# Open Researcher and Contributor Identifier
## (ORCiD) in New Zealand

Report for the Council of New Zealand
University Librarians (CONZUL) and the Information
and Communications Technology Committee (ICTC)
on ORCiD adoption in New Zealand

This document is a scoping document that discusses implications and considerations for Universities New Zealand Committees CONZUL and ICTC to consider regarding adoption of the Open Research and Contributor ID (ORCiD).

AUTHOR: Max Wilkinson, 2015
SPONSOR: CONZUL

## Background

At the CONZUL meeting in May 2015 it was agreed that:

1.  The services of a consultant could be used to carry out the work identified in the Research Data Management (RDM) Working Group Scoping document, and

2.  A joint CONZUL/ICTC working party on ORCiD be established with an initial step being to invite ORCiD to address interested parties on what a national initiative could provide.

Discussions with Dr James Maxwell Wilkinson (Max) to consider how CONZUL could use his experience in eResearch support to carry out this work took place and it was decided that given Max's background and experience, an opportunity exists for CONZUL to contribute to a policy position for the Vice-Chancellors and to wider national considerations. After consultation, the following have been identified as achievable aims:

1.  Strategic Framework on RDM

The CONZUL RDM working group aims to undertake an activity to advise the Vice-Chancellors (through the Research Committee or Universities New Zealand) and the wider eResearch 2020 programme regarding the management and preservation of research data objects from New Zealand research activities. These activities include the Universities and CRIs.

Dr Wilkinson will take the lead in establishing a working network of individuals from all universities that would build on the existing scope paper and allow each to provide local opinion, content and action for a strategic framework that would realise the benefits of RDM actives for sharing amongst our institutions and for the national benefit. This would include:

*   A clear elicitation of benefits to stakeholders
*   A map of responsibilities for each benefit and stakeholder
*   A report on the standards, existing or otherwise, that could realise benefits
*   Recommendations on activities or solutions that could realise these benefits
*   Business briefs for the recommended activities

In addition, a dedicated policy work stream could be carried out that would make clear the stakeholder status and options to align our institutions to national objectives (if CONZUL considered this important).

Additional activity would include

*   Report of impact of training and skills on benefits
*   Report of individual service delivery programmes.

The work would be carried out as detailed in the Working Party Scoping document; through a series of regular teleconferences and F2F meetings/workshops.

a.  Deliverables

The plan is to present a report and recommendations to CONZUL at the meeting scheduled for 20 November 2015.

Findings from the working group would also be provided to the eResearch National Data Programme.

2.  National implications for ORCiD implementation

Using Dr Wilkinson's existing experiences provide a report on the benefits and a provisional business case for a national approach for a stable and persistent Research ID service utilising ORCiD.

www.universitiesnz.ac.nz

This will require documenting stakeholder interests and drivers to determine if a business case can be developed.  For example, Institutions may be interested in HR/Information management efficiency of a national researcher ID; funders/Government may be interested in impact assessments based on accurate disambiguation, researchers may be interested in management of their own academic impact. ORCID can assist with each of these but implementing requires separate consideration.

The findings from this work will inform consultation with Government/funders and ORCiD at the "ORCiD round table" which will be convened later in 2015.

## Cost

Dr Wilkinson has proposed that the work involved would represent an estimated 56 days of effort.  His professional services would be chargeable at $350/day.  This represents a cost to CONZUL of $19,600.  This would exclude expenses incurred (e.g. travel to f2f meetings/workshops), which would be subject to authority and agreement with the CONZUL sponsor.

The University of Otago Library has agreed to provide access to technical infrastructures and desk space for Dr Wilkinson.  There will be at least 2 days per week onsite.

## Recommendation

That CONZUL approve the engagement of Dr Wilkinson.

## Purpose

This document is a scoping document that discusses implications and considerations for Universities New Zealand Committees CONZUL and ICTC to consider regarding adoption of the Open Research and Contributor ID (ORCiD).

