Tuwhera: how being open is the key to scholarly communications

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Tuwhera – 'be open' in te Reo Māori – is Auckland University of Technology's (AUT) first open access scholarly journal publishing service, launched in October 2016 with two peer-reviewed, AUT-edited titles. What makes Tuwhera different from other similar services offered by academic libraries is its future focus. Tuwhera as a project was initiated amidst a background of spiralling journal subscription costs and in response to calls from academics within the University for an open access scholarly journal platform. It set out with the objective of supporting both established as well as new and emerging AUT researchers, drawing on key tenets of the institution's strategic plan, particularly in relation to research and scholarship. The authors now envisage Tuwhera playing a leading role in the open access scholarly communications network, one which is guided by indigenous philosophies around knowledge sharing, and one that could be catalytic in influencing the institutional culture around open access, research dissemination and impact assessment with potentially far-reaching implications for policy in Aotearoa.

Context

Open access publishing

Open access (OA) publishing is now widely viewed as part of the mainstream of scholarly communication and yet it remains a controversial topic. OA publishing continues to be viewed as an ongoing challenge to publishing standards of the traditional, user pays subscription-based models as well as to the established mode of research assessment. However, the focal point for many current discussions is beginning to shift towards an understanding of how open access publishing models can successfully work in practice; and in addition, how they may influence the institutional culture around open access, research dissemination and impact assessment. This paper charts the story of the project to set up a fully open access publishing platform, free of charges and fees, at AUT. In telling that story we will contend that adhering to those traditional models is not only unsustainable in financial terms, but will not nurture or support fledgling scholarship to grow globally by tying it to outdated and self-serving bibliometrics. Our assertion, and one which this project has reinforced in us, is that being open has not only ethical benefits to the societies which fund research, but may even have its roots in the methods by which knowledge was shared before print.

Open access publishing has grown since the inception of what might be termed the 'electronic' era, emerging in the 1990s and, according to Laakso et al (2011), moving through a phase of innovation in the late nineties and early 2000s to a period of consolidation up to 2009. Since the start of the 21st century, many previously print-only scholarly journals have migrated entirely to electronic platforms, and their contents are now widely discoverable, accessible, searchable and citable. There are now over 100,000 scholarly journals being published by more than 5,000 academic publishers across the globe – approximately 2.5 million new scientific papers are published each year (UNESCO, 2016; Canadian Science Publishing Blog - 21st Century Science Overload, posted January 7, 2016). Yet access to that (largely publicly-funded) research does not reflect the universality of such growth.

Discourse around open access publication, scholarly communications and academic research has been continuous since the 1990s, and intensified after the release in 2002 of the Budapest Open Access Initiative (BOAI), a groundbreaking public statement of principles relating to open access to research literature. One of the drivers for the development of the global open access movement, and open access publishing, rose from the options available for digital publishing online; a second, and more significant driver, has been the serials crisis. The term 'serials crisis' refers to the exponential increase in subscription cost of many scholarly journals which are published by the large for-profit publishers, such as Wiley, Elsevier and Macmillan, which have profit margins of between 20–40% (Morrison, 2013; Nassi-Calò, 2013). In her 2013 study, Morrison notes that journal subscriptions from institutional libraries account for most of the revenue for academic publishers, around 73%. Prices for institutional access have been rising much faster than the Consumer Price Index for several decades. Combined with the increased costs of journals is the pressure of budget cuts at many tertiary institutions around the world, with the result that funding available to academic libraries for journal subscriptions has remained static at best, or declined in real terms. In this climate the need to examine new, more cost-effective business models for scholarly publishing has become increasingly clear. This has led to consideration of OA publishing models as providing a viable and sustainable transition away from subscription models (Morrison 2013).

The shift towards OA is increasingly in evidence. At the time of writing (February 2017), there are more than 9,440 fully open access, scholarly peer–reviewed journals listed in the Directory of Open Access Journals (DOAJ - https://doaj.org/), with over 6,700 titles searchable at article level. The Directory of Open Access Repositories (OpenDOAR - http://www.opendoar.org/), meanwhile lists over 2,600 open access repositories worldwide.

