

Building the ARROW Community

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Abstract:

The ARROW Project is a DEST-funded consortial effort to develop and implement institutional repository software, and has co-developed the VITAL software with VTLS Inc. The project team has been building a community of users of this software, through the use of existing free or open source products. This paper will discuss the specific objectives of building this community, the history of our use of the various available tools, an assessment of their effectiveness and their limitations, and how we plan to move forward.

A brief background to the ARROW Project

The Australian Research Repositories Online to the World (ARROW) Project (<http://www.arrow.edu.au>) came into existence in response to a call for proposals issued in June 2003 by the Australian Commonwealth Department of Education, Science and Training (DEST). DEST was interested in furthering the discovery, creation, management and dissemination of Australian research information in a digital environment. Specifically, it wanted to fund proposals that would help promote Australian research output and build the Australian research information infrastructure through the development of distributed digital repositories and the common technical services supporting access and authorisation to them.

In response to this a consortium, consisting of Monash University (lead institution), the University of New South Wales, Swinburne University and the National Library of Australia, submitted a bid and was successful in attracting \$A3.66 million over three years (2004-6), with follow-up funding of \$4.5 million, for ARROW2 and a sub-project called Persistent Identifier Linking Infrastructure (PILIN) in 2007 (<http://www.pilin.net.au/>).

The ARROW Project has been working with VTLIS Inc (<http://www.vtls.com>) to develop a supported repository software solution called VITAL. This software has been licensed by fifteen universities in Australia, and ARROW's work at present is focussed on refining and supporting this software, and aiding these universities in their use of it. ARROW chose to work with a commercial vendor to ensure ongoing support for the software developed after the project funding ended.

Needs of the project

It was decided that a framework was needed to provide this support, and this has taken the form of a developing ARROW Community. The Community was established in 2006 to enable the sharing of knowledge and experiences by institutions using the ARROW software solution. This sharing has occurred through regular meetings and update sessions, the establishment of virtual contact processes and attempts to co-ordinate the common needs of the repositories. Working groups (ARROW Repository Managers Group, ARROW Development Group and Metadata Advisory Committee for Australian Repositories) have been established to create structures and relationships that will survive beyond the end of the project funding. It is expected that at the conclusion of the formal project that these activities will continue through self-funded co-operation and sharing of resources by the community members. This is not dissimilar to other Internet-related activities that rely on a shared commitment to a successful outcome.

ARROW also maintains an office of project staff, known as ARROW Central. This group has grown over the life of the project, and at time of writing numbers six staff. Most of the staff are housed at Monash University. It is the ARROW Central team that has primary responsibility for the use of tools to grow the community.

Early stages of the project

In the initial stages of the project, ARROW had four member institutions in three cities. Communication and relationship building was managed through the use of face to face meetings, regular teleconferencing, and electronic technologies like email, mailing lists and Wikis. While these tools were effective they were also hosted by members of the consortium, or paid for from project funds. It was recognised that this was suitable in the short term, but that other options needed to be explored as the project grew to encompass an increasing number of locations across six states and territories, and as the end of the funded project approached.

Growth of the Community

As the number of members of the Community has grown, the Project has needed to adapt its strategies. Techniques that worked well when there were four members were not always scalable, and needed to be changed, while others (such as the necessity of face to face contact in some circumstances) took on different forms.

As a result, the Project has been implementing the use of newer web technologies that do not require local hosting, and which offer improved functionality. Many of these can be found in the growing Google suite of online products, including shareable calendars, files, and mailing groups. The Project has also increasingly looked to tagging tools, like del.icio.us, to create virtual collections of online material of interest to the project, and new communication technologies, like Skype, to allow for low cost personal contact.

The Project also employs a dedicated “Community Facilitator”, whose primary role has been setting up and managing the tools related to the Community. While many of the tools and mechanisms used by the Project are designed to be low cost and low impact, it has been our experience that they need a certain level of support that only a person can supply.

