



ADMINISTRATION DATA EXCHANGE

→ SOUTH AUSTRALIA

SOLVING REAL WORLD PROBLEMS THROUGH INTEROPERABILITY, THIS CASE STUDY 5 OF 7 IN THE SIF AU PILOT PROGRAM, FUNDED BY THE FEDERAL GOVERNMENT AND SUPPORTED BY THE GOVERNMENT OF SOUTH AUSTRALIA DEPARTMENT OF EDUCATION AND CHILDREN SERVICES.

→ 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: ADMINISTRATION DATA EXCHANGE IN SOUTH AUSTRALIA

Reliable student enrollment and attendance is central to the Department’s ability to provide accurate reporting and to create online services for the school and parents. Student attendance information helps track students and provide timely feedback if there are problems. It is crucial that information is accurate, secure and

delivered in a timely manner.

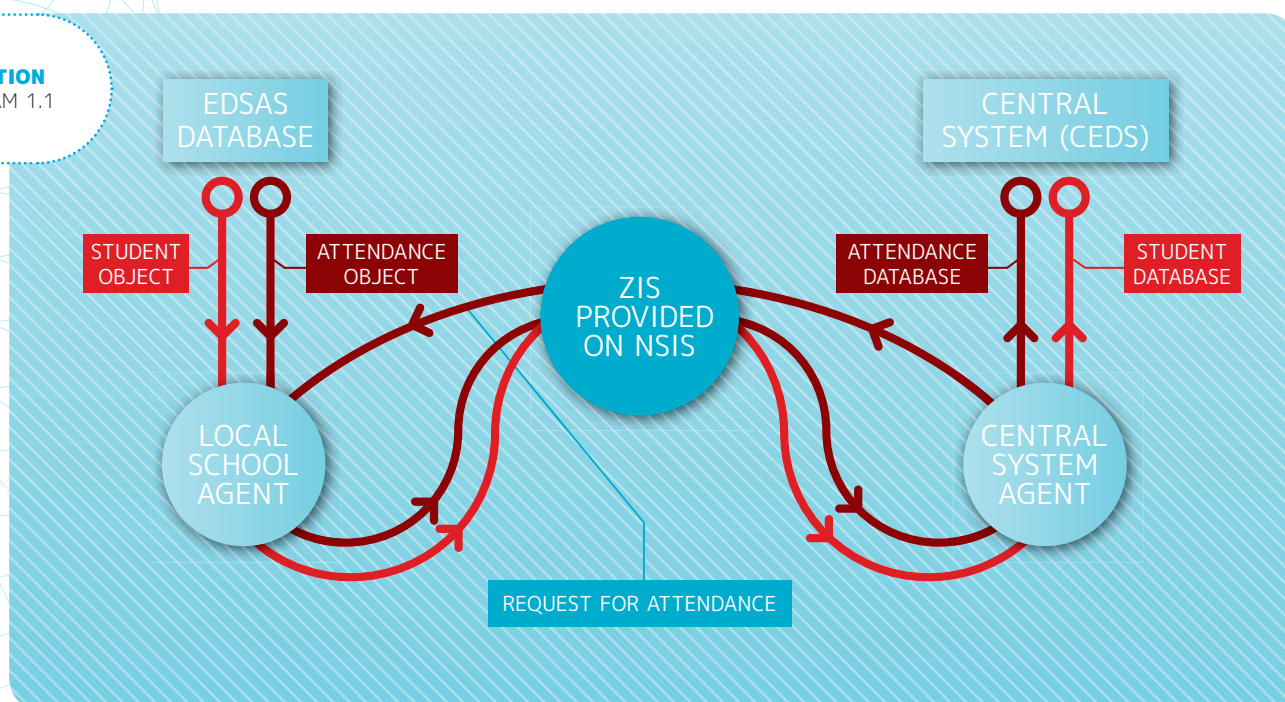
EDSAS, the School Administration and Financial Management System, is used by over 600 schools in South Australia and requires a server at each school site. The SA DECS has a need to reliably synchronise data from these 600 sites with its Central Database (CEDS).