1. Context of Unique Identity in the NZ research landscape
2. The Open Researcher and Contributor ID (ORCiD) proposition
3. Implementation considerations
   a. Operational
   b. Technical
   c. Cultural
4. Options for a national organisational model (benefits of a national approach)
5. Expected outcomes
6. Next steps/Recommendations
   a. Seek VC/Research Committee endorsement
   b. Engage with MBIE working group
   c.  Participate to identify a consortium host organisation

## Context

Disambiguation of authors with the same or similar names is a persistent issue in academic discourse; technology has amplified this problem. Western conventions permit numerous representations of individuals, for example James Maxwell Wilkinson can be represented with all or selected given names, abbreviations of these and in varying combinations. With more global scholarly communication numerous cultural naming conventions are inelegantly forced almost exclusively into non-standardised European based naming and citation formats. As technology is increasingly used to parse and order scholarly records the current state is no longer tenable. Any effort to assess or measure academic output requires substantial resources to disentangle credit and attribution of academic outputs.

The issue of author disambiguation involves many stakeholders in academic research. For research institutions such as universities, ambiguity in researcher identification and problems with associating researchers with their outputs makes it difficult to accurately measure or report these outputs to government departments and funding agencies. The increasing importance of reporting has necessitated a manual intervention to locate and aggregate valid outputs or investigate researchers of similar names or inter-institutional collaborations, then map these back to the products of research. This is costly and, like many manual interventions, introduces inaccuracies in the recorded data.

### Stakeholders

For *funders*, measuring the outcome and impact of research (which they have funded) is also typically a manual process. Measurement can also include assessing the merit of researchers in grant applications, a process that often relies on incomplete or inaccurate data from multiple sources and in multiple formats. The process is time consuming and costly. *Governments* are required to report on their investment of public funds, and the wide variety of reporting formats and the need to re-enter the same information more than once during reporting exercises results in an often incomplete and inaccurate profile of publically-funded research and its impact. *Researchers* too often have to select and enter the same information about themselves and their professional output across their career. When publishing their research, applying for grants or filing impact returns, such as for PBRF, there is a great burden on researchers and their *institutions* to manually record data multiple times. This is time consuming and can lead to misrepresentation, misattribution and an inaccurate profile of their career impact. Finally, *publishers* are faced with providing accurate and persistent citation information about the authors of the articles they publish; again this routinely requires manual intervention to disambiguate authors with the same or similar names.

### ORCiD

The Open Research and Contributor Identifier (ORCiD) was established as an academic community initiative to overcome these author ambiguity issues by creating a controlled, global registry of digital IDs unique to individuals (a UID). Such an ID could be used as a single location for academic activity and when incorporated into existing data sources can also be used as a digital 'key' to aggregate information from these data sources, for example, publisher catalogues, institutional archives, data archives, HR records and funding management systems. These aggregations of academic output can then be accurately attributed to the individuals involved and impact more easily measured. ORCiD (the organisation) manages the ID registry and records it contains. Other stakeholders in the academic landscape are then invited to participate, by working with ORCiD to embed ORCiD IDs into their data models, data workflows and processes, thus providing data input into ORCiD records.

## Benefits

Possibly the greatest benefit of a unified universal identification (UID) system for academia is found in the accuracy and efficiency in harvesting data for reporting academic output and impact and linking this to award funds and investments. However, this could be extended to include more detailed and vigorous impact assessments that include multi-modal research output like non-traditional performance or artistic

works rather than the current impact measurements like Thomson Reuter's 'impact factor' or the 'h-value', which rely heavily on peer-reviewed publication, citation and journal status.

Users of such comprehensive UIDs should be able to enter information once and be able to provide this information to appropriate parties according to user-defined access rights (which can, of course, be revoked).

Validation of researcher identity is typically established according to institutional association. When using comprehensive UID systems, however, this validation helps to establish 'trust networks' across institutional boundaries.  As more validation occurs a trust network emerges which extends the ability of institutions to lower barriers to collaboration and to populate researcher IDs with data relevant to their relationship, independent of the home institution's identity management system.

Data managed over time often become more accurate and reusable as a result.  Manual input and entry of data multiple times can lead to human errors and inaccuracies.  Managing data and information via integration can reduce these errors, or at the very least result in greater consistency in data entry.  A comprehensive UID system minimises errors in reporting by specifying metadata schemas and data models and managing their development.