Tools we have used

Teleconferences

Teleconferences have been a critical part of the Project from the very beginning. VTLS Inc is based in Blacksburg, Virginia, USA. Development work with them involved regular and often extensive conversations about the nature of the software and what it needed to do. In the early stages of the project, we held weekly teleconferences, but these are now biweekly and occasionally less frequent. In addition, the original consortium members, who were spread across Melbourne, Sydney and Canberra, met regularly by teleconference.

As a result, the teleconference has become a highly used tool, and was one of the first techniques to be expanded once the Project tried to encompass other members. The ARROW Repository Managers Group (ARMG) meets monthly via teleconference. This has been a useful contact point, and offers a forum for the Project team to disseminate information to the Community. Regular “human” contact in this way helps to reduce the sense of isolation, and often clears up misunderstandings or problems more effectively than email.

Teleconferences are not without their limitations. Some of the problems encountered through the use of teleconferences include:

- Cost – the ARROW Project has borne this to date, and we have not yet resolved how this might be managed once the project funding has ended.
- Equal participation – some members are more comfortable with these forums than others. Consequently, conversations can be dominated by a small percentage of the group. This is not an easy issue to overcome.
- Information sharing – initially the group experimented with verbal reports from all the members. This tended to make for lengthy meetings as each member read out what they had been working on. Without the physical presence of others, it was easy to be distracted and lose focus. To overcome this, the group now loads written reports in advance to the project Wiki, and questions on those reports are invited.
- Organisation – teleconferences need someone to set them up, and to distribute phone numbers and other contact details. These are not necessarily complicated processes, but can be time consuming, and need attention to detail. For instance, the first meeting of ARMG was impacted because ARROW's existing teleconference account could only deal with 10 participants, and 15 tried to join. ARROW staff were unaware of this, and the result was confusion and frustration.

Email and mailing lists

As in all areas of modern life, email has been an essential part of the project. This is particularly true when dealing with a vendor in a different time zone, and when discussing complex issues. While the time lag in email response can be quite frustrating at times, it can also be beneficial in that sometimes the delay allowed the Project to discuss the issues and determine a course of action with the luxury of time.

Initially ARROW used conventional listserv type mailing lists hosted by both Monash and VTLS. These were subject to the sort of issues that affect most similar lists: the administrative burden of setting them up and maintaining accounts, the overload factor that causes some users to set up digests rather than getting each mail directly, and hence miss some important messages, and the ability of users to ignore messages that they should reply to, but might not want to.

While this worked well on a technical level, there was some concern about the need for a list that was not dependent on the participation of any particular member or institution, and that would allow for searching and ongoing storage. In 2006, the project established what was to be the first of a number of Google Groups. Using a Google Group for this purpose imposes limited management burdens for the project, and has proven to be reliable and efficient. It also offers the ability to share documents by loading them to the Groups site, rather than attaching them to emails.

One of the more difficult decisions that had to be made concerned the membership of the initial Group. There was considerable debate about whether the Group should be open to the world, and if it was to be restricted, to whom it should be restricted. Specifically, should VTLS be included or excluded? If they were to be excluded, did we need a second list that they could join?

One of the decisions was made easier when VTLS requested that the group be closed and not indexed by the larger Google engine, due to concerns that commercial competitors might be able to access sensitive information. After some consideration, it was decided to accede to this request, as doing so would not restrict the effectiveness of the Group, and might encourage VTLS to participate. In addition, the Group's settings were amended to require that new members be registered by the Owners.

The primary reason for wanting to restrict VTLS' access was a concern that members might be less willing to speak freely about them and VITAL if they felt VTLS were "listening". In contrast, it was felt that if VTLS were members they might be able to address concerns as they arose, and keep track of any issues that were concerning a majority of the members. So, there needed to be some forum that included them. Running a second list was discussed, but dismissed as too confusing, as some messages might need to be moved from one list to the other if they were inappropriate or as discussion areas changed. In the end, the advantages of having VTLS as members outweighed the negatives, and they have been regular participants.

This has not been without its own challenges. As a vendor, VTLS have standard systems for receiving and responding to issues raised by customers. There are other users of VITAL outside of the ARROW Community, and VTLS were justifiably concerned about the precedent being set by regularly responding to the list. Consequently ARROW agreed to act as a filtering agent, and to pass on directly to VTLS staff any issues they felt were of particular urgency or concern.

