INTEROPERABILITY SCENARIOS

To understand common interoperability hurdles and successes, the National Archives of Australia consulted with Government agencies on their experiences. From this consultation we chose four interoperability scenario hurdles that are designed to be used with the interoperability development phases resource.

Use the scenarios as a guide to plan your own workflows with the skills and resources you have available. You can rearrange the order of the scenario steps; replace them with other actions; omit them or operate them in parallel.

Scenario 1 - Improve data integration to streamline business processes
Access your data more quickly using tools and technologies to streamline data access methods via data integration and handling.

Scenario 2 - Perform a data migration of legacy data to standardise compatible form
Migrate your old data located in legacy systems that hampers fast and efficient data analysis. Overcome this hurdle with an initial data assessment, followed by data migration.

Scenario 3 - Use standardised data exchange methods for both internal and external stakeholders
Meet your users' needs by improving data exchange for your external clients with standardised exchange methods. User research will clarify their needs and help identify the tools and technologies that enable secure, standardised 'self-serve' data exchange.

Scenario 4 - Use consistent metadata to support publication and exchange of data
Find data quickly by using metadata standards to make information about data (its metadata) easier to find. This process includes metadata architecture, and uses tools and technologies to support good metadata management.

Related links

- Interoperability development phases
- interoperability development phases resource.pdf
- Interoperability scenarios
Hi, my name is Bill. I am a manager in a government agency and it takes longer than it should to have access to high quality data to inform decision making.

I have spoken to the leadership & information management team and we all recognise there is a need for more streamlined data integration and data handling.

Some people involved in this process may include:
- Project Sponsor
- Business & Data Analyst
- Data Custodian
- IT Developer
- Data Consumer
- Security Specialist
- Design
- Information / Data Architect
- Subject Matter Expert
- Information Governance Manager

... Bill starts by understanding the people that should be involved in the improvement.

... Bill works with the team to design a plan & identify skills.

... potential solutions could include:
- Data Profiling
- Current Data Lineage
- Collection
- Define Business Rules
- Data Discovery
- ETL for data flows
- Open Web Services for data publication
- Consumers can self-serve data
- Centralised Metadata Repository or harvesting tools to be able to find data more easily

... data indexing & discovery.

... data integration technologies & tools.

... the team kicks off a current state assessment.

... future vision for an improved state is created.

... a gap analysis is undertaken to understand what work is required.

... setting out requirements for improvements.

Understanding practical next steps.

Understanding priorities and business values.

... understanding what an improved state looks like.

ETL for data flows.

Improving data handling processes so data is of higher quality.

Open Web Services for data publication.

... data flows & data services.

... metadata repository.

... digital data collection & validation mechanisms.

... data & information governance standards are understood.

Making the best use of existing data.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.

Overall reducing manual requests & effort.

We now have streamlined business processes which enable availability of high quality data for sharing and decision making.

Bill ensures monitoring is in place to drive continuous improvement.

Bill ensures new process and applications are embedded in BAU.

Automated monitoring of notifications.

Real-time Analytics across enterprise.

Reducing time taken to find data.

More efficient data consumption.

API's increasing efficiency of data sharing.
Perform a data migration of legacy data to standardised compatible form

Hi, my name is Sue. I am a manager in a government agency and we have a number of high value datasets that are located in legacy systems that are hampering ready and responsive data analysis.

I have spoken to the leadership & information management team and we all recognise there is a need to perform a data migration to an open format and make the data future proof.

Some people involved in this process may include:

- Project Sponsor
- Business & Data Analyst
- Data Custodian
- IT Developer
- Data Consumer

...Sue starts by understanding the people that should be involved in the improvement

...data & information governance standards are understood

...the team kicks-off a current state assessment

...this also includes conducting a data holdings audit

...and completing a data quality assessment

...future vision for an improved state is created

...a gap analysis is undertaken to understand what work is required

...Sue works with the team to design a plan & identify skills

...things to consider during a data migration include:

- Setting out requirements for improvements
- Understanding what an improved state looks like
- Identifying practical next steps
- Understanding priorities and business values
- Quality of the data is determined
- All data have a data quality rule applied to it
- Moving data from legacy stores
- Data Aggregation may be required
- Improve data either pre, during or post data migration
- Data migration as an opportunity to improve data quality & standardise data formats
- Use data migration to help with data quality rules
- Quality check points, auditing should be occurring throughout data migration
- Document processes & data improvements
- Consider running legacy systems in parallel until confident of new applications and data
- Continuously increasing data quality
- Real-time Analytics across enterprise

We now have legacy data available in an open standardised format with improved quality of data that can be easily integrated into new solutions.