## Existing ID providers in New Zealand

Establishing a research information network integrates and harvests accurate, comprehensive and timely research information that has the potential to save significant cost to all stakeholders.  When seeking to fill a new purpose using a UID system, it is appropriate to consider whether an existing system is capable of fulfilling a requirement rather than designing a new one.  Using an existing UID system can save significant resource and effort but can lead to significant risks if existing UID systems are used for purposes they were not designed for.  Managing identify information is problematic and UID systems and schemas are often created for specific purposes which are rarely able to extend beyond this purpose without significant effort, or in the case of ethically sensitive data, authority under data protection legislation.  Tying a UID to a particular business stakeholder can also lead to limitations in utility.  Why should a publisher manage schemas that collect information more useful to other publishers than them? Why should a researcher be concerned with the impact of their grant on a funders investment profile? Why should a government be concerned about individual HR information in a particular institution or for individuals that are not NZ citizens or long standing residents? Why should one institution be concerned about how another institutions manages their grant awards?  Very few UID systems exist to support the researcher directly.

There are a number of ID systems already available to NZ researchers. All share a common problem that they are rarely persistent, generally concerned with specific aspects of research activity and are often purposely ambiguous or aggregated for data security purposes.

### RealMe

RealMe is concerned with disambiguation of individuals, identity protection and surety in digital environments, for example proving identity online.  It is unlikely that RealMe is able to extend functionality to academic output that exhibits an enormous variety of information, much of which is discipline specific.  The effort needed to extend a schema designed for identity protection and surety to include academic output would be significant and most likely distract for RealMe's core purpose.  In addition, RealMe is presently only available to New Zealand citizens and those with long-term residence visas, which would exclude international academic collaborators and many short-term academic fellowships.

### National Student Number (NSN)

NSN is an UID specifically for students in educational environments in New Zealand.  The primary purpose of the NSN is to measure and assess achievement, enrolment rolls and other operational returns to the Ministry of Education.

RealMe is not useful outside NZ and is authorised under the NZ Education Act 1989 with amendments to the act in 2008 extending this authority to sub-contracting agencies. Importantly, this legislative obligation protects against misuse of the NSN; specifically, it is an offense to use the NSN for identity cards, as primary keys, integration of healthcare or non-NCEA (National Certificate or Educational Achievement) administration, accounting or general communication. (although curiously the guidance suggests students can disclose or use their NSN for any purpose).

It is unlikely that the NSN could be used to collect comprehensive information about academic output as it cannot be used as a primary key, nor can it be accessed by persons or organisations outside the NZ education services, without prior contractual arrangement in line with the NZ Education Act 1989 (plus 2008 amendments).

## Tuakiri

Tuakiri is a federated identity service and the basis of a New Zealand trust network that separates identity and service authority. Aimed primarily at the university and research sector, institutions provide identity credentials specific to their organisation and service providers offer access to services based on these identity credentials. Tuakiri manages the federation and brokers' access to services based on identity credentials. Subscription to Tuakiri is generally at the institutional level. Tuakiri currently runs a service portfolio with 70 identity and service providers.

In essence Tuakiri is a broker between identity providers and services providers and so the relationship exists with the identity and service providers, not the researchers. Extending their model to include metadata schemas about individual academic achievement seems beyond the purpose of Tuakiri and out of scope for their current business.

## ScopusID

ScopusID is a proprietary (Elsevier) author ID created as a key to author disambiguation in an academic publishing arena. This has enabled Elsevier to create the largest abstract and citation database of peer-reviewed literature (the Scopus database). Many researchers have Scopus IDs, but these tend to be limited to publisher specific titles and in any case are controlled by the parent publisher. Their schema only considers peer-reviewed publications or limited examples of non-traditional output and their ID system is driven by their specific business requirement, not the researchers, or institutions, or funding bodies or governments requirements.

## ResearcherID

The Researcher ID is similar to Scopus ID but is an author ID schema from Thomson Reuters.

