



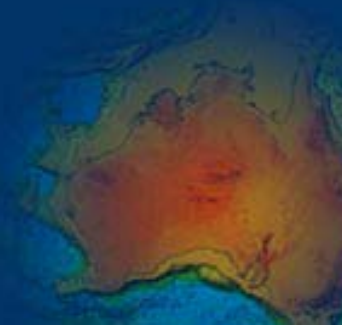
Australian Government

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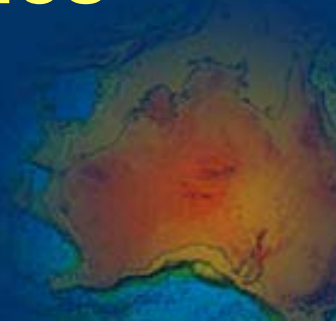
**Preparing an Architecture to Support
Interoperability:
an Australian Government Agency
Perspective**

Tim Mackey

Geoscience Australia

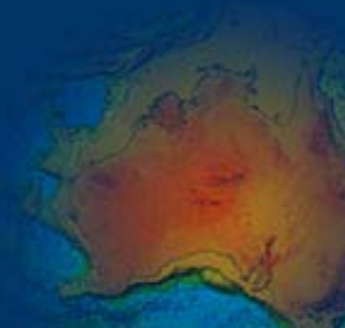


- **Introduction**
- **Find the drivers**
 - **Motivate your agency**
 - **Manage the hype**
- **Take the opportunity to change**
- **Engage with pilot projects**
 - **Prove your data works too**
- **Tackle the data management issues**
- **Prepare for the challenges**



The printing press

- Invented Johan Gutenberg in 1450
- Knowledge prior was limited by access to books
- Knowledge after quickly distributed, until literacy became the limiting factor
- Process speeds up until a new limiting factor is found
- This new limiting factor is where attention is focussed



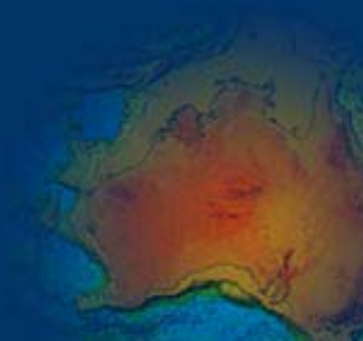
Web Services

- **World-Wide-Web invented in 1994**
- **Human-computer interaction blossomed**
- **Potential for computer-computer interaction was obvious**
- **A limiting factor was found:**
 - **Human effort required to transform and deliver data so it meets the user's needs.**

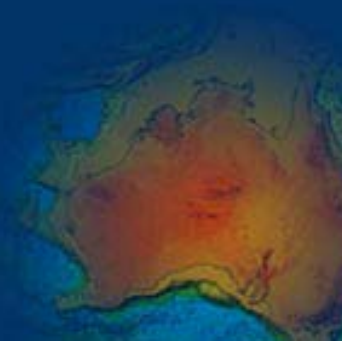


Interoperability

- **My stuff talks to your stuff, but I don't need to know how your stuff works.**

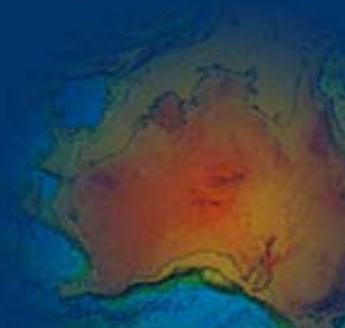


Drivers



Internal motivation

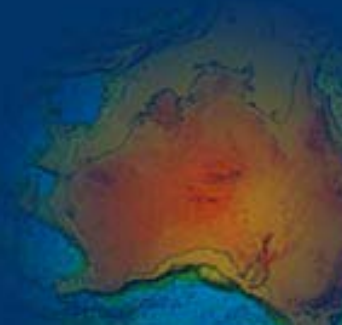
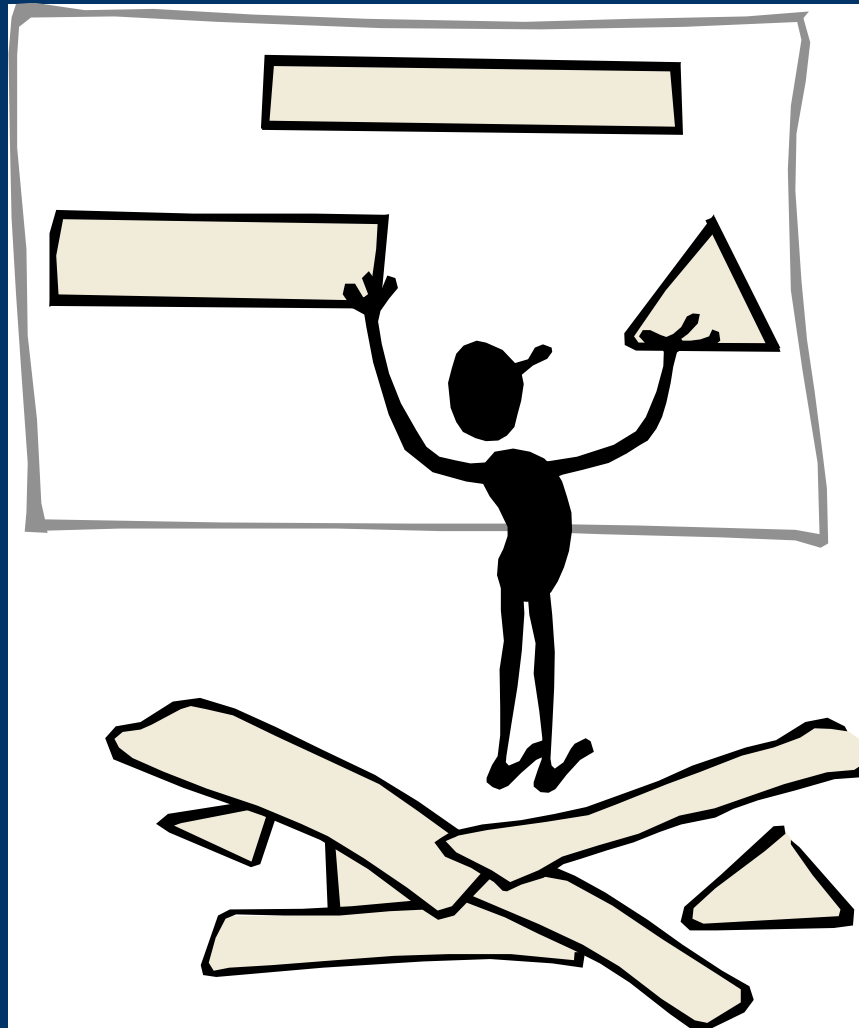
- **Need to enable integration across information systems**
 - Back-end databases
 - Application development
- **Need to reduce development time and cost**
 - Component re-use
 - Maximise impact
- **Need to reduce maintenance and increase longevity**
 - Improve value for money
- **Move effort from application development to information management**