This Administration Data Exchange (SA) pilot ultimately demonstrated that SIF could successfully synchronise the student administration databases with a data central repository. When specific student details were updated in EDSAS, these records were immediately propagated to CEDS. The pilot project also demonstrated that SIF could be used to make ad hoc requests to EDSAS from the central database. Demonstration systems, data and agents based on existing production systems were used in this pilot.

→ PARTICIPANTS

The SA pilot was sponsored by Kay Nolte, the CIO of SA DECS, and managed by Darrin Wallace for SA DECS. Funding was

SOLUTION
DIAGRAM 1.1



provided by the Federal Government’s Digital Education Revolution Fund (DER) through the SIF AU program. All participants contributed in kind to solving real-world problems with a new collaborative approach.

Importantly two external organisations also took part in the project and made significant contributions. VIP Tone, the EDSAS vendor, developed an agent to interact with the existing EDSAS school administration system. Education.au, a not-for-profit agency providing Internet-based services for education, developed an agent to interact with the central database (CEDS). Infrastructure from the Pilot National Systems Interoperability Service (NSIS) was used, in the form of a Zone Integration Server (ZIS). RM-Asia Pacific and Edustructures provided agents software development kits (ASDKs) and support for the pilots.

→ **PARTICIPANT EXPERIENCE**

Of all the pilots being conducted through the SIF AU Program Office, the SA Pilot project had the most challenging set of initial conditions:

- multiple vendors with no “in-house” jurisdiction developers;
- developers inexperienced in SIF;
- complex data sets to manage.

Despite these challenges, during the pilot developers moved from being inexperienced with SIF to being capable of applying the framework to solve new problems.

Developers found that the ASDK they were using provided insufficient code-based example material to help in getting started. At the outset of development, one participant commented:

“No source code! Source code would have helped so much. It’s like re-inventing the wheel...this means I am going to make mistakes while learning.” [SH 16/6/09]

Interestingly, within a few weeks the same developer had benefited greatly from the experience and code frameworks of developers from other jurisdictions:

“The frameworks have dropped my development time. They are a huge benefit and asset to me, without them I would be struggling.” [SH 9/8/09]

Developers inexperienced with SIF also underwent the most rapid acceleration of development speed, once SIF concepts and practices were learnt:

“The development is speeding up as I have an understanding of the frameworks and SIF. Tasks that were taking a day I can now get done in half that time.” [SH 16/8/09]

In the following week, the same developer observed that development time was cut even further by use of frameworks.

Developers in this project also benefited from the input of the SIF AU team:

“[the SIF AU data expert] really helped me a lot.” [OG 26/8/09]

→ **SOLUTION**

The SA pilot project commenced with a kick-off presentation on the 2nd of June 2009. Darrin Wallace of SA DECS had defined and documented the scope of the data exchange required between the school and central systems. These guiding documents were uploaded to the collaborative groupsite (a shared workspace used by all participants from the seven SIF AU Phase One pilots). Participants used modern real-time tools to interact online, and attended webinars and online meetings to create a collaborative solution.

At each school site, the EDSAS school administration system maintains data locally that is updated throughout the day. Any change made to student data triggered a SIF Agent to publish the data to a central repository containing information from all schools. This agent was developed using the Edustructures Agent Development Kit and the open source framework developed by Western Australia during the first part of the project. This framework speeded up development, and was made available for other jurisdictions to reuse in their own pilots.