As research funding bodies, especially those in countries where mandated open access policies exist, begin to require that publicly funded research (and research data) be freely accessible to the public, the open access movement has gained increasing importance for researchers. This has led to the growth of Gold OA publishers, many of which, like PLOS and BioMed Central, now offer a range of open access journals funded through article processing charges (APCs) paid for by researchers and their funding bodies or institutions. This new business model, while it presents a departure from the traditional user-pays strategy, does not appear to offer universities savings on scholarly publishing costs (see for example the Australian Open Access Support Group http://aoasg.org.au/what-are-we-spending-on-oa-publication/). Open access publishing is of course not free of cost. Software, hardware, server space and labour must all be paid for. If online OA publishing is not funded by the authors then the costs are covered by a home institution, by donation, or a combination of these sources. At AUT, the costs associated with developing, hosting and maintaining the publishing platform have been absorbed by the University Library & Learning Support Services.

Academic libraries as publishers

Academic libraries "…play a vital role in the research and innovation information ecosystem and are acutely aware of the opportunities and barriers to increasing the discoverability, use and diffusion of … research outputs" (O'Brien, 2016). Traditionally, university libraries have supported their institution's research goals by providing a range of resources and information services, as well as collecting and preserving research outputs and research data. In recent years, new trends and developments in technology and scholarly communications, and the ongoing requirements for publication of research outputs and research data have converged to result in new roles and responsibilities for academic libraries (Mullins et al, 2012). Academic librarians have the key skills to act as digital publishers and academic libraries have now emerged as key players in this field (Lefevre & Huwe, 2012). In addition, the capacity for the Library to offer publishing services has been widened by the advancements in community-developed open source software for digital publishing, which significantly reduces the cost barriers for setting up new publishers (Hearne et al, 2014).

Background

Tuwhera ('be open') is AUT's open access journal publishing platform. It officially launched in October 2016 with two established peer-reviewed titles: *Applied Finance Letters* and *Pacific Journalism Review*. The launch marked the culmination of a project which was based on a feasibility study carried out by senior staff at AUT Library in 2014 (Hearne et al, 2014). The scope for the study included investigating publishing services offered by universities and university libraries in Australasia; determining the demand for such services at AUT and securing support in principle from key people; identifying suitable software and hosting solutions, and the costs involved, as well as any other IT-related requirements and costs; and developing a preliminary publishing service model for the Library. It also sought to identify how costs could be managed within the Library budget, if possible. The study formed the basis of a successful funding application during 2015, and the project began in earnest in February 2016.

The 2014 report explored the possibilities of developing an open access scholarly journal publishing service to meet the needs of academics within the University seeking new ways to make their journals more visible and accessible. Discussions between the Library and academic staff engaged with journal publishing refined the Library's understanding of journal editors' requirements in terms of publishing support from the Library. These included drawing on Library expertise around indexing, harvesting and sharing content and improving the access to research being published through AUT, some of which could have direct benefit where availability to it might be restricted or prevented due to political, social, economic or technological barriers.

For example, *Pacific Journalism Review* (PJR) a peer-reviewed journal of more than two decades standing published by the Pacific Media Centre at AUT has contributors from across the Pacific region. PJR's editor Professor David Robie was one of the main actors driving the conversation with AUT Library in the lead up to the open access publishing project. His aim has always been to widen the readership of his journal and he has stated that having open access to PJR is "a really important step forward", in particular where it might help to educate and inform readers in the South Pacific and Asian regions where there can be barriers to important

scholarly content (Robie 2016).

The key benefits which the 2014 feasibility study found were that centralised publishing support from the Library would be able to assist in the production of high quality, open access online academic journals at low cost, thus working to eliminate the high cost of print journal publication and distribution. It noted that the solution should allow easy collaboration among authors, editors and reviewers regardless of location, and enhance the visibility, searchability and navigation of AUT publications. Such a service, it argued, would save the time and effort spent on administrative or research support work by researchers whilst incorporating sustainable technologies to speed and facilitate scholarly publishing and result in the rapid dissemination of new AUT research. It was also felt that such a journal publishing service would complement the existing open access research repository, Scholarly Commons (http://aut.researchgateway.ac.nz/) managed by the Library. These objectives aligned well with both AUT Library's and the University's strategic plans.