## ORCiD: The Open Researcher and Contributor ID

ORCiD differs from many other UIDs. It is a global ID issued by an independent community authority with public governance. ORCiDs are career length IDs owned by and concerned with the individual researcher and their professional output and activity. ORCiDs can be used as primary keys to aggregate other ID systems that the individual belongs to. All stakeholders in the academic landscape are encouraged to engage with ORCiD and in doing so create a persistent and trusted information network on academic output and impact. Uniqueness is provided via a block allocation of ISO UID (ISNI) numbers to ORCiD organisation. Block allocation of ISNI numbers have been provided to minimise UID 'clashes', a phenomenon where it is mathematically possible for two independent ID registries using the same ID syntax to generate exactly the same ID string for different individuals. IDs can be author registered (free) or institution registered (under licence). The identity remains as solely individual-owned but can be validated by the institution (provided they are an ID provider-licence) and then used to promulgate data into their profile.

Academic output and impact are broad concepts that purposefully lack definition; individuals are free to record all their activities in ORCiD records, both traditional output like peer-reviewed publications and

books, together with non-traditional output like data sets, community memberships, efforts in standards developments and curation activities etc.; the schema is extremely extensible. ORCiDs can also be used as primary keys to aggregate information held elsewhere about individuals, creating an information network on academic activity. Implementing ORCiD would provide all participating researchers an integration key that can be used to aggregate academic activity within a single reusable space thus eliminating the need to re-enter existing data and establish a persistent record of academic output. This would significantly reduce the burden of manual intervention in managing research impact analysis and reporting.

By virtue of its size, New Zealand is well placed to obtain rapid and maximum impact from ORCiD. There is now a real opportunity to engage the entire New Zealand research community, to leverage existing federated identity provision and to establish a comprehensive, to near complete, sample of national research activities. ORCiD is not just about researchers; for the UID system to have maximum impact all members of the research endeavour are encouraged to take part, either as identity providers or data providers. This would include, but is not limited to, funders, government, research institutions, universities, publishers, technology providers, ID providers and others. Membership of ORCiD is not constrained.

## Approach

Once an UID system has been selected, options for implementation of this system would need to be considered. There could be a top down approach (e.g. from funder or government or publisher), where a controlled and managed unique identifier and metadata schema is used to integrate into every research institution that reports on output, impact and grant award management. Examples include, but are not limited to, Australia's tax file number, the UKs national insurance number, New Zealand's IRD, NSN, the online identity authority RealME, or various institutional IT and HR IDs which are unique in the context of the institutions. Conversely there could be a bottom up approach where each researcher is free to manage their data as they see fit, with UIDs that suit their purpose and the researcher can manage the manner in which this information is shared; with whom, when and what. Such a solution would require effort to integrate a variety of UIDs into existing information management services and extra effort to harvest from and report to a number of formats, e.g. to institutional HR and financial systems, government ID services, funder grant management databases and publisher citation databases.

The current state in New Zealand is one of both top down and bottom up approaches being present to no great synergistic effect. Governments and funders implement a variety of identifiers that define reporting metrics and formats for their own benefit or purpose. However, these can rarely extend to include poorly defined concepts such as measurable academic research output and impact. Publishers require their own schemas and formats for manuscript submission and citation and in a couple of cases provide authors with unique identifiers to achieve this, but generally do not extend to non-publishable data or grant award management. The combined effect of all these UIDs and 'specifications' is that individuals routinely have multiple 'unique' IDs and Institutions continue to commit large amounts of effort to translating and reporting the same information from one specification to another.

Whichever approach is taken some key requirements should be acknowledged. Primarily the solution should be capable of integrating dispersed and complex academic information; it should be persistent beyond any particular tenure or institution; it should be available or be made available to all stakeholders with relative ease.

## Opportunity

In New Zealand there is a significant opportunity to increase the accuracy and efficiency in collecting, reporting and measuring academic output across the entire country within a short period of time, possible less than a year. By taking a national approach to implementing ORCiD, as a primary key for academic activity, a near complete sample of research investment output and impact of around 26

institutions and 32,000 individuals[1] could be created. A federated identity provider (IdP) like Tuakiri would streamline identity validation and support a richer trust network across institutional boundaries. Once established, data providers could then integrate rapidly using ORCiD as a primary individual focussed key, forming a complete and validated information network about research in New Zealand. A fully comprehensive measure of national research investment, output and impact could be collected more efficiently and accurately than ever before.