THE OPEN SOURCE FRAMEWORK... SPEEDED UP DEVELOPMENT

DISTRIBUTING CAPABILITY CAN ULTIMATLY ENABLE JURISDICTIONS TO SOLVE INCREASING COMPLEX PROBLEMS

Education.au started the project without SIF experience but used the groupsite and example software from other jurisdictions to learn SIF. Using the RM/CPSI Software Agent Development Kit, and reusing the open source framework created by the Tasmanian pilot, they built an agent that deposited school information into a central database (CEDS). In the second stage of the pilot, developers built a facility whereby information on student attendance from the school's administration system could be directly accessed to populate a parent portal that could display a student's attendance record to their parents. After testing this functionality, the agent was further configured to allow ad hoc requests of student data as needed. Thus the same infrastructure was used to deliver multiple solutions, demonstrating the flexibility of SIF.

→ KEY FINDINGS

As the SA Pilot project 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, 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.
- **Development time decreases rapidly with SIF learning and experience.** As the relatively inexperienced developers in this pilot learned SIF in greater detail, development accelerated markedly.
- **Scalability must be tested before production use.** As the EDSAS database could not capture changes

at a field level, the entire contents of the tables had to be updated by fully populating the required objects. To ensure scalability, significant load testing should be undertaken before using such an agent in production. This issue is independent of SIF as a technology and would be encountered with any interoperability system.

→ 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 pilot 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.

→ 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.
- The experience gained with this pilot should be used to contribute to the upcoming SIF AU Phase Two Tri-borders pilot (involving the jurisdictions of WA, SA and NT).
- Options to use the open source EDSAS School agent in production should be examined. However, because of limitations in EDSAS, load testing must be first performed to ensure scalability.



→ 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.

→ 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.

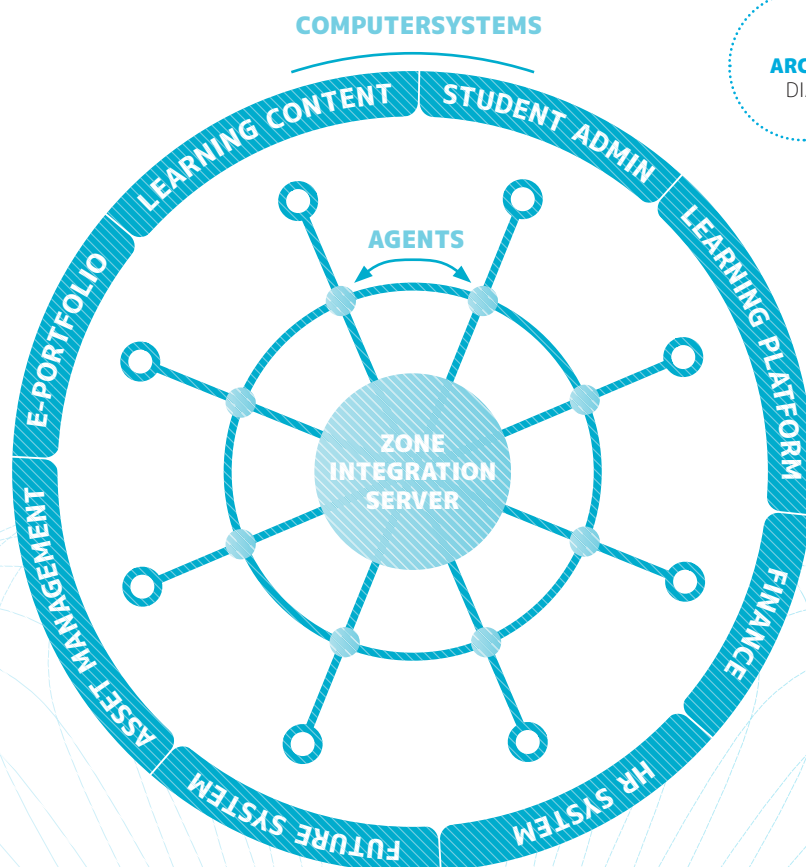
You can find case studies and other useful information on the SIF AU website:

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

You can contact SIF AU by email: **info-au@sifassociation.org**

→ 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.



THE SIF ARCHITECTURE
DIAGRAM 1.1



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