ARROW has since set up or participates in a number of other Google Groups that relate to more specialised areas of interest to the Project, or which deal with issues related to the wider repository community.

Wikis

One of the key collaborative tools used in the Project has been a Wiki (using the JSPWiki code). Use of the Wiki by the Project has fallen into two distinct stages. During the initial stages of development it was used primarily as a tool for the sharing of documents about how best to define what VITAL should become. As such, it was an essential tool that allowed for multiple versions of specification documents. It also allowed for the active sharing of ideas between the developers at VTLS, the growing team at ARROW Central, and the ARROW Technical Working Group, a group made up of representatives of the original ARROW partners. This Wiki became a focal point for their work, and also allowed the project to document thought processes and past decisions.

Once the product moved beyond the rapid development stage of the first two years, the Wiki saw less use. Detailed specifications had already been written, and shared between ARROW and VTLS. Consequently, use of it declined, until the growth of the Community provided new reasons for using it.

Now the Wiki is used primarily as a communication tool between ARROW members. Papers for the meetings of ARROW groups are kept on the site, as well as dates, times and contact information. The progress reports required for the ARMG are

loaded to the Wiki, to make it easier for members to see what their colleagues are working on, and to see what has been updated.

The Wiki also provides a useful location for the storage of policy and other documents related to the Project, so that they can be preserved beyond its life. The occasional problem with this is the ongoing growth of the Wiki. Newcomers to the project often found the amount of material stored there daunting. Many of the organisational choices were based on an understanding of the earlier workings of the project, and were impenetrable to the new users. There were also considerable numbers of outdated documents and versions with few discernible differences.

This is one of the persistent problems with any unmediated document storage system. Getting users to add to it is far less of a problem than getting them to remove what is no longer required. To make the Wiki more usable and efficient, a great deal of work needed to be done by the ARROW Community Facilitator. This involved cataloguing the documents there, identifying their “owners” and seeking comment on their continued utility and value. This process will need to be ongoing, and how it will be managed beyond the life of the project is a challenge still to be faced. Of course, the Wiki-gardening challenge is not unique to ARROW.

Google products

As noted above, Google Groups has been a valuable tool for the project. As it has been used, it has exposed the project team to other free online products developed by Google. Google provides a large number of useful tools at no direct cost. The Project has chosen them as they are generally reliable and offer a level of flexibility for the sharing of information that other tools do not. But they have also been used with a note of caution. Google may be free now, but will this be the case forever? If they decide to charge for the use of the tools at some time in the future, will the Project data be able to be extracted for no cost? Even while it is free, what do Google do with the information? Is it being searched? For what purpose? Where is it being stored? Is confidentiality an issue that means other methods should be used? There are unlikely to be short term answers to these questions, so until there are, Google will be used with care.

Nevertheless, the Project has gradually embraced these tools as team members have learnt how best to use them. Not all the tools available under a Google account have been used yet, but some of the more effective ones for the purposes of the Project are described in the next section.

Calendar

The ARROW Central team has long included staff in two different Australian states. While most of the team members have access to the enterprise tools provided at Monash University, one of them does not. The team has found Google Calendar useful for helping to keep the remotely-based member in touch, by recording leave, jobs and group events in it. The group calendar has also been opened to other ARROW Community members, so that they can also see the upcoming events.

Running a second calendar service is not ideal – it requires upkeep on top of the use of the existing system in use at Monash. Consequently, it can get out of date, and

not always reflect the current status of some activities. Once you factor in that the project is dealing with 16 institutions, all with their own enterprise-wide systems, expecting too much from the calendar is unrealistic. It has been a useful tool, but not the most essential of them.

Documents

Google Documents has proved to be one of the most effective tools. The ARROW Project has been instrumental in the establishment of the Metadata Advisory Committee for Australian Repositories (MACAR), a group dedicated to the creation of advisory policies for metadata use. MACAR has members from not just the ARROW Community, but from other repository users across the country, who needed to work on shared documents. As with Calendar, there was no standard enterprise document system that could be used for this, and the MACAR team were keen to avoid the mailing of documents around the group, with all the complications of file sizes and version control that this creates.