A number of proprietorial and open source hosting solutions were investigated with the Library selecting Open Journal Systems (OJS) as the product on which to build the platform. As noted above, the Library successfully bid for AUT Capex funding for the project and work began in early 2016.

The project

The project group was led by the Library's Scholarly Communications Team Leader, a new position formed as an outcome of a functional analysis of the Library's Digital Services unit and in recognition of an emerging and significant area for academic libraries, in particular around solutions for open access journal hosting and research data management. The Scholarly Communications team encompasses staff with existing responsibilities for the administration of the University's research repository and support for the AUT Research and Innovation Office, for example, through the selective auditing of University research outputs.

Personnel from across the Library's teams were added to the project implementation group, including staff with responsibilities for research support, web and digital initiatives and communications, along with individuals from AUT's ICT services. This group was divided into a technical sub-group tasked with overseeing the installation of OJS in conjunction with ICT, and with the design and build of the service's landing page; and a communications group which developed a strategy for publicising and marketing the new service including the organisation of a launch event. The launch event was timed to coincide with Open Access Week 2016.

The project identified a range of risks including marketing, staffing, resourcing and training. The project would signal potential new roles and responsibilities for Library staff, and new workflows and the development of new skills, all of which would impact on existing duties. Conversely, the accumulation of new areas of expertise presents opportunities for staff in the context of an evolving library and information field. The challenge of communicating the positive benefits of supporting a fully open access in-house publishing platform was also identified as a risk, particularly given the widely held, less supportive perceptions of OA, for instance its somewhat misleading association with predatory publishing.

Governance

In addition to the project implementation group, a steering group was created which drew on expertise from across the University. Chaired by AUT's University Librarian, the project sponsor, there was representation from the Library, including the Director, Learning & Research Services, who was the project owner, and the Project Manager; and representation from AUT's legal team, ICT, the Research and Innovation Office as well as two members of academic staff with significant editorial experience and knowledge of open access publishing. The steering group provided guidance and advice to the project, in particular around the selection of journals for hosting, issues around copyright and strategies for building the platform beyond the project phase. The cross-departmental make-up of the group reflected the range of stakeholders within the University which the Library sought to involve in the initiative.

Beyond the project phase a steering committee will continue to have input into Tuwhera and to pay consideration to such issues as AUT's reputation. While ultimate responsibility lies with individual journal editors to take responsibility for their content, as publishers the Library will need to pay attention to the quality of editorial being published on the platform and how that impacts on the University's strategic and research objectives.

Establishing a pilot journal

One of the initial tasks of the project was to identify a suitable journal for the pilot phase of the project. In the lead

up to the project meetings had been held with a number of AUT-based journal editors, including those whom the Library had contacted during the research phase which lead to the project. An environmental scan of journals edited by AUT staff found more than 20 active titles, many of which met the key criteria established for selection on the Library's platform, such as being fully open access, having no author or subscription fees and publishing a minimum of one issue per year. Some journals lacked or appeared to lack obvious and traditional journal structures such as an editorial board, a publicly stated peer review process and statements on malpractice and copyright. Furthermore, the task of identifying the first journal to be published shone a light on an emerging scholarship taking place within the institution where academic staff were at various stages of creating publishing opportunities for postgraduates and new researchers, and that what those initiatives lacked, was a viable and sustainable publishing infrastructure with post-production support. This pointed to the potential for the Library's publishing service to evolve into a two-tiered operation of support for both established and emerging publications.

For the purposes of the pilot, however, it was decided the journal selected should meet those criteria which key bodies within the open access publishing landscape, such as the Directory of Open Access Journals and the Open Access Scholarly Publishers Association, recognised. After consultation with its editors, *Applied Finance Letters* was chosen as the first journal to be published by the Library's platform. The journal, produced by AUT's Auckland Centre for Financial Research had until that point focused on producing a print run of around 1000 copies which it mailed out to a largely New Zealand-based readership. The electronic presence for the journal consisted of static pdf copies of full journal issues on the Institute's website, un-indexed and undiscoverable by web or database searches. Editorially however, *Applied Finance Letters* had a well-established editorial board and blind peer-review process, while academically it was well-regarded in its field with international contributions. The journal's editors expressed an aim to increase the journal's Australian Business Deans Council ranking from 'C' and it was agreed that utilising the Library's platform to make the journal more visible and its content more widely disseminated would be of significant benefit in this process.

