The Learning Services Architecture

NSIP 2016
the deep problem is education itself
systems
embed commands
education is a process of becoming
the 5 Vs

- **Volume**
  - The sheer amount of data

- **Variety**
  - Different data for different purposes

- **Velocity**
  - The speed at which new data is produced & consumed

- **Viability**
  - Which data will tell us what we need to achieve improvement

- **Value**
  - How to get actionable results from that data
why is this such a hard problem to solve in education?
because
information needs context
to have value

and if educators are doing their job well
the context will keep changing

...even for the ‘easy’ stuff...
The diagram outlines a systemic overview of educational processes and data management.

**External Services**
- User identity for access (student id, personal id)
- Identity managed by service (e.g., Google Apps)
- Identity for return-path data

**Authority**
- Reporting data (attendance etc.)
- Changes of establishment data
- Capturing assessment data

**Student**
- Change of name
- Change of family structure
- Change of address

**School**
- Change teaching group
- Change teacher
- Change year level
- Change primary/secondary

**System**
- Change sector
- Change state

**Yearly Cycle**
- Enroll
- Participate
- Assess
- Report
- Transition...

The process is described as happening throughout any given year and is wrapped within a cyclic process.
how many enterprise systems have to deal with this complexity of context-switching?

If there’s to be a solution FOR education
It needs to be a solution FROM education
it’s not (only) about the technology

Get VALUE from data - our biggest challenge

Get actionable information in the hands of practitioners - the only way to make a difference in student outcomes

...but to achieve this, there must be an enabling foundation...

- that’s what the LSA is -
the challenge
what everybody needs

• data Mobility
• data Consistency
• data Aggregation
• data Privacy
• data Control
**COMMON DRIVERS**

**SCHOOL**
- Learner focus
- Duty of care
- Choice / innovation
- Community
- Student mobility
- Efficiency
- Risk management
- Procurement
- Analytics
- Evidence
- Consistency
- Policy

**SYSTEM**

**NATIONAL**

**SUPPORTING LEARNERS, ADVANCING EDUCATION**

**NATIONAL AGREEMENTS**
- Educational priorities
- Decision Making
- Data Sharing
- Online assessment
- Interoperability
- Technical Standards
- Identity Management
- Shared API's

**SHARED ASSETS**
- National Data Model (SIF AU)
- Open source software stack
- Integration testing service
- Privacy Framework
- Data dictionary
- Identity Management Framework
- Data exchange use cases

**ALIGNED INFRASTRUCTURE**
- School Administration
- Learning platforms
- National online services
- Australia Schools List
- Commercial Services

**SCALABLE IMPLEMENTATION**
- HUB
- BROKER
- ADAPTOR
we all love
high-level diagrams in
muted colours...

...but can you show us any
actual, you know, stuff
just before we get to that
a note on how NSIP works

• we work with all jurisdictions and sectors, and the Australian Government
• we work with the market of software suppliers
• we promote, maintain and steward the technical standards for education
• We provide tools to *everyone* to solve systemic problems
Standards based data exchange

Data Standards Manual

SIF Baseline Profile SBP

Enrolment
Attendance
TimeTable
Gradebook

NAPLAN Registration Results

National Use Cases

data hubs
school sis systems
want systems to interoperate?
need data mobility?
want access to those hubs?

• we provide the testing service
• we provide the developer frameworks
• we provide the training

• use cases available for:
  • Enrolment, Attendance, Gradebook, Finance, NAPLAN, Timetable
• what’s coming:
  • Assessment, ATO SBR, Wellbeing
<table>
<thead>
<tr>
<th>Collection</th>
<th>SIF</th>
<th>UC</th>
<th>Impl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSSCF</td>
<td>StudentPersonal</td>
<td>Enrolment</td>
<td>ACT, NSW, TAS</td>
</tr>
<tr>
<td>IS Finance</td>
<td>Journal</td>
<td>Finance</td>
<td>ACT, NSW, VIC</td>
</tr>
<tr>
<td>Attendance</td>
<td>TimeFraction</td>
<td>Attendance</td>
<td>All</td>
</tr>
</tbody>
</table>

Streamlined
Automated
Consistent
National Reporting
when integration alone isn’t enough

• We need a coherent view of all the data about a learner
• We need duty of care support
• We need to make this data actionable

• For this we have NIAS
  • NSIP Integration As A Service
NAPLAN pre-validation
a small but important example

NAPLAN Online

naplan results

integration node (set intersection)

school sis

sif

Jurisdiction Data Hub
ESA Data Hub
NIAS Adaptor

results structured as the school wants them
we provide the tools

• for aggregating student data from a variety of sources
• to provide lightweight analytics
• to enforce privacy policies
• to validate and QA data against agreed standards
• to streamline national reporting
we also create the agreements

- NIMF – National Identity Management Framework
- Education Privacy Framework
- ODDESSA – Online Data Dictionary for Education in Australia
- Data Hubs, Brokers and Adapters in every state and sector
- SIFAAMBM and the DSWG - our market engagement
the benefits

• For Schools:
  • enable a unified view of information about a learner
  • reduce administrative burden for teachers
  • promote procurement flexibility and choice

• For School System Authorities:
  • ensure consistent, well-managed school data
  • enable rich decision-support and analytics
  • allow school systems to manage privacy and duty-of-care risks around student and school information

• Solution Providers:
  • create a national, consistent integration interface
  • promote market choice by schools
  • embed nationally agreed business use cases
an architecture of agreement
Stand 48

http://www.nsip.edu.au

thanks for listening
any questions?