCID has strived to keep researchers at the center, with the goal of guaranteeing reliable attribution of their work embodied in Founding Principle number one. So, how is that working out?

"I was speaking at a recent Mozilla Festival, and I met someone in the humanities who was doing work on the history of currencies," said Laura Paglione. "I mentioned to him that the first time I had come to the festival, I was the Founding Technical Director of ORCID. 'Thank you!' he said. 'ORCID has changed my life. Now our young researchers actually get recognized for the work that they do.'"

Special thanks to John Lehmann-Haupt, author of “ORCID’s First Decade: From Startup to Sustainability. Also to Amy Brand, Laure Haak, Veronique Kiermer, Dave Kochalko, Salvatore Mele, Linda O’Brien, Laura Paglione, Ed Pentz, Howard Ratner, Chris Shillum, MacKenzie Smith, and Simeon Warner for sharing their recollections for this document.

ORCID