## Technical Considerations

### Identity and access management (IAM) and provision

Accurate and integrated IAM is not essential for registering an ORCiD as users are free to use their personal email addresses and create their own ORCiD passwords in order to establish their own ORCiD record. However institutional credentials provide an important validation of institutional affiliation for appropriate ORCiD records, e.g. 'x' asserts they worked at the University of 'y' during a certain period and this is validated by University of 'y' via their IAM services. The principle being, that once validated the ORCiD record is more trustworthy.

### Information Security

Any information network that involves individuals which can be made publically available should consider the security implications of this network and the facilities it provides to protect individuals from malicious or illegal information sharing. In a technical environment that authorises data transactions to multiple third parties this invariably requires a risk analysis and, at the very least, an acknowledgement and strategy to deal with unintended breaches.

### Registration options (Independent opt-in, mandated opt-out)

There are three methods for registering an ORCiD. Individuals are free to do this independently, institutions can facilitate self-registration (opt-in), or institutions can pre-register their members and then encourage members to claim their ORCiDs (opt -out). The 'opt-out' option has the most impact on technical consideration. Pre-registering entire institutional membership is a trivial technical process, but the benefit then relies on individuals claiming their ORCiD IDs and authorising the institution to update them with information they hold about the individual. Registration options are often a bottleneck caused by lack of engagement, promotion and guidance from the institution to the individual. Failure to encourage claiming a pre-registered ORCiD, or registering a new one and linking it to the institution results in many unused and un-useful ORCiDs.

### API integration

Integration of information in institutional repositories, HR databases or grant management services will depend entirely on the local provision and operational skill in mapping data between multiple specifications. As a guide to estimating the effort required and state of existing data sources, institutions may wish to consider the effort required in collecting and submitting PBRF returns. Profiles of investment for this type of activity will generally fall rapidly with time as the primary business case for ORCiD is its facility to be used as an integration key and trusted data source. Once integrated into existing processes and data flows ORCiDs value is returned in reduced effort in subsequent integrations and harvests.

---

[1] 8 universities, 7 CRIs and Callaghan innovation, 11 Polytech and wānanga, plus private educational research outfits. Estimates of individuals taken from 2014 or latest available annual reports.
www.universitiesnz.ac.nz

## Cultural considerations

### Uptake

Encouraging uptake of ORCiD by individuals has often led to an implementation bottleneck. The effort required to establish an ORCiD may be simple and rapid but the effort to populate records with data is often seen as an unwelcome overhead by researchers; data entry is 'front heavy' but the burden can be reduced and the veracity of the record increased, by permitting institutional updates using existing records, e.g. institutional repositories of publications or other products.

As registered ORCiD are owned by individuals, consideration should be made in pre-registering ORCiDs on behalf of researchers without their knowledge. There is a risk of perceived exclusion by individuals who have an ID registered about them by third party organisations. The ORCiD organisation suggests a more passive approach where researchers are encouraged to register themselves using their institutional credentials and at the same time provide the benefits of institutional information being simultaneously pushed into their ORCiD records. Clearly there is more effort required in promoting registration than in asking researchers to 'claim' an existing ID, but poor uptake will significantly limit the benefits of ORCiD, particularly regarding comprehensive and accurate reporting metrics.

### Ownership, legal and ethical issues

Ownership and authority to use or update ORCiDs rest solely with the individual, so effort is required to communicate the anticipated benefits to individuals. From this analysis there are two main benefits to the individual. First the facility to manage their research information network in a persistent and shareable manner thus reducing the burden of re-entering the same data in multiple processes, whether end-of-grant reports, PBRF returns, manuscript submissions to publishers, data deposits in data archives or inclusions in collaborative reports. Second the ORCiD records can be used as professional self-promotion of academic output to appropriate parties.

With the concept of ownership comes the concept of rights. In the case of ORCiD, owners have the sole right to issue revocable access. This means that access to an ORCiD can be temporal for data providers and data users and in the context of institutional reporting may require frequent requests to access ORCiD records directly from the individuals. The impact of this on current reporting systems should be considered as part of any implementation as constant 'requests to access' may limit any efficiency gain and ultimately financial ROI.