Requirements and design

AUT's OJS instances are installed on servers managed by the University's ICT staff. Change requests and faults are reported to the University's ICT team as with any other institution IT service.

Open Journal Systems can be set up in two ways - as a single installation hosting multiple titles (such as at Victoria University of Wellington https://ojs.victoria.ac.nz) or multiple instances of OJS for each title (see Otago's OUR Journals: http://www.otago.ac.nz/library/for/staff/ourjournals.html). While the former grants the site administrator greater control (for instance in terms of applying updates), it is less flexible in terms of tailoring individual journal sites to meet client needs.

Until its recent release of OJS 3.0, the typical OJS interface has been characterised by small font sizes and at times complicated navigation and functionality (*Figure 1*). This need not necessarily be of concern, given that scholarly content is the primary need of the reader and, furthermore with a good standard of indexing employed that content should be directly discoverable through a basic web or database search. However, a key consideration for AUT Library's project was that the hosting should not simply provide a standard template design for the journals hosted but that attention should be taken to incorporate attractive and responsive design features into the web pages for a better and more distinctive user experience. It should be noted that unless an editorial team has access to staff with skills in web design, it is more often the case that the standard OJS templates will be adopted for ease. Furthermore, granting editorial staff from (at times) cross-institutional journals server-side access to journal sites in order to customise or redesign their OJS instance also presents University IT departments with all manner of security challenges.

Figure 1: Two journals using standard OJS templates

Attention to aesthetics and creating greater ease of access and use are principles which had been highlighted in recent work within AUT Library's Digital Services team when redesigning the Library's website. In describing that project, Murdoch and Hearne (2014) noted "the benefits of cohesive and elegant design…'beautiful and functional is better than ugly and functional'". It was that philosophy which inspired the Tuwhera project team to research university publishers which had done more than grant server space to journal editors and hand over the 'look and feel' decisions to them.

Being open source software, the 'out of the box' site design options are to some degree inevitably limited depending on the development time which 'the community' can devote to it. It is worth noting here that it had been more than ten years since the last major software release of OJS with the upgrade from OJS 1.0 to 2.0 in 2005. Nevertheless, OJS has always been a customisable software, especially for those users with the resources to build on the basic package. The nature of the global open source community is such that those developers who have built on the original source code will make their work available for others to use. In this spirit the project team was fortunate to discover the work of Mason Publishing Group (MPG) at the George Mason University Library in Fairfax, Virginia. Code for the MPG theme was available on the Github development platform (https://github.com/masonpublishing/OJS-Theme) along with the message: "the theme is distributed in the hope that it will be useful." As figure 2 below illustrates, it was.
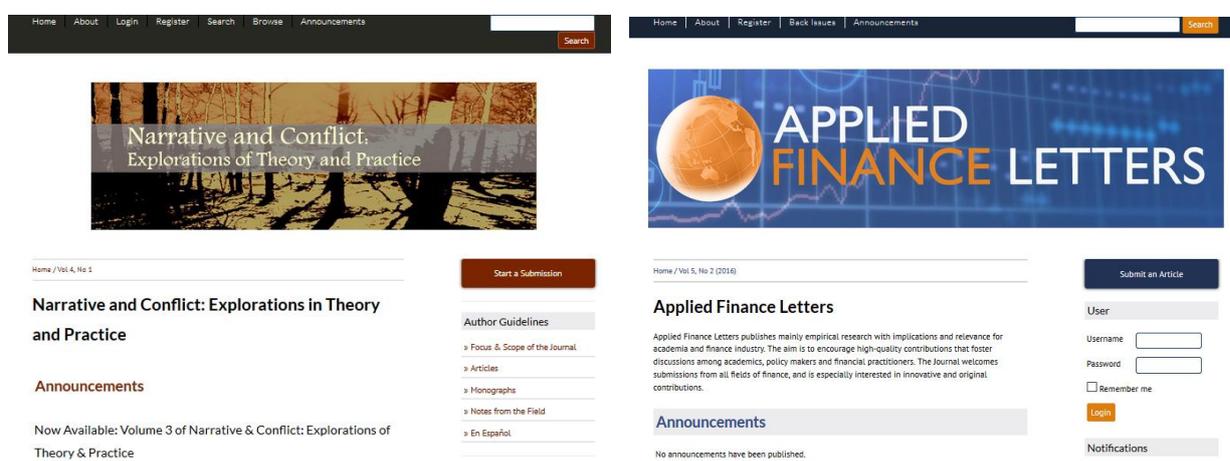