...Sue ensures monitoring is in place to drive continuous improvement

Identify stakeholders
Data Extraction
Data Remediation
Data Migration
Data Validation, Auditing, & Verification
Decommission Legacy systems

Using automation tools to discover data if not already catalogued

Ensure engagement with the business throughout data migration

Identify stakeholders
Data Extraction
Data Remediation
Data Migration
Data Validation, Auditing, & Verification
Decommission Legacy systems
Use standardised data exchange methods for both internal and external stakeholders

Hi, my name is Amal. I am a manager in a government agency, and our data consumers tell us that they spend a lot of time converting our data into their own data structures and data definitions.

I have spoken to the leadership and information management team and we all recognise there is a need to look into our data exchange methods to ensure they are standardised and easier to access.

Some people involved in this process may include:
- Security Specialist
- Data Specialist
- Data/Information Architect
- Subject Matter Expert
- Information Governance Manager
- Project Sponsor
- Business & Data Analyst
- Data Custodian
- IT Developer
- Data Consumer

Some data governance standards are understood.

...the team kicks off a current state assessment.

Industry/Sector Standards
Determine current exchange patterns used
Agreed sector taxonomy
Semantic Web
Standards
data exchange standards
...this also includes determining data exchange standards & formats

...future vision for an improved state is created.

Data consumer’s current data dictionaries
How data consumers can access data from their current infrastructure
Understanding priorities and business values
Identifying practical next steps
...this also includes conducting user research to ensure data exchange services are aligned with internal/external users

...a gap analysis is undertaken to understand what work is required.

Design Architecture, Data Flow, Security Design
Identifying appropriate next steps
Understanding priorities and business values
...Amal works with the team to design a plan & identify skills

...some data exchange considerations include

API’s increasing efficiency of data sharing
Overall reducing manual requests & effort
COTS data exchange solutions
The existing government data hubs
...data exchange solutions

...ensure solution is secure

The encryption in transit and at rest
Information location e.g. on premise or cloud
Understanding security requirements
...ensure appropriate licensing & terms of use have been applied

Derived data licensing considerations
Terms and conditions of use
Monitoring where APIs are being used to help understand where to invest in test
...Amal ensures new process & applications are embedded in BAU

Monitoring for the types of users and how they are using the services
...Amal ensures monitoring is in place to drive continuous improvement

We now have a data exchange platform that is secure and enabled data customers to self-serve with data exchanged in a standardised format.

...Amal starts by understanding the people that should be involved in the improvement

Setting out requirements for improvements
Understanding what an improved state looks like
Determine current exchange patterns used
...this also includes conducting user research to ensure data exchange services are aligned with internal/external users

Data consumer’s current data formats and patterns
...data exchange solutions

...ensure solution is secure

The encryption in transit and at rest
Information location e.g. on premise or cloud
Understanding security requirements
...ensure appropriate licensing & terms of use have been applied

Derived data licensing considerations
Terms and conditions of use
Monitoring where APIs are being used to help understand where to invest in test
...Amal ensures new process & applications are embedded in BAU

Monitoring for the types of users and how they are using the services
...Amal ensures monitoring is in place to drive continuous improvement

We now have a data exchange platform that is secure and enabled data customers to self-serve with data exchanged in a standardised format.
Use consistent metadata to support publication and exchange of data

Hi, my name is Bao. I am a manager in a government agency, and it is difficult and time consuming to find information about the data that we hold.

I have spoken to the leadership and information management team and we all recognise there is a need to standardise and enhance metadata creation, maintenance and management.

Some people involved in this process may include:
- Security Specialist
- Data Specialist
- Data/Information Architect
- Subject Matter Expert
- Information Governance Manager
- Project Sponsor
- Business & Data Analyst
- Data Custodian
- IT Developer
- Data Consumer

...Bao starts by understanding the people that should be involved in the improvement...

...data governance standards are understood...

...the team kicks-off a current state assessment...

...future vision for an improved state is created...

...this also includes defining metadata architecture...

...a gap analysis is undertaken to understand what work is required...

...Bao works with the team to design a plan & identify skills...

...some considerations for metadata improvement include:
- Metadata
- Data Security & Privacy
- Metadata Strategy
- Data Quality
- Taxonomy
- and much more

Metadata
- Strategy
- Collection
- Lineage
- Discovery
- Metadata
- Data
- Architecture
- Security
- & Privacy
- Quality
- Governance
- Specialist
- Analyst
- Information
- Architect
- Specialist
- Custodian
- Consumer
- Developer
- Expert
- Custodian
- Specialist
- Specialist
- Architect
- Consumer
- Analyst
- Specialist
- Governance
- Analyst
- Architect
- Specialist
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Architect
- Consumer
- Developer
- Expert
- Specialist
- Archi...
The National Archives of Australia supports and encourages the dissemination and exchange of information. All data and other material produced by the National Archives constitutes Commonwealth copyright. The National Archives reserves the right to set out the terms and conditions for the use of such material. Save for the content referenced from third parties and the National Archives logo, the National Archives has applied the Creative Commons Attribution 3.0 Australia Licence. The National Archives asserts the right to be recognised as author of the original material in the following manner:

© Commonwealth of Australia (National Archives of Australia) 2019.