An information network created 'about' someone is sensitive by its very nature and needs to be managed. It would be wise to acknowledge the potential negative perceptions an individual's information management invokes. e.g. does data pushed into an ORCiD remain with the ORCiD owner or is it removed upon removal of access authority? What is the status of ownership of ORCiD-sourced information once access is revoked? What are the get-out facilities? What happens if ORCiD dissolves? Failure to answer these and other questions may significantly impact uptake, which in turn severely limits the ultimate benefit of ORCiD to all stakeholders.

### Authority Management

Authority management skills will be key for users, mostly researchers, if they do not already have them. With a large amount of data relating to professional output and activity being accessible, with authority, to many stakeholders, understanding the management of authority will be essential. While these skills are likely to exist in younger researchers or those that have adopted the phenomena of social media, the requirements for online identity protection and access management in a digital environment may be less developed in older researchers or those who have not needed to manage digital identities before.

### Alternate Use

It has been suggested that ORCiDs could be used as a professional CV portal, much like LinkedIn. This particular use case was considered by the ORCiD team but is not supported primarily because there are

many cultural and discipline variations in CV format and content as to make any such schema management near impossible. Institutions and ORCiD owners are free to use ORCiDs for any purpose but should consider carefully before using ORCiDs for primary data sources in employment applications, certainly in the early stages of adoption where ORCiD record data are limited and uptake is likely to be modest.

## Legal and ethical issues

There should be early and significant investigation of legal and ethical issues as part of implementation due diligence. This may be particularly important for licenses and copyright of data, provided by business and commercial stakeholders, e.g. publishers. The impact of breaking licenses by harvesting and sharing data via ORCiDs has not been fully explored and while the responsibility may lie with the owner of the ORCiD, it may well be a responsibility of the institutions to provide guidance on licence issues to their members.

## Operational Considerations

### Cost

Individuals can register and generate ORCiDs at any time for no charge. ORCiD operate an institutional subscription model of membership rather than an individual researcher registration. Memberships are categorised as basic and premium for individual subscriptions and a premium consortium category for institutional collectives. There are further incentives for non-profit, SME and start-up organisations with a series of discounts that can be applied to list-price subscriptions.

Basic membership is essentially a trusted data source like a small research outfit who expect limited data transactions and their subscription will be limited by those data transactions. Premium levels of membership confer full benefit of programmatic access, integration assistance, multi-implementation models and user plus institutional support.

Institutional subscriptions have a number of membership levels equating broadly to increased economies of scale, programmatic access to ORCiD records and support in implementation and operational issues (including user support).

A basic single membership would cost USD5000pa. A consortium of 5 or more would attract a 10% discount and start-up companies would attract a 75% discount on this basic list subscription.

A premium individual membership would cost USD10,000 pa for small organisations and USD25,000pa for large organisations, with discounts available to non-profit organisation (20%) and start-up companies (75%).

A premium consortium employs thresholds based on consortium partners with subscriptions starting at USD6000pa/member (5-9), USD5000pa/member (10-19), USD4000pa/member (20-29) and USD135,000pa/consortium (30-99) and USD200,000/pa/consortium (100-250). There are no discounts available in consortia subscriptions for either non-profit or start-up arrangements.

In a national approach, forming a consortium of all 8 New Zealand universities would attract a subscription charge for each partner of USD6000pa. If this consortium were extended to the CRIs this would reduce the subscription to USD5000pa. Including organisations like wānanga and polytechnics could further lower subscriptions to USD4000pa.

### Host organisation

Consortium membership of ORCiD requires a 'host' organisation which can be a full consortium member or a secretariat. Financial investments are protected via contract and cost exposure should be considered with regard to benefit; those organisations which stand to benefit the most should consider greater investment. The cost of implementing, integrating and supporting should not be underestimated and while subscription levels are comparatively low, when compared to other information sources such as

publisher subscriptions. ORCiD implementation is not just about subscription, it also includes a significant effort in installation, integration and uptake.  For simplicity ORCiD prefers to work with a representative of the consortium rather than individual member of a consortium. It is there for important to consider choosing a consortium representative capable of delivering outreach, support and stakeholder management facilities.