Instead, the spreadsheet and word processing tools in Google Documents have allowed for very effective sharing of information and the creation of policy documents with multiple contributors. The Project often used spreadsheets to track software testing being done at different sites, and to allow members to add their comments and thoughts about how the testing was going. On the negative side, it has required that participants learn to use a new tool, and that they learn how to share the documents effectively. New users have to be added, and those without a Google account need to create one. These are minor impediments, but impediments nonetheless. .

Blogging

One of the ongoing challenges facing the Project has been how best to communicate news and items of interest to the Community members. Initially posting to the Google Group was used, but this proved to be less satisfactory than hoped, as posts were overlooked and not generated on a regular basis. As a result, it was decided to try blogging, to encourage all the ARROW Central team to share their news as it appeared, and to provide a central location for all news. The ARROW Project has been using the Blogger software now run by Google as a means of imparting news about the project. This blog is open at <http://arroweducommunity.blogspot.com/>. Blogging had been used in the early stages of the project, with minimal uptake. It was hoped that by restarting this process the blog might attract more attention, and offer a service that the other communication methods used could not provide. The project is currently seeking feedback from the Community about the effectiveness of this process.

Tagging

In a move related to the area discussed above, the Project was also aware of the enormous amount of interesting material available to repository managers that they might not have the time or inclination to find for themselves. Again, it was decided that the Project should offer some central location for collating and sorting this information, to allow others to see it. On the advice of the staff at the RUBRIC Project (<http://www.rubric.edu.au/>), the social bookmarking tool del.icio.us has been employed, and an ARROW page been set up to bring information together

(<http://del.icio.us/destarrow>). Use of del.icio.us has allowed the ARROW Central team to share information found and to offer a level of organisation of the material that might not otherwise be possible.

The primary problem with tools like del.icio.us and Blogger is that unless Community members have good memories or RSS feeds set up they may not look at the material being added. This is an ongoing issue of concern for the project team. How can the work being put in to these tools actually return value to the Community? More work needs to be done on this question.

Skype

At present, ARROW operates around seven or eight teleconferences in a given month, many of them involving either multiple members of the community based in a number of Australian states, or VTLS staff in the US. The cost of all this is considerable and there is some concern that without project funding many of these forums will wither. Skype is therefore being explored as a lower cost alternative, and has already been used for some communication with projects overseas. However, there are concerns that the free version of Skype will not support the number of participants that ARROW requires, and that some members of the Community may not have the hardware needed to run Skype (microphones, IP telephony, etc). The Project is still exploring how best to use this, or similar tools.

Face to face contact

For all the technology used by the project, it is worth noting that some community building can only be done through face to face contact. In the experience of the project team, some areas cannot be replaced purely by technology. For instance, there have been a number of issues that have been discovered only through face to face meetings with the members – in group teleconferences, or on the mailing list, they were never discussed. The Project has therefore instigated regular human contact with Community members, both in the form of regular visits to their sites, and in the running of the ARROW Community Day, an annual forum that offers the opportunity to socialise with other community members and to present papers on the issues of interest to the group.

Plans going forward

With the project funding currently guaranteed only until the end of 2007 (although an extension has been applied for), the ARROW Central team are trying to ensure that the Community survives beyond that, as there have been a number of benefits derived so far. These include the ability to share ideas, knowledge and experiences; to compare notes and perhaps discover that a problem encountered is shared, or even solved already; and to learn from those who have already dealt with particular issues. To a certain extent the continued existence of the Community is already out of the project team's hands – it will need to survive on its own merits, and those tools that require funding will need to be supported by the members.

Conclusion

In the past, trying to build a Community like ARROW would have been far more difficult than it is today. The new tools made available by Google, as well as other Web 2.0 techniques, have improved the ability of the project to remain on target and co-ordinated despite a fourfold increase in members.

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