Figure 2: Use of the Mason Publishing Group customised OJS theme. Left: Narrative and Conflict a journal published by MPG. Right: Applied Finance Letters published by Tuwhera

Use of the MPG theme provides users with a standard template, one which succeeds in the aims of being attractive, clear and user-friendly. Crucially, it has enabled the site design support for Tuwhera journals to be kept to a manageable workload; an important consideration given the resource constraints of having one member of staff able to carry out web design work for the Tuwhera service.

Of further consideration were the security implications around the administrative permissions granted to Journal Managers as a default setting in journals set up on a shared instance. With the objective of hosting just one journal in the pilot phase and factoring in a modest growth of 2-3 titles per year thereafter, AUT's OJS infrastructure was installed on a one journal = one instance basis. The implications of this include having to apply upgrades and patches to each individual instance. However, given the small number of journals currently hosted by AUT this is not seen as an onerous or costly undertaking.

The OJS infrastructure at AUT includes test and development instances alongside the production (or live) journal sites. Members of the Library's Digital Services team are granted server side (SFTP) access to both the Development and Test instances of OJS which enables the team to work with Journal Editors on agreed design and layout elements. Final files for new journals are then cloned from the Test instance into a Production instance by ICT staff once deemed ready.

Landing page design and branding the platform

The name Tuwhera (te Reo Māori which loosely translates as 'be open') emerged in the initial months of the project. It was felt the service being built should have a unique identity or point of difference and that its name should reflect the aspirational, innovative and open philosophies which fed into it and which would give it scope for growth beyond the pilot phase of the project. The sense was that Tuwhera as a concept could form the nucleus of AUT Library's strategy around support and advocacy for open access scholarship (for instance, by connecting with the existing institutional research repository Scholarly Commons and any future research data management services). Furthermore, in researching names, the adoption of a Māori word was considered a strong demonstration of both the Library's and AUT's commitment to biculturalism and the Treaty of Waitangi. Research around the name included consulting with Māori members of AUT Library and academic staff, including Valance Smith from Te Ara Poutama, an AUT study area http://www.aut.ac.nz/study-at-aut/study-areas/te-ara-poutama .

The Tuwhera concept informed the design of the site's landing page and flowed through to a range of marketing tools such as an embedded promotional video, a Twitter account (@tuwhera) and tangible marketing products like Tuwhera mugs and t-shirts. The site was given its own dedicated domain name (https://tuwhera.aut.ac.nz/) as distinct from the default OJS landing page domain (e.g. ojs.victoria.ac.nz) and the look and feel of the page with its simple vertical navigation and distinct elements which was inspired by such sites as the Makerbus (http://www.makerbus.ca/) reflects the sense of openness and simplicity that the project team has sought to promote in offering the service to journal editors.