Australia has established a consortium to provide ORCiD services on a national scale and are presently undertaking due diligence on the consortium agreements and host organisation, in this case the Australian Access Federation[2].

## Effort

It has been often reported that 6 months is sufficient for an institution to implement ORCiD registrations and validation processes[3].  This timeframe is likely to reduce if identity provision is mature and accurate.  Pushing data into ORCiD records is dependent on institutional metadata management and service model flexibility, e.g. in institutional repository or records of research output, see above.  Often more effort is required for bespoke solutions but this will depend on the maturity and operational processes of that solution.  If a particular bespoke solution is well managed and operated by skilled staff it may take less time to integrate than a fragmented solution that was created by technical staff who have since departed and left, no operational documentation.  There are an increasing number of commercial solutions that are actively working with the ORCiD consortium to make their products integrate prior to market, e.g. Digital Science's Elements (formerly Symplectic Elements).  For this reason, local business decisions are necessary to establish the correct estimates around effort and any subsequent investment requirements.

## De-duplication/records management

The impact of duplicated records in ORCiDs is difficult to estimate but could have the potential to corrupt ORCiD veracity and any subsequent reporting.  A citation may be present in a publisher bibliography but the same content may also exist as a self-archived object in a personal or institutional repository.  In the absence of a programmatic method for identifying and consolidating duplicated records the benefit of increased efficiency and accuracy in measuring output and impact will be significantly reduced.  Manual intervention will be required to identify and assess duplicated records resulting in re-establishing the greatest cost in records management.

## Type and extent of support

Local support would be more focussed on outreach and guidance for ORCiD uptake (opt-in) or claiming pre-registered ORCiDs (opt-out).  As part of this support institutions could consider offering 'authority management' guidance to researchers as the owner of their ORCiD records.

Product support is offered as part of the premium subscription and would support both institutions in implementing and integrating ORCiD into their workflows, but also user support to assist researchers in managing their ORCiDs.  Integrating third party products like Digital Science's Elements may require additional agreements.

Consortium support may also be beneficial, although this is an internal business decision for the consortium governance.  The role would be national and may include dedicated resources and effort to establish and expand the network of institutions over time.  This role would most likely reside in the host institution and manage licences, subscriptions and consortium governance.

---

[2] www.ands.org.au/discovery/consortium-model.pdf

[3] http://orcidpilot.jiscinvolve.org/wp/hei-based-projects/

ORCiD requires a consortium member license agreement to be endorsed in one of two ways, binding and non-binding.  To be eligible for these agreements, the consortium must include at least 5 non-profit and/or governmental organizations and the lead organization has the option to be a member or to act as a non-member administrator of the agreement.  In a binding agreement, the consortium lead organization signs on behalf of all member organizations.  In a non-binding agreement, each organizational member of the consortium needs to sign an accession agreement.

Licence payment and management roles require a consortium lead to be a legal entity capable of contractual representation and financial authority on behalf of other members.  The model allows for non-member administrators, e.g. a Government department such as MBIE or DIA, a secretariat or a full consortium member.

## Organisational stability of ORCiD

ORCiD is operating as a charitable trust incorporated in the USA on the 5th August 2010.  ORCiD are a community not for profit/not-for-loss organisation that has charitable status in US jurisdiction "…the Corporation shall be exclusively charitable, scientific, literary and educational "…which in the US provides for a variety of tax exemptions and director responsibilities.  Their incorporation, statutes, governance, board of directors, financial and annual reports are all publically available via their website[4].  Governance statutes should be examined as part of subscription due diligence and contracting, particularly with regard to potential risk from commercial take-over, protection of financial or other investments, should the incorporation enter receivership or liquidation.

## Possible options

### Option 1:  Do nothing (Ignore); No cost, Few benefits

Researchers are free to individually register for no charge and to enter data themselves or provide authority to update ORCiD records from other data sources providing stakeholders are subscribed to ORCiD.  Benefit to reporting stakeholders is minimal when uptake is low and not comprehensive.  Data in ORCiD records are mostly self-reported unless third party stakeholders have subscriptions and authority, e.g. publishers funding bodies.  Institutions are unable to push data into records or harvest ORCiD records in any useful way.