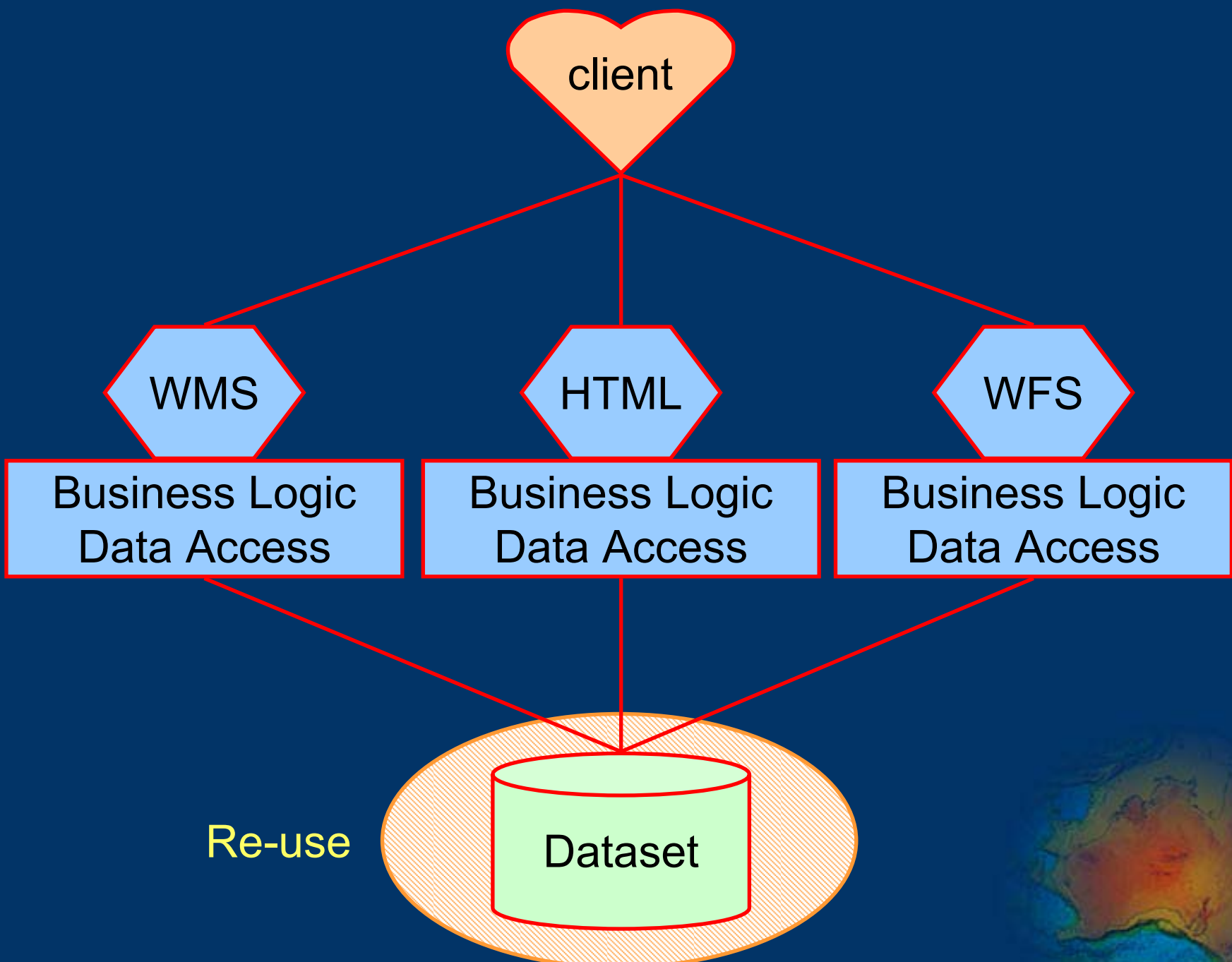


