



**Australian Government**

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**Information Management Office**

**Implementation of an  
Open Source Content Management  
System**

**Case Study**

**Squiz.net**

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## Glossary

AGIMO	Australian Government Information Management Office
AGLS	Australian Government Locator Service
ASP	Microsoft Active Server Pages
AusTender	Australian Government online tendering service
CIOC	Chief Information Officers Committee
CSS2	Cascading Style Sheets version 2
CMS	Content management system
DCITA	Department of Communications, Information Technology and the Arts
ESA	Endorsed Supplier Agreement
FedLink	A system for secure online communications between agencies
Gatekeeper	Australian Government strategy for public key infrastructure (PKI)
HTML	Hypertext Markup Language
ICCT	Indigenous Communities Co-ordination Taskforce
ICT	Information and communications technology
IMSC	Information Management Strategy Committee
Java	A programming language developed by Sun Microsystems
LDAP	Lightweight Directory Access Protocol
PHP	PHP Hypertext Pre-processor scripting language
NOIE	National Office for the Information Economy
SQL	Structured Query Language
W3C	World Wide Web Consortium
XHTML	Extensible Hypertext Markup Language

## Executive Summary

The Australian Government Information Management Office (AGIMO) fosters the efficient and effective use of information and communications technology (ICT) by Australian Government departments and agencies. Its responsibilities include strategic advice, technology leadership and programs designed to ensure optimal use of ICT across all agencies at the federal level.

AGIMO's predecessor held wider responsibilities that were split between AGIMO and the Department of Communications, Information Technology and the Arts (DCITA) during a restructure in April 2004. At this time, however, the agency was in the midst of a major project to restructure its website to provide additional flexibility and quality.

The previous agency website had numerous deficiencies related to content workflow, approvals, audit trails, user permissions, standards compliance and site management. Furthermore, the technology used for the site was increasingly inadequate for the agency's needs. In particular, the site was predominantly comprised of static HTML pages. This made scalability an issue and limited the ability of staff to make site-wide changes, inhibiting the site's flexibility and useability.

In March 2003, the agency defined business requirements for a content management system (CMS). Following detailed review of a number of alternative solutions, AGIMO chose a CMS called MySource. This was based on open source technology and supplied by the vendor Squiz.net. After contract negotiations and a number of revisions to the business requirements and project scope, implementation for two pilot sites began in August 2003.

Success in the pilot stage led to full rollout of the MySource solution in 2004. The new CMS environment gave AGIMO a more flexible online publishing system that met all project criteria. The site is based on page templates, enabling design changes to be immediately applied across all pages or a subset of pages. The software includes integrated workflow, approval and audit functions to provide a smoother process for content authors and greater control for managers. The end result is a site of higher quality and superior usability.

The CMS project represented the first time AGIMO had selected an open source software tool for a major ICT project. A number of lessons were learned during the process, including the importance of robust intellectual property supervision as well as ideas about training, support and managing vendor relationships.

Most importantly, the project demonstrated that open source software products could be suitable for deployment by government agencies where the software fulfils business requirements. Several product enhancements were made by Squiz.net and dispersed back to the open source community that created MySource. As a result, AGIMO has a more functional and mature product and can expect to win developer support for other necessary enhancements in years to come. Overall, the experience of deploying an open source solution was extremely positive for AGIMO.

# 1 Australian Government Information Management Office

The Australian Government Information Management Office (AGIMO) fosters the efficient and effective use of information and communications technology (ICT) by Australian Government departments and agencies. It provides strategic advice, activities and representation relating to the application of ICT to government administration, information and services.

## 1.1 Vision

AGIMO is working to make Australia a leader in the productive application of ICT to government administration, information and services.

## 1.2 Maximising government benefits from ICT investments

AGIMO acts as a catalyst for change in government to improve the delivery of public services and achieve long-term efficiencies using the capabilities of information and communications technology. The application of new technology, combined with changes to existing processes and practices, enables government policies, programs and services to be connected in ways that better support both the increasing incidence of multi-agency and whole-of-government actions and the changing needs of customers.

It works across Australian jurisdictions to maintain and develop Australia's position as a world leader in the use of ICT for the operation of government.

AGIMO provides leadership in defining and driving government-wide ICT strategy, standards and technical architecture, including security and resilience issues.