### Option 2:  Passive Institutional Support:  High cost, Marginal benefits

Institutions support researchers to register with ORCiD and guide data updates.  There are still no subscription charges for the institution but significant effort is required to support what will only be self-reported data or data from subscribing data providing stakeholders; accuracy and completeness of records rely solely on researchers' efforts and accuracy to update and manage authority.  There is no meaningful ability for institutions to harvest from, or update ORCiDs.

### Option 3:  Individual Institutional Subscription:  Medium cost, Medium benefits

Institutions subscribe as independent business decisions.  Benefits are increased for institutional reporting and record veracity.  Subscribing institutions can support researchers in claiming and/or registering their ORCiDs.  Records can be updated and harvested for accurate and useful reporting data by subscribing institutions. The benefit for national reporting is dependent on the institutional uptake

---

[4] http://orcid.org/about/what-is-orcid/governance

instead of individual uptake and so for this option benefit is proportional to institutional decisions to subscribe.

## Option 4:  Intuitional Consortium:  Medium Cost, High benefits

NZ research institutions form a consortium and administer the subscriptions through a lead organisation. Subscription costs are lower with increasing membership and trust networks between institutions are supported by using Tuakiri as a federated identity provider.  Benefits to institution are increased as subscription provides the facility to programmatically link to authorised ORCiDs.  The benefit to national reporting will depend on maximising institutional membership to the consortium and inclusion of non-research stakeholders, e.g. funders, by extending the consortium model or encouraging independent institutional subscriptions from these bodies. Uptake can be mandated or facilitated according to institutional approach.

## Option 5:  Government/Funder sponsored Service:  Low Cost, High benefit

Subscriptions managed/resourced at the national level and service contracted through a third party for all NZ research institutions.

The service could run as part of a national infrastructure within an existing organisation, e.g. NeSI, REANNZ or government department, such as MBIE or DIA, and be funded directly by government or with matched funding between government, funders and institutions.  Maximum benefit is achieved with mass pre-registered ORCiDs using validated identity credentials from trusted federated identity provider such as Tuakiri. Uptake will require resources to implement and manage as a service, as well as local effort to promote and encourage ORCiD claiming and authority delegation from the entire research community.

## Expected Outcomes

### Accurate and efficient reporting on research activity

More efficient and comprehensive information network for analysing academic output and impact
Programmable and automated mechanisms for reporting research

### Accurate attribution

Independent, mobile and career length ID which can be used as a primary key to establish professional information network, i.e. IDs can be taken from institution to institution across and beyond New Zealand.

Accurate attribution and identification of research products including non-traditional output like research data.

### Reduced data entry burden and trust network

Reduced re-entering of research output and impact information
Mechanism to validate and endorse data accuracy and veracity

## Next steps/Recommendations

## Seek VC/Research Committee endorsement

It is recommended that CONZUL and ICTC accept this report and its content to seek endorsement from Vice Chancellors and Research Committees. Establishing support at this level will be key to rapidly agreeing consortium governance and strategic benefits

## Engage with MBIE working group

It is recommended that CONZUL members actively engage and lobby MBIE to drive forward activities of an ORCiD working group to ensure all benefits of ORCiD can be realised rather than those that benefit any particular stakeholder group. CONZUL and ICTC members should consider understanding local issues in implementing ORCiD and share these with the working group to mitigate any risks encountered.

## Participate to identify a consortium lead organisation

CONZUL and ICTC should work together to identify and promote host organisations that can fulfil implementation and operational requirements. Filling the role of lead organisation that can administer and support all consortium partners will be key in moving forward ORCiD implementation effectively and efficiently.

## Document Control

| Version | Author Contributor | Circulated to | Date | Comments |
|---------|--------------------|---------------|------|----------|
| 20151019 | Max WILKINSON | Howard AMOS<br>Mike HARTE<br>Gillian ELLIOT | 16th Oct 2015 | First draft |
| 20151116 | Max WILKINSON | Howard AMOS<br>Mike HARTE<br>ICTC | 16th Nov 2015 | Penultimate draft incorporating comments from Gillian ELLIOT |
| 20151123 | Max WILKINSON | Anne Scott<br><br>Howard AMOS | 23rd Nov 2015 | Final version |