



CENSUS AND REPORTING

→ CATHOLIC EDUCATION
OFFICE (MELBOURNE)

SOLVING REAL WORLD PROBLEMS THROUGH INTEROPERABILITY, THIS CASE STUDY 6 OF 7 IN THE SIF AU PILOT PROGRAM, FUNDED BY THE FEDERAL GOVERNMENT AND SUPPORTED BY THE CATHOLIC EDUCATION OFFICE ARCHDIOCESE OF MELBOURNE.

→ INTRODUCTION AND BACKGROUND

The Digital Education Revolution envisages “technology enriched learning environments” for all young Australians. Key to its success is the capacity to put the right information at the right time into the hands of learners, teachers, parents and policy makers.

Since 2007 Chief Information Officers from Australia’s state and territory education systems, together with colleagues from the Catholic and Independent school sectors and with support from the Commonwealth Department of Education, Employment and Workplace Relations, have been working towards the establishment of an open standard for systems interoperability for Australian schools to enable information to be used when and where it is needed.

This joint initiative, known as “Towards SIF AU”, has enabled the development of

a draft SIF Implementation Specification for schools in Australia (further referred to as the SIF AU Spec.) and a business case identifying the costs and benefits of adopting SIF across the Australian Schools Sector. The business case assessed evidence gathered from interviews and surveys with key stakeholders, and through a program of pilot projects aimed at solving practical interoperability challenges making use of SIF. The pilot program was conducted in such a way as maximise the sharing of knowledge and solutions across projects and produce a knowledge base of enduring value to the schools sector.

This is a summary case study of one of these pilots.

→ OVERVIEW: CENSUS RE- PORTING FOR THE CATH- OLIC EDUCATION OFFICE

The Catholic Education Office Melbourne (CEOM) Victoria annually provides the

State and Federal Government with census information concerning 180,000 students within its jurisdiction. To improve census reporting and compliance with governance requirements, the CEOM needed to synchronise student details data between multiple distributed student information databases and a central data repository. Currently this process is undertaken manually and infrequently. The task of this pilot was to demonstrate a system that could reduce the errors and effort involved in census-taking, and increase the frequency of the census for reporting purposes.

CEOM used systems (with anonymous data) based on the production systems in use. CEOM nominated two vendors to develop the school agent and the central agent respectively. The NSIS pilot Zone Integration Server (ZIS) was used for testing, and the SIF AU team’s collaborative website was used to support project participants.

→ PARTICIPANTS

The project was sponsored by Jeff Gunn, Manager of Business Systems at CEOM. Funding was provided by the Federal Government's Digital Education Revolution Fund (DER) through the SIF AU Pilot Program operating through the Department of Education and Early Childhood Development (DEECD) in Victoria. All participants contributed in kind through staff time and expertise. The SIF AU team acknowledges each of these participants' contributions.

Human Edge developed a SIF 'School' Agent for their SAS2000 Student Information System, and provided important learnings on the mapping of student information from that system into the SIF AU spec. RM-Asia Pacific worked closely with both CEOM and Human Edge to develop a 'central server' agent, and also provided support for other Phase One pilots, thus clearly demonstrating the benefits of collaborating on an open standard.

→ PARTICIPANT EXPERIENCE

A common theme across the pilots was the value of having access to the more experienced SIF developers, no matter which pilot they were working on. One developer said:

"[a developer from another pilot] was able to provide assistance with an issue I was having connecting to the ZIS servers." [SC 19/8/09]

Availability of Agent Software Development Kits (ASDKs) that had been updated with the SIF AU spec was something of a roadblock and highlighted the need for faster integration of the specification:

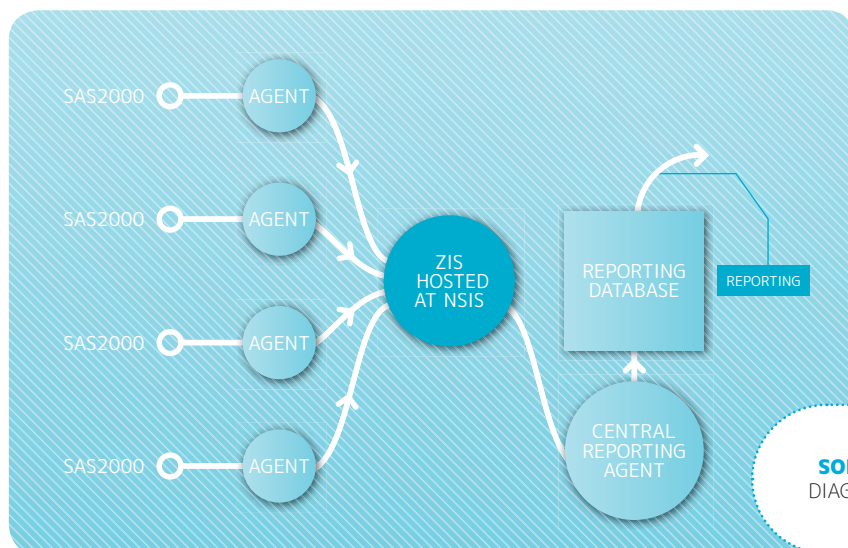
"Development without the AU ASDK becomes slow...I had to wait for the (vendor's) .NET ASDK which slowed development. Has now been received but may have to learn the changes that have been made along with possible alpha bugs that exist." [SC 5/8/09]