The landing page was designed within certain institutional branding constraints but nonetheless provides a welcoming and clear shopfront to prospective editors. As with the journal sites themselves, the Tuwhera homepage is designed to be fully responsive and mobile-friendly (*Figure 3*).
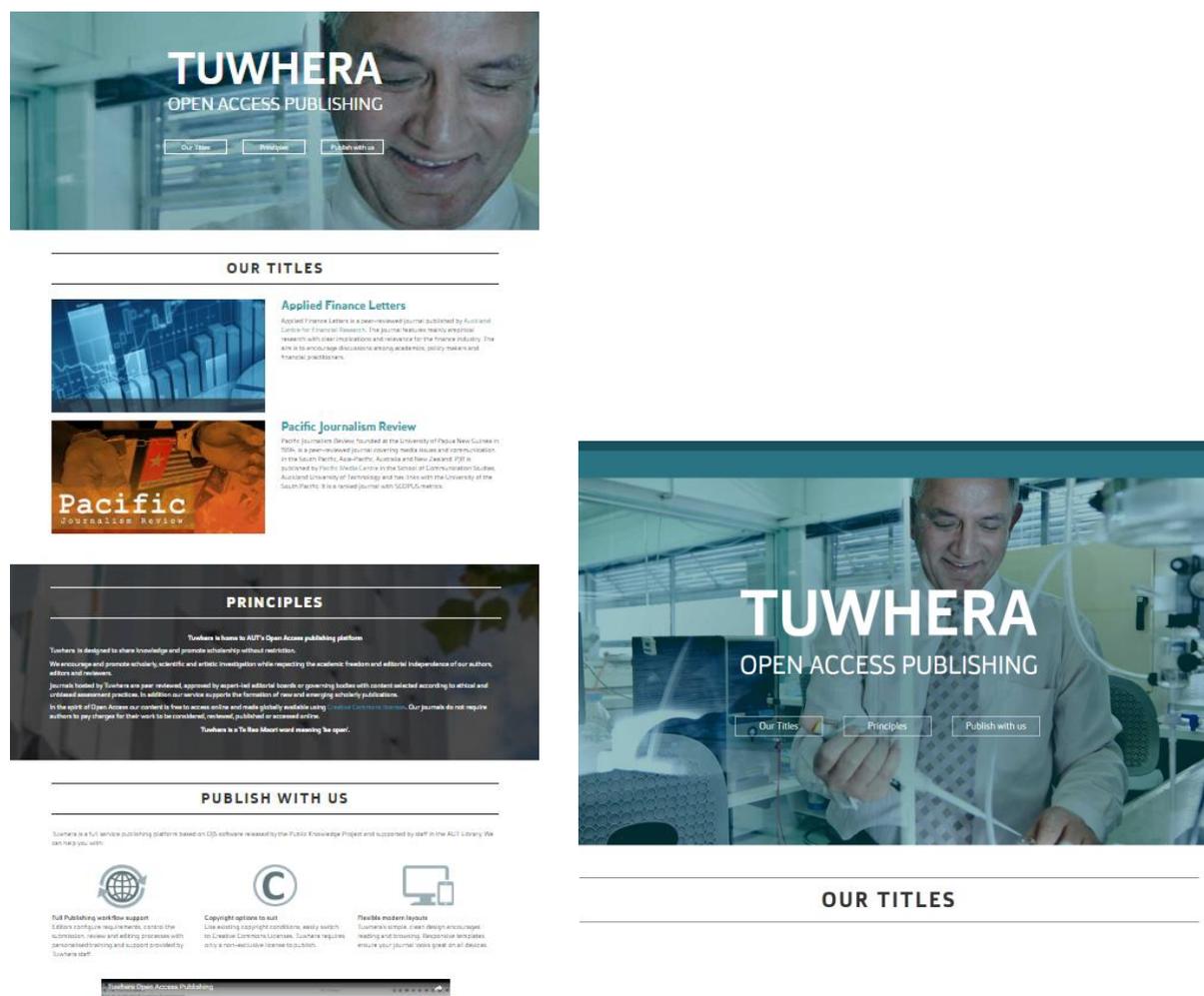

Figure 3: Screenshots of Tuwhera's landing page at https://tuwhera.aut.ac.nz/

Training, administration and end-user support for Tuwhera

Integral to the setting up and ongoing administration of the Tuwhera service was the creation of documentation, workflows and processes in managing new journals as well as providing user support. An application form, user agreement (or memorandum of agreement) and details outlining service expectations were all drafted and are presented to new journal applicants. The application form and MOA in particular drew on similar documents produced by Deakin University (which in turn had drafted its own documents based on those of St Andrew's University) which were openly shared with the project team.

The Tuwhera team delivers initial training in OJS use to journal editors and administrative staff covering the main steps in creating a journal issue, from submission to review to publication. OJS user support beyond this training can vary depending on the level of digital and web literacy held by the journal staff. However, most issues can be resolved by email support. In addition to the site set-up and training, post-production services for each title, such as indexing and metadata support and assigning DOIs to articles, is provided.