## 1.3 Whole-of-government focus

AGIMO's functions and responsibilities include:

- Supporting the work of the Information Management Strategy Committee (IMSC) and the Chief Information Officers Committee (CIOC);
- Working with government agencies to develop standards to integrate services across agencies;
- Improving government services by promoting technical interoperability and integrating business processes across Australian Government services and in state, territory and local authorities;
- Introducing new approaches for discovering and distributing government information, publications, services and programs;
- Developing and enhancing government e-procurement processes, including managing the AusTender system<sup>1</sup>, which enables online access to Australian Government business opportunities, tender documents and electronic tender submission;
- Promoting whole-of-government telecommunications and volume software sourcing arrangements;
- Identifying and promoting the development of ICT infrastructure necessary to implement emerging whole-of-government strategies;

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<sup>1</sup> [www.tenders.gov.au](http://www.tenders.gov.au).

- Managing the roll-out of the FedLink system, which enables secure online communications between government agencies;
- Developing an e-Government Authentication Framework to assist people in verifying electronic communications;
- Managing Gatekeeper, the Australian Government's accreditation system for certifying digital signatures;
- Managing online and printed directories, whole-of-government websites and guidance for the online use of the Australian Government brand.

## **2 Description of original website**

The original website for AGIMO's predecessor, the National Office for the Information Economy (NOIE)<sup>2</sup>, was hosted on a Microsoft Windows 2000 server that resided in the Telstra Enterprise Services managed facility at the Department of Communications, Information Technology and the Arts (DCITA). This server also hosted a number of supporting websites, including the Information Management Strategy Committee<sup>3</sup>, FedLink<sup>4</sup> and Gatekeeper<sup>5</sup>.

These sites were mostly static HTML web pages but also included some database interfaces developed using Active Server Pages (ASP), VBScript and either Microsoft Access or Microsoft SQL Server. Microsoft Index Server was used to generate the full-text index needed to search the websites.

The procedure to publish information to the NOIE website was developed in-house. Separate servers were used for staging and production systems. Content was created and edited on the staging server using Microsoft tools (FrontPage 2000 and Visual InterDev) and then published to the production server using the FrontPage Publishing wizard. Approximately 15 to 20 staff members within NOIE used this procedure to update the website on a regular basis.

Immediately before migration to the new environment, the NOIE site comprised over 10,000 HTML files, 5,000 images and over 1,000 lines of ASP code.

A number of problems were identified in the existing website, including workflow/logging, specific permissions, standards compliance and site management. These problems are discussed below.

### **2.1 Workflow/logging**

The publishing mechanism used between staging and production did not allow for an approval process to be implemented. This meant that verifying all changes before they were implemented was both time-consuming and complicated. The system did not keep a detailed log of changes or a transaction log of who made those changes.

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<sup>2</sup> [www.noie.gov.au](http://www.noie.gov.au).

<sup>3</sup> [www.imsc.gov.au](http://www.imsc.gov.au).

<sup>4</sup> [www.fedlink.gov.au](http://www.fedlink.gov.au).

<sup>5</sup> [www.gatekeeper.gov.au](http://www.gatekeeper.gov.au).

## **2.2 Specific permissions**

Specific restrictive permissions to prevent unauthorised editing or removal of content were unable to be applied to the staging or production environment. It was important that this be addressed to improve security.

## **2.3 Standards compliance**

Most users used the Microsoft FrontPage authoring environment to create new web pages and modify existing ones. This product did not allow for structured template-based editing. Users were therefore able to format and style pages as they wished, which made it difficult to maintain standard templates and styles.

## **2.4 Site management**

The tools used to manage the site were designed for small, simple websites. Both the size and scale of the existing site caused stability issues within FrontPage.

# **3 Business requirements for implementation**

When the refresh project was initially discussed, three key criteria were chosen to measure both the suitability and the success of the final product. These criteria were based on the business requirements of NOIE and the shortcomings of the existing web environment. A number of highly desirable criteria were also chosen to assist in the selection process.

## **3.1 Meeting the minimum website standards**

The primary criterion during all selection and testing phases was the ability for the final environment to comply with the *Guide to Minimum Website Standards*<sup>6</sup>, published by AGIMO. The guide covers eight core requirements, namely information provision, metadata, electronic publishing, electronic recordkeeping and archiving, web content accessibility, authentication, privacy and security.

The existing website did not meet a number of the minimum requirements, particularly with regards to metadata, recordkeeping, accessibility and security.

Any proposed solution needed to be capable of managing and maintaining web content so that it met all the current standards, as well as being flexible enough to meet future requirements. A template-based, dynamic content management system, where templates could be modified without unintended repercussions for content, was considered most likely to meet these criteria. The mandatory criteria for selection were based on the minimum requirements to comply with the *Guide to Minimum Website Standards*. Other highly desirable criteria were added to ensure the selected product could surpass those minimum requirements.

## **3.2 Workflow, security and improved website management**

The next criterion was the provision of detailed change management control through the use of individual author permissions, workflow and approval processes. The solution needed to address the existing site's lack of reporting and change management tools by accurately reporting on all changes made to the entire site, by

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<sup>6</sup> *Guide to Minimum Website Standards* (Revised Edition), April 2003:  
[www.agimo.gov.au/practice/mws](http://www.agimo.gov.au/practice/mws).

user and time. It also needed to include workflow rules that prevented unauthorised changes from appearing on the production (publicly accessible) site.

The requirement for security and permissions was not specifically defined, yet there had to be a strong security regime within the product itself. Following the security regime of 'Least Access Possible', users should initially be denied access to all content and then be assigned the least amount of permissions required for them to perform their tasks. This is the most secure method of maintaining shared and dynamic content.

### **3.3 Simplified editing for distributed web authoring**

One of the most common complaints from the agency's distributed authors was that the existing tools for editing were complicated and difficult to use. Most authors did not require the full capabilities of a graphical HTML editor. Rather, they needed the simplest method possible for adding and modifying content.

The chosen solution needed to address this issue by providing: multiple interfaces to the content based on the role and requirements of the user; a simple, in-page editing interface for infrequent authors; and a full-scale administration interface for regular authors, content editors and website administrators.

### **3.4 Ongoing savings through common tools**

All procurement projects within the Australian Government are based on the concepts of 'value for money and fit for purpose'. One of the simplest ways of ensuring value for money is to use common tools throughout an organisation as appropriate. Since the AGIMO intranet also had some shortcomings, a highly desirable criterion was the ability to use the same product for both its internet and intranet environments.

## **4 Structure and coordination of implementation**

The initial stage of the project was to identify the agency's business requirements. In order to do this, a number of interviews were held with stakeholders to assess their level of satisfaction with the existing system and to identify shortcomings and requirements that were not currently met.

Other stakeholders, including the Executive Management Group (AGIMO's peak management committee) and the Information Management Committee (responsible for managing IT strategy and IT related projects), were interviewed to ensure that both current and foreseeable future requirements for the website could be achieved.

**Tip**

Allocate time at the start of the project to engage senior management and stakeholders.

**Tip**

Business requirements must drive your technology processes.

## 4.1 *Production evaluation and selection*

Evaluation and selection activities drew on the criteria identified during the requirements phase and using existing best practice tools for the selection of a content management system (including the AGIMO-developed Better Practice Checklists entitled ‘Selecting a Content Management System’<sup>7</sup> and ‘Implementing a Content Management System’<sup>8</sup>, as well as selection documents developed by Multimedia Victoria for the Victorian Government and the ‘Common User Environment’<sup>9</sup> developed for the Queensland Government). The result was a selection criteria document that listed all mandatory, highly desirable, desirable and additional criteria.

**Tip**

Create your own criteria document based on identified business requirements and priorities. Each implementation is unique and requires a specific toolset to be successful.

Through the Department of Finance and Administration, the government has established a whole-of-government supplier pre-qualification arrangement known as the Endorsed Supplier Arrangement (ESA). The ESA covers information technology, major office machines, commercial office furniture and auctioneering services. It is mandatory for agencies to use the ESA arrangement when purchasing information technology and major office machines. Use of the ESA helps reduce the cost to industry – particularly small and medium enterprises – of doing business with government, by simplifying source selection through pre-qualifying suppliers.

**Tip**

Although your criteria document should reflect your own business requirements and priorities, use criteria from other sources if they reflect your requirements.

An initial selection process was conducted to create a shortlist from the current endorsed supplier listings by eliminating those products that did not meet the mandatory requirements. These requirements included meeting open standards for content (such as W3C HTML compliance and accessibility guidelines), as well as support for chosen product sets. The final shortlist contained six products, four of which were open source and two that were proprietary products. Software and implementation cost was not a factor in determining the shortlist.

NOIE chose to evaluate all the products on the shortlist in a development environment. An evaluation guide was created that allowed each product to be tested against the identified mandatory and highly desirable criteria. Each product was loaded onto the development server according to the documentation or vendor-recommended process and a predetermined test site was implemented. This identified any shortcomings with each product and highlighted any particular features that needed addressing. The test site was a mixture of existing and new content, designed to test the mandatory requirements.

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<sup>7</sup> [www.agimo.gov.au/practice/delivery/checklists/select\\_cms](http://www.agimo.gov.au/practice/delivery/checklists/select_cms).

<sup>8</sup> [www.agimo.gov.au/practice/delivery/checklists/implement\\_cms](http://www.agimo.gov.au/practice/delivery/checklists/implement_cms).

<sup>9</sup> [www.qld.gov.au/web/cue/template/](http://www.qld.gov.au/web/cue/template/).

Final product selection was based both on the outcome of this testing process and the comparison of cost of ownership across a three-year period. The selected product, MySource by Squiz.net, was the only product to meet all the mandatory and highly desirable criteria, including many criteria that allow AGIMO to surpass the *Guide to Minimum Website Standards* and provide the best value-for-money solution.

## 4.2 Vendor negotiation

After the product selection, Squiz.net, the selected vendor, was engaged to provide a detailed implementation project plan. This plan was designed in consultation with the NOIE Information Management Section and formed the basis of the pilot and implementation project schedules.

During contract negotiation, issues of licensing and intellectual property were raised, as the chosen solution contained some open source code and some proprietary modules. Discussions are still continuing to determine the most appropriate mechanism to manage current and future IP concerns for both the Australian Government and the vendor itself.

### Tip

Asking your selected vendor to produce a project plan before finalising the contract is a good risk management strategy. A relatively small investment provides the organisation with a high degree of confidence on the ability of the vendor to deliver.

### Tip

Review your implementation project schedule after selecting your chosen product. Each product will have its own unique requirements that may impact the hardware requirements or timing of the project.

The initial contract included development for three NOIE-specific requirements, namely the Netspots Internet facility database, the Solutions Exchange vendor list and the Publication Services Directory.

### Tip

Contract negotiation should also include mechanisms to accommodate additional requirements as they are identified.

### Tip

All stakeholders (including the agency and the successful vendor) should agree on the scope and requirements of the project before commencing implementation. This forms the basis of any fixed-price costing and will make it easier to identify additional requirements during the implementation (sometimes called 'scope creep'). Eliminating scope creep is a critical requirement for both the agency and the vendor to ensure success of the project.

## 4.3 Pilot implementation

The first step in the implementation project was a proof-of-concept site, chosen to test the product within a live environment and to test the relationship between NOIE and the chosen vendor. The Publication Services Directory<sup>10</sup> was selected as the dynamic,

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<sup>10</sup> [www.psd.gov.au](http://www.psd.gov.au).

database-driven site and the Australian Government branding site<sup>11</sup> was chosen to test compliance with the *Guide to Minimum Website Standards*.

Both pilot implementations were set up using the MySource product, but the Publication Services Directory used MySource v2.8 and the branding site used MySource v3.0. After the pilot implementations were assessed, it was decided to use MySource v3.0 (code-named 'Matrix') as the preferred platform for the refresh of the remaining NOIE websites.

**Tip**

Any pilot project should be undertaken using requirements that are well understood, simple and relatively self-contained.

#### **4.4 Content migration**

Once the final product was selected and the pilot implementations were successfully completed, the major implementation project was initiated. The core component of this project was the migration of the existing content into the MySource content management system (CMS). This involved a manual copy process, as no automated process was available.

A number of tools were developed during the migration process to assist with the migration effort. These included several scripts designed to reduce the manual requirement and to reduce the complexities of recreating the original site structure. The content migration process also identified a number of requirements that were not highlighted during the initial requirements process, for example the ability to accept end-user registrations for events and seminars.

This was identified as additional 'out-of-scope' work and the project had to be expanded to include development of this additional functionality.

**Tip**

Audit your content before migration to ensure that you only migrate necessary content. If you can eliminate non-required content before migration, you are able to reduce the cost and effort. You will then be able to better prioritise and structure the final content, resulting in a site that is more likely to address user requirements.

**Important**

Keep your vendor and the governance committee informed on scope issues and discuss their impact on the project cost and schedule. A change to the scope is likely to impact on one or more of the cost, quality and schedule.

Ultimately, the contract was modified to exclude the solutions exchange component (which was retired from service by NOIE) and extended to include new requirements, including a web-based event registration system. These changes were agreed by management with a full understanding of the impact on the project cost and schedule.

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<sup>11</sup> [www.agimo.gov.au/branding](http://www.agimo.gov.au/branding).

#### **4.5 NOIE becomes AGIMO: website redistribution**

Shortly before going live with the solution, the National Office for the Information Economy was renamed the Australian Government Information Management Office. The Regulation and Analysis Division of NOIE was moved to the Department of Communications, Information Technology and the Arts as the Office for the Information Economy (OIE).

This required several modifications to the website: the branding needed to change to reflect the new name and the content needed to be split between the AGIMO website and the OIE website. Using the CMS, this redistribution was performed simply and efficiently in about four hours (including the time required to identify the content for each site).

This was further justification for selecting this product. The ease with which site-wide changes could be made to content, design and security was instrumental in gaining further support from both executive management and staff.

#### **4.6 Governance**

During the initial investigation phase, a non-technical shortcoming was identified by the key stakeholders: the lack of central ownership of the websites and their content. A Web Content Ownership Committee was created to centralise ownership of the websites and to provide guidance on the current and future direction for web-based content. This committee is made up of key stakeholders from across the agency. It takes responsibility for external and internal delivery of agency information, delivery of web-based services and the development of best practice guidelines for web-based services.

The Web Content Ownership Committee is now responsible for the ongoing business management of the website, including the new project to re-evaluate the content of both the intranet and internet websites. It reports to the Agency's Information Management Committee.

**Tip**

The business owner of your web-based areas can be a group of key stakeholders rather than an individual.

### **5 Implementation schedule**

#### **5.1 March 2003**

At this time, the initial business requirements were evaluated and the selection criteria documentation was written.

#### **5.2 March - June 2003**

The product evaluation and selection process, including the initial short-listing of candidates, took four months to perform. This included further development of the documentation to move from initial criteria-based selection to detailed testing of the individual products. This was not performed by a dedicated team. The infrastructure was planned, acquired and implemented during this period, including provision of staging and production servers to support the environment.

### **5.3 July 2003**

The preferred product was selected in late June 2003 and contract negotiations with Squiz.net began in July. These negotiations included the funded development of a detailed implementation plan tailored to the NOIE environment and its requirements. The implementation plan formed the basis of the detailed project plan and was used to create a fixed-price implementation costing schedule. Included in the plan were detailed requirements that required additional development effort on behalf of the vendor. This development was separately costed, but was specified in the contract as the core project development requirement.

During implementation, additional functionality was identified for addition to the project. Funding and scheduling were adjusted accordingly.

### **5.4 August 2003**

In August, MySource v2.8 was launched to support the Publication Services Directory<sup>12</sup>. This was the first live pilot of the MySource product within AGIMO and it was deemed extremely successful both in terms of technical requirements and in vendor relationship management. The site uses the core MySource 2.8 software as well as the Notitia and Frontitia modules.

At the same time, MySource v2.8 was used to develop a small website for the Indigenous Communities Co-ordination Taskforce (ICCT)<sup>13</sup>. The Taskforce needed a website it could manage simply and effectively from any location and that could easily be relocated as the needs of its sponsoring organisation changed. This website is hosted and supported by AGIMO, but all modifications are carried out by ICCT team members.

The development of this site proved that, with very little effort, an entire web infrastructure could be established and maintained using an 'appliance' approach. The result was the establishment of a solution that was easily transportable and that could be owned and supported by any agency, regardless of physical location.

### **5.5 October 2003**

In October 2003, the Department of the Prime Minister and Cabinet announced a new branding strategy for all Australian Government agencies. NOIE was tasked with creating the online component of that strategy. To create an exemplar website<sup>14</sup> demonstrating all the techniques recommended to the agencies, NOIE used MySource v3.0 (Matrix), which was still in development at the time. MySource v3.0 was selected due to its ability to handle XHTML and CSS2-based content, as well as to automatically aggregate AGLS metadata.

A review of the pilot projects led to MySource v3.0 being selected for future implementations. This was based on the improved content handling and XHTML compliance features found in the newer product, and included a risk analysis process to ensure adequate measures were in place to support a product during its development cycle.

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<sup>12</sup> [www.psd.gov.au](http://www.psd.gov.au).

<sup>13</sup> [www.icc.gov.au](http://www.icc.gov.au).

<sup>14</sup> [www.agimo.gov.au/branding](http://www.agimo.gov.au/branding).

## **5.6 November 2003 - February 2004**

The core component of the project was the migration from the existing site into the CMS. As already mentioned, this involved manually copying (using the 'cut' and 'paste' functionality of Windows applications) from the existing editor (FrontPage) into the web-based editor embedded within the CMS.

For each page that was transferred, the process was repeated. The initial content was copied using the cut and paste technique, then submitted to the CMS. The CMS ran a HTML Tidy script on the submitted content to remove or replace as much non-compliant HTML code as possible. The content was then reviewed to remove all the remaining tags that had not been discovered by the automated process.

To ensure the highest level of compliance, many formatting changes needed to be made to the original content, including removing custom text formatting and replacing it with CSS2 style-based formats. This was performed to ensure that future changes to the design, either based on functional changes to the agency or changes to the compliance requirements, would be reflected in the content.

## **5.7 March 2004**

The new website was scheduled to be launched on the Canberra Day long weekend in March 2004. However, just before the long weekend, the structural changes to NOIE were announced and a decision was made to delay the launch of the website until these changes became active. The new scheduled launch date was 8 April 2004. This also coincided with the migration of the internal NOIE infrastructure from the previous IT service provider to a new service arrangement.

## **5.8 April 2004**

On the 8 April 2004, the National Office for the Information Economy was renamed the Australian Government Information Management Office. At the same time, the NOIE Regulation and Analysis Branch was moved into the Department of Communications, Information Technology and the Arts to become the Office for the Information Economy.

On that date, the new AGIMO website, developed using MySource v3.0 and migrated from the previous NOIE website, was launched. At the same time, the old Regulation and Analysis content from the NOIE website was launched as part of the DCITA website and was branded as DCITA information. Functionally however, both sites resided on the same server, which was hosted by AGIMO.

This server was part of the new infrastructure built in April 2003. Once the new website was deemed operational, the old site was archived to long-term data storage, on DVD and tape, and the equipment was retired from service.

At the same time, migrated versions of the other sites hosted by AGIMO were launched, including the IMSC, FedLink and Gatekeeper websites.

## 6 Key tools, techniques, approaches and technologies

### 6.1 Open-source platform

The new web hosting environment is based around open source products in an effort to ensure compliance with open standards. The operating system selected was Red Hat Enterprise Linux v3.0, an enterprise-grade Linux distribution that includes commercial-level support and product management. Other Linux distributions, including Fedora Core and Debian, are used within the testing and development environments to support non-production servers.

### 6.2 Ubiquitous product set

The products used to support the environment were selected because of their tried-and-trusted status as stable and efficient tools to perform the required functions. The Apache web server software<sup>15</sup> is credited as the most popular web server on the internet<sup>16</sup> and it is regarded as a stable and suitable solution for dynamic web hosting.

The PostgreSQL database server<sup>17</sup> was developed based on research from the University of California Berkeley (UCB) and has been available for 16 years. It is a robust, scalable database architecture that supports the SQL standard database language.

The PHP Hypertext Pre-processor (PHP) language<sup>18</sup> was developed specifically for dynamic web-based solutions. It is supported natively on all versions of Linux, as well as Windows and Mac OS operating systems. PHP is credited as being the most popular Apache module<sup>19</sup> and is developed by the Apache Software Foundation, ensuring close integration with the Apache web server. PHP is also supported on the Microsoft Internet Information Server (IIS) web server product line.

## 7 Challenges and hurdles encountered

### 7.1 Development timeframes

The selection of MySource v3.0 included a detailed risk assessment that paid specific attention to the development status of the product. AGIMO chose the new product and worked closely with its developers to ensure close compliance with the functional requirements identified at the beginning of the project. This ensured that the final product delivered to AGIMO would be functionally complete, but it introduced a level of complexity to the migration effort.

**Reminder**

Risk management is a crucial component of any project and the risks should be regularly monitored and updated throughout the process.

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<sup>15</sup> [www.apache.org](http://www.apache.org).

<sup>16</sup> Netcraft: 'May 2004 Web Server Survey finds 50 Million Sites', [news.netcraft.com/archives/web\\_server\\_survey.html](http://news.netcraft.com/archives/web_server_survey.html).

<sup>17</sup> [www.postgresql.com](http://www.postgresql.com).

<sup>18</sup> [www.php.net](http://www.php.net).

<sup>19</sup> Security Space: 'Apache Module Report', May 2004, [www.securityspace.com/s\\_survey/data/man.200404/apachemods.html](http://www.securityspace.com/s_survey/data/man.200404/apachemods.html).

## 7.2 *Extending functionality*

New functionality was being added to the underlying product during the site migration process, including changes to the interface and editing components. This meant introducing a regular cycle of training from the development team to the AGIMO migration team to ensure they were always up-to-date with the new features. While this did introduce some unforeseen delays into the project, it also provided the migration team with the ability to offer input into ongoing product development. It was this process that allowed for the creation of several tools specifically designed to ease the migration effort, including the mass page creation and mass file upload scripts. These scripts are now part of the core MySource v3.0 offering.

## 7.3 *Additional requirements*

The largest single threat to the successful implementation of the project was the introduction of new functional requirements during the migration process (scope creep). As the migration effort progressed, it became obvious that additional development would be required to support new requirements. Initially, this scope change was not well managed either by the agency or the vendor teams. New requirements were not formally identified as outside the scope of the original project and their impact on costs and schedules were not considered.

Once scope creep was acknowledged, the agency and the vendor re-evaluated the functional requirements and redefined the core and additional development effort. All functions defined as outside the scope of the original project became separate development tasks and were scheduled and funded appropriately. This included the development of the

Lightweight Directory Access Protocol (LDAP) integration with the agency's new IT infrastructure. This development was also the first shared development project, in that AGIMO and other clients of the vendor all contributed to the total development cost.

**Tip**

Scope creep is the biggest threat in any project requiring custom development. Be sure to identify all new developments and whether they are in or out-of-scope. This will help to ensure a smoothly scheduled and adequately funded project.

**Tip**

By remaining aware of other MySource developments in other organisations, it was possible to define common functionality and to pool resources to ensure that development of required functionality became a Squiz.net priority and that the cost of development was shared.

## 7.4 *Underestimating migration effort*

There were several problems with the existing website content, including a badly designed structure and a lack of clear ownership. This introduced several impediments to a smooth migration process. While the content itself was restricted to a small number of page types, the location

**Tip**

Audit and review your source content before migration. Anything you can eliminate at the source will reduce your migration effort.

within the source website of pages was unstructured and haphazard; this caused pages to be misplaced or misclassified during migration. As a result, a review of the migrated content was required on several occasions during the process, which caused delays.

**Tip**

Own your content! Be sure you know who is responsible for what content before you begin, so that you can include the appropriate stakeholders in the migration effort.

Ownership and responsibility of the content sometimes proved difficult to determine. NOIE's history included several mergers with sections from other agencies and involved some changes to function and form.

**Tip**

If an information owner cannot be identified, either allocate ownership (your governance committee can assist with this) or do not migrate the information.

This meant that a lot of legacy content was left without current ownership by anyone in the agency. This content had to be reviewed and ownership reassigned by the Web Content Ownership Committee before final sign-off for the content could be achieved.

**Tip**

Develop your workflow approval process in advance, but you may wish to implement it in its simplest form and extend it as you and your user community become more familiar with the system.

## 8 Evaluation and lessons learnt

### 8.1 *Intellectual property issues*

AGIMO was confronted with a number of IP issues, some of which are still being finalised. Broadly, they centred on making the Australian Government's intellectual property available:

- to the open source community in current and future open source versions of the MySource product; and
- in Squiz.net's proprietary modules of the MySource product, in return for ongoing free use by the Commonwealth.

These requirements needed to be delivered in a manner that does not disadvantage the Australian Government and which protects the Commonwealth's interests.

Documentation regarding this area will be made available separately.

### 8.2 *Training/support issues*

The decision to use a product that was still in development introduced several training issues. The most obvious difficulty was the fact that very little documentation had been created when the project was started. As the project progressed, the functionality of the product was shaped and modified, which required retraining. The biggest single retraining effort was required when the previously Flash-based Asset Map was replaced with a Java version.

AGIMO ran several basic training sessions for identified content authors before going live with the new product. However, it became obvious that deferring the scheduled launch date (March 2004) to the revised launch date (April 2004) meant that a lot of knowledge was lost because users were unable to practise their skills. Also, because the IT infrastructure as a whole was being refreshed, more emphasis was placed on training for the new desktop and server environment.

**Tip**

Identify the various styles of users in your organisation before planning your training. For example, system administrators require training in both how to use the product *and* how to manage it on a daily basis. Authors and editors require training customised for their daily tasks and some authors need more detailed training to perform more complex tasks.

**Tip**

Identify users who require training early and provide them the opportunity to use their new skills as much as possible to reinforce knowledge.

The lack of product documentation resulted in a higher training and support load than expected. In retrospect, even the availability of core documentation would have made training and support less resource-intensive.

**Tip**

Pay attention to the importance of documentation in your risk assessment and if necessary, negotiate for access to any available or required documentation.

### **8.3 Ongoing support**

The contract with Squiz.net provides an ongoing warranty on the core components of the MySource product suite. In addition, AGIMO purchased a 'Platinum Support Pack', which is a prepaid allocation of time that can be used for any type of service or support; for example, custom development or specialised training.

It may seem more convenient to use prepaid services and support rather than formally identifying and funding additional requirements. However, it is very easy to use up time quickly. In addition, if not managed carefully, it can contribute to scope creep.

**Tip**

Acknowledge that your in-house skill base needs time to develop. You may be able to handle the routine work fairly quickly, but make allowance for ongoing specialist support.

**Tip**

Establish formal processes and approval mechanisms regarding the use of prepaid support. Your vendor should assist with implementing complementary processes.

## **8.4 Vendor relationship**

Early in the migration, the project team established open and clear communications with Squiz.net staff and endeavoured to leverage off their skills. For example, AGIMO staff visited Squiz.net's offices to put names to faces. The project team also arranged to work onsite with them for a short period of time. This allowed us to better understand how they operated and to experience first hand the tricks and techniques involved in working with MySource.

## **9 Future plans**

Work associated with the development of the ICCT site demonstrated that it was feasible to package a solution that was readily deployable in a small to medium-sized organisation. It is envisaged that future work will be undertaken to define, and make available from Squiz.net, a readily deployable package.

AGIMO will also be keen to work with Squiz.net on the establishment of a local user group within the Australian Government to facilitate the sharing of experiences and expertise and to establish a mechanism to provide leverage in the implementation of common requirements.

An internal marketing issue that does need to be addressed is that the CMS provides a flexible framework for web development and the effective management of web-based information, rather than a ready-made set of application components that can be deployed. This is important in order for the necessary expenditure and scheduling to implement a new process or service, to be planned for business areas. Also, once new functionality has been added to the CMS, business area staff need to be made aware of it, so they can utilise it for their own purposes.

Internally, it is envisaged that the CMS functionality will be used to expand the number and nature of web-based applications to support agency business requirements.

The search functionality on the AGIMO website will be reviewed to ensure that site users receive appropriate functionality. A review of the content of the site is under way to ensure relevance and accessibility.

## **10 Conclusion**

The implementation of the MySource matrix content management system was a success within AGIMO.

A review of the implementation showed that it met each of the business objectives specified for the project. Additional functionality was subsequently incorporated into the product by AGIMO, Squiz.net and other Matrix users. This has increased the capabilities of the product and is expected to lead to reduced cost and development times for future functionality, as more and more code is available for re-use.

## **11 Appendix A – Costing**

Costs for this project were divided into two components: vendor costs and resourcing. The total cost of the project was approximately \$150,000, with about \$50,000 spent on internal resources (such as the content migration effort).

### **11.1 Vendor costs**

The initial fixed-price project from the vendor included costing for the functional requirements developed during the project planning stage. The cost was further broken down into individual elements.

### **11.2 Resourcing**

Three resources were used internally for this project.

The project was managed by the Web Infrastructure Manager. This resource was used for 25 per cent of his time during the first six months of the project and utilisation increased to around 75 per cent in the final six months.

The Web Manager provided support and assistance throughout the project, but was not a utilised resource during migration. The Web Manager is now project managing the refresh of the intranet site.

The bulk of the migration effort was performed by the Web Migration Officer. This resource was used at 100 per cent utilisation for seven months (October 2003 - April 2004).

## **12 Appendix B – Start-up package**

In order to ensure maximum re-use of the project deliverables and assist other agencies to leverage off the significant work undertaken by AGIMO and Squiz.net, a 'white-branded' CMS package was developed for easy implementation within other government agencies.

The 'white-branded' package that will be available through Squiz.net will include:

- An up-to-date version of the MySource Matrix software as implemented within AGIMO;
- Software infrastructure required to support the MySource Matrix software;
- An approved contract template for use between Squiz.net and the implementing agency;
- A package of Squiz.net resources required to customise and implement the basic CMS and infrastructure;
- A copy of AGIMO's implementation project plan;
- A copy of this case study; and
- A package of three documents by an independent assessor on the CMS solution including a project plan review.