Once an issue was communicated, however, vendors were extremely responsive to the needs of developers. One developer wrote:

"CPSI ADF 2.1.3.5 was not working in push mode. Communicated to CPSI and version 2.1.3.6 has been released." [CS 12/8/09].

This vendor update occurred within a week of the request.

Although none of the developers and vendors were co-located in the same office, they communicated very



SOLUTION
DIAGRAM 1.1

successfully on complex issues. Weekly team meetings held by webinar and teleconference often included valuable technical discussions between the key developers and the vendor.

Some developers had difficulty dealing with the idiosyncrasies of proprietary systems in a "silo" environment - a common issue which, although mitigated once SIF is in place, presents initial challenges to SIF developers. One developer reported:

"The database triggers were causing problems that made testing very hard. Also had to find a way to get past internal proxy..." [SC 19/8/09]

Although this pilot had quite complex data needs and some difficulties with legacy systems, developers found that the SIF Implementation Specification had the flexibility to accommodate them. This process was continually assisted by the SIF AU team data expert.

→ SOLUTION

Two agents were created for this pilot: one for the distributed schools and another for the central reporting system.

The solution required an agent (SIF application) to publish required student information from the SAS2000 database through the NSIS. The anonymous data of two schools was used to test the

agents. When any of 27 different changes occurs in the schools database, a message is automatically sent, a second agent communicates it to a Central Reporting Application.

CEOM-specific information (such as schools and other local code sets) additional to that in SIF AU spec RC1 also had to be registered. The pilot used SIF Extended Elements to deal with such data. CEOM hosted the databases but used the Zone Integration Server provided by the NSIS pilot.

Both agents will be reused in future production. The central agent will be contributed as open source to the NSIS.

→ KEY FINDINGS

As the pilot progressed, a number of key findings emerged:

- **Development time and cost was reduced** due to co-learning, collaboration and working to a common data specification. Using the groupsite as a medium, people worked together with increasing enthusiasm and confidence, updating each others documents, helping each other across jurisdictions, and sharing access to experts.
- **The SIF AU spec supported the interoperability needs of the Phase One pilot program.** However,

THIS IS A STARTING POINT FOR A KNOWLEDGE AND CODE BASE THAT CAN BE REUSED ACROSS AUSTRALIA

to continue to serve the needs of the Australian education sector, the SIF AU spec will require ongoing development. This will include continual engagement with local industry and SIF vendors.

- **Learning SIF did not create significant roadblocks for developers.** Once SIF was understood, the initial design of the agent refined, and the required business logic clarified, development proceeded very quickly. Experience gained from other pilots indicates that acquired SIF knowledge is completely transferable to other problems and jurisdictions. An experienced team can save up to 87% development time compared with an inexperienced team.
- **Development time increases with data complexity, not number of**

agents required. Although CEOM need only to create two agents, developers found most of their time was spent solving data issues in three areas:

- getting data from proprietary systems to SIF;
- resolving the detail work of complex and extensive data mappings;
- dealing with proprietary heritage code sets.

→ BENEFITS

JURISDICTION BENEFITS

It has proved useful to have a SIF solution tested in the context of jurisdictional infrastructure. Staff capability in interoperability has been developed. Methods, examples and an emerging culture of sharing of information about

interoperability with other jurisdictions has been established. Additionally, the pilots project provided a model for replacing existing bespoke interoperability mechanisms with a method based on open standards, and explored some of the real-world issues associated with that process.

This jurisdiction has gained considerable benefit from helping create a piece of national infrastructure. The open-source agents and frameworks created can be reused collaboratively, with the complementary advantages that maintenance is shared (reducing costs), expertise is preserved and a larger pool of users is available to share problem solving. This is a starting point for a knowledge- and code-base that can be reused across Australia, distributing capability that can ultimately enable jurisdictions to solve the increasing complex problems that the Digital Education Revolution will present.

WIDER BENEFITS

This pilot has assisted in the testing and implementation of the newly-developed Australian SIF standard. In addition, the SIF skills developed in staff are highly transferable to other jurisdictions or vendors working with SIF.