Expectations around user support have had to reflect the resource levels available. And yet, the desire exists amongst the Tuwhera team to produce as professional a service as possible. The inherent risk here lies in the growth of the hosting service and the extent to which that growth is matched by adequate resources within the support team.

OJS goes live and the Tuwhera launch

The OJS project set out to host one journal as a pilot, a target which was successfully achieved ahead of schedule when the production instance of *Applied Finance Letters* was made live to external networks on 16 August 2016. However, during the project phase communication with the editor of *Pacific Journalism Review* (PJR) had continued and given the timing of PJR's publishing schedule it was agreed that this second journal should be added prior to the launch of the platform. With a second OJS instance in place PJR went live just ten days later on 26 August 2016. Despite the pressure on the Tuwhera project team the inclusion of PJR, a Scopus-indexed journal with more than 20 years of issues and a coverage of issues unique to the Pacific region, gave the platform a degree prestige of which to be proud.

Tuwhera was officially launched on 19 October at an event attended by the AUT Vice Chancellor and Deputy Vice Chancellor. In keeping with the Māori kaupapa which had influenced the project's ethos and its name, the launch event opened with a mihi whakatau, included a karakia to bless the name and the platform in ceremonies led by Dr Valance Smith and was celebrated with Māori waiata.

Business as usual

The transition to business as usual was signalled with a final meeting of the project's steering group. Governance beyond the project phase will take a similar shape with a committee formed of a cross-section of stakeholders overseeing Tuwhera's strategic goals and development and providing expert guidance as during the project. The operational management of the platform continues via the Scholarly Communications Team. Since officially launching and publicising Tuwhera, the Scholarly Communications Team has received significant interest from AUT-based journal editors wishing to move their publications to the platform and it is envisaged that the platform will welcome two to three new journal titles per year in the coming years. Growing the number of journal titles hosted by Tuwhera will require the ongoing support of AUT's ICT department as well as that of staff of functional teams within the Library's Digital Services, such as Web & Digital Initiatives, Scholarly Communications, and Library Systems, both in terms of building journal sites for new titles hosted and for ongoing user-support and maintenance of those sites. Given the potential for Tuwhera to continue to grow to host potentially up to ten times the number of journals it currently does, this presents a significant resource challenge to the Digital Services team and the Library as a whole, and will require a considered and strategic approach to the growth and resourcing of the service. Increased growth naturally implies increased cost to AUT in supporting it. However, there is the potential that it may also lead to savings elsewhere within the Library budget if the shift towards green style models of open access leads to a significant reduction in journal subscription costs as Morrison (2013) argues.

In broader professional terms, the successful development of Tuwhera presents opportunities for the development of new skills and workforce planning, with, potentially, new roles in scholarly communication, and technical, digital and web design support for the Library. Creating Tuwhera has enabled staff to learn new software applications, in particular OJS, and to do so as part of a global community of open source users and developers where information and learning opportunities are shared. This approach dovetails with Tuwhera's open ethos and its situation within a global knowledge commons.

Conclusions and outcomes

Tuwhera has successfully met its core objectives, setting about methods for encouraging and supporting emerging research and existing academic output within the institution. It has established the Library as an electronic publisher raising its profile, not only in aligning with AUT Library's strategic goals of providing support for learning, teaching and research, but by being an important conduit in the process of disseminating that knowledge in an overcrowded and competitive academic publishing market. It has done so with a unique point of difference: the Tuwhera name represents not only an acknowledgement and incorporation of Maori kaupapa or philosophies, but also provides scope for giving voice and visibility to Pacific perspectives, granting a Pacific flavour if you will, to the scholarship emerging from AUT. This in turn has potentially positive implications for widening the readership and access to Māori and indigenous research with its consequent impact on Aotearoa New Zealand and the work of other indigenous research and researchers. These outcomes align with AUT's strategic aims around growing national and international research impact and promoting research by Māori and Pacific peoples for the benefit of their communities (AUT, 2012).

Interest in Tuwhera from within AUT has contributed to the view formed during the process of the project that the initiative has the potential to provide more than a hosting platform for open access journals. As figure 4 illustrates, the future growth of Tuwhera can be viewed as central to a system of interrelated open access oriented applications and platforms publishing AUT journals and research summaries, research outputs and theses, conference proceedings, and research data sets to the global academic and professional community. In doing so Tuwhera will make a clear statement of support and advocacy for open access scholarship in the face of a lack of institutional or Government led policy around the open dissemination of publicly funded research. As other open access advocates have argued, such a declaration pushes the boundaries of the 'academic' community beyond the confines of the institution and places research, where appropriate, where it can be more swiftly and practically applied in sometimes critical situations (Booth, 2017).
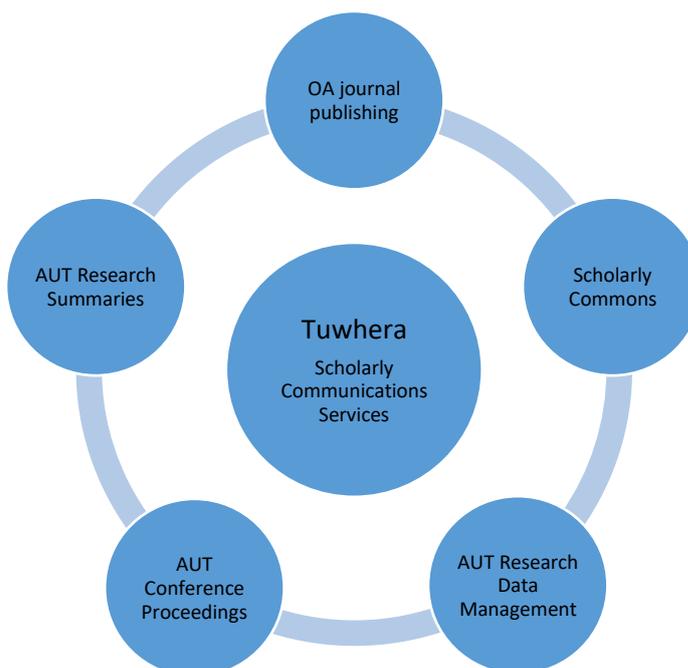

Figure 4: The Tuwhera vision – a scholarly communications ecosystem

Furthermore, a commitment to open access in scholarly communications equates to being part of a movement which challenges the predominant structures and norms associated with academic publishing, including the ways in which it is measured and how those metrics feed an assessment system which it is difficult for researchers, especially those at the early stages of their career or those keen to secure funding, to break free of. As Mal Booth recently noted: "Maybe we...need to decide whether scholarly publishing is really about the sharing of knowledge or just a competitive game where points are scored for individual and institutional reputations" (Booth, 2017). The wider implications of Booth's remarks relate to the adoption of a range of 'open' and alternative approaches, such as to peer review and bibliometrics. As Pomerantz and Peek (2016) have explored, the term 'open' has myriad possibilities.

In one, arguably business, sense, those possibilities - and the potential for platforms like Tuwhera alongside the many thousands of open access university publishers such as UTS ePress, or more coordinated global initiatives like the Open Library of Humanities - represent a positive response from libraries to the growing issue of academic publisher subscription costs. Moreover, in a deeper, perhaps more cultural sense, as Booth has observed when considering the challenge of " 'new' scholarly multi-media formats", the growing departure from 'traditional' (or more accurately, post-Gutenberg) models of scholarly publishing, has its antecedents in indigenous approaches to sharing knowledge:

> It is almost like we are re-learning lessons lost from the age before Gutenberg when illuminated manuscripts contained, preserved (very well) and shared songs, art, music, traditions, laws, dance, science, knowledge, commentary and stories...Do we have something or maybe a lot to learn from the traditional owners of this land? (Booth 2017)

In that sense, Tuwhera, with its connection to Māori kaupapa around openness and community, represents a culturally relevant, progressive and sustainable vision for a more holistic, global and communitarian scholarly communication landscape.

As this paper has demonstrated, if Tuwhera's initial aim as a publishing project was simple, then its vision has evolved to be much more expansive. The principles and values which have fed into and now underpin Tuwhera have inspired a great deal of interest within the University and have opened up numerous possibilities for scholarly communications not only at AUT but in the wider Pacific region. In realising those possibilities, Tuwhera is positioning itself as a key player in driving the open access movement and influencing the research culture in Aotearoa New Zealand.

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