BUSINESS BENEFITS

The SIF Agent developed by RM will be used in the production version of the CEOM Census Reporting system. The CEOM is thus using the successful outcomes of this pilot to improve census reporting on an ongoing basis.

→ NEXT STEPS

On the successful conclusion of the pilot program the following steps were suggested:

- Learnings from this pilot should be communicated throughout the jurisdiction.
- Data mappings which required extension of existing SIF Objects, or the creation of new ones, should be communicated back to the SIF AU Data Standards Working Group (DSWG) to improve the evolving SIF AU spec.
- A move to production should be planned for the Census and Reporting agents developed in this pilot, including investigation of ZIS deployment options.
- The publishing agent created in this pilot should be reused to populate the me.edu database in the SIF AU Phase Two CEOM pilot "Reuse of national infrastructure".



→ ABOUT THE SYSTEMS INTEROPERABILITY FRAMEWORK

The Systems Interoperability Framework (SIF) is a simple but powerful tool for effectively integrating information from diverse computer systems. SIF manages both the “what” and the “how” of information sharing. Its core components are: a specification of what is to be transferred (the SIF Implementation Specification Australia); a software agent that maps the information in a computer system to that Specification; and a traffic cop directing the flow of information between systems called the Zone Intergration Server (ZIS).

The SIF Implementation Specification (Australia) is administered in Australian jurisdictions by the interim SIF AU Board, and internationally certified by the SIF Association.

→ ACKNOWLEDGEMENTS

The Towards SIF AU Program acknowledges support provided by the participating education authorities and by the Online Curriculum Resources and Digital Architecture initiative, one of a suite of initiatives under the Australian Government’s Digital Education Revolution (DER) provided by the Department of Education, Employment and Workplace Relations. The program was managed by a team based at the Victorian Department of Education and Early Childhood Development.

→ MORE INFORMATION

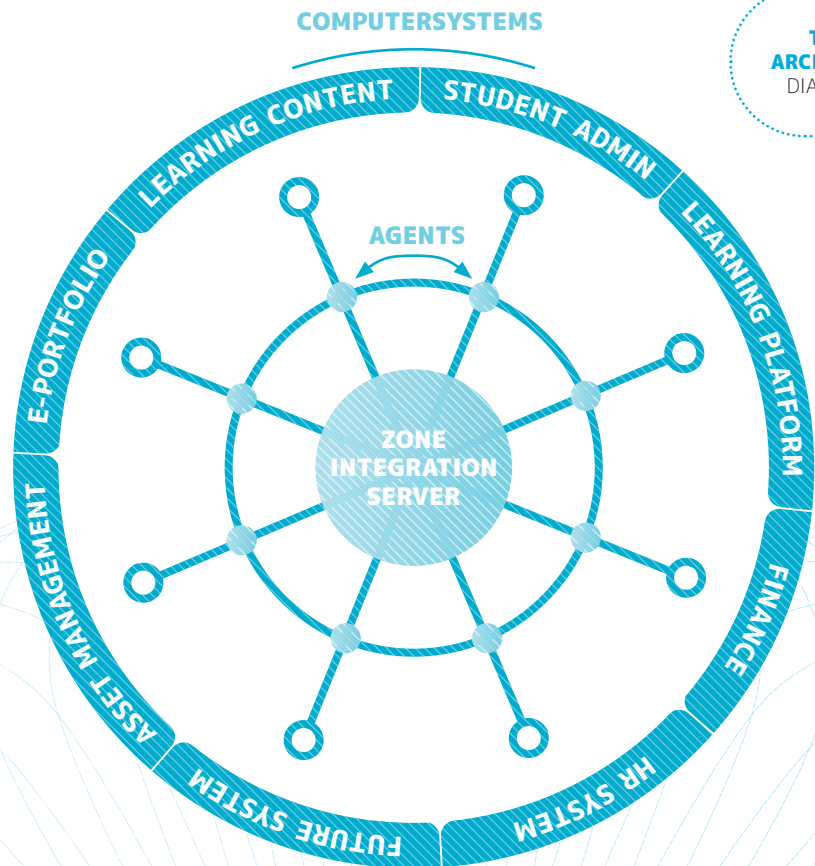
For more detailed information, see the SIF AU Phase One Pilot Program Case Study. This study also forms one of seven summary case studies on pilots from Tasmania, Western Australia, South Australia, Catholic Education Office Melbourne, Enterprise Scale SIF, National Systems Interoperability Service and the SIF AU Specification.

You can find case studies and other useful information on the SIF AU website:

<http://au.sifassociation.org/>

You can contact SIF AU by email:

info-au@sifassociation.org



THE SIF ARCHITECTURE
DIAGRAM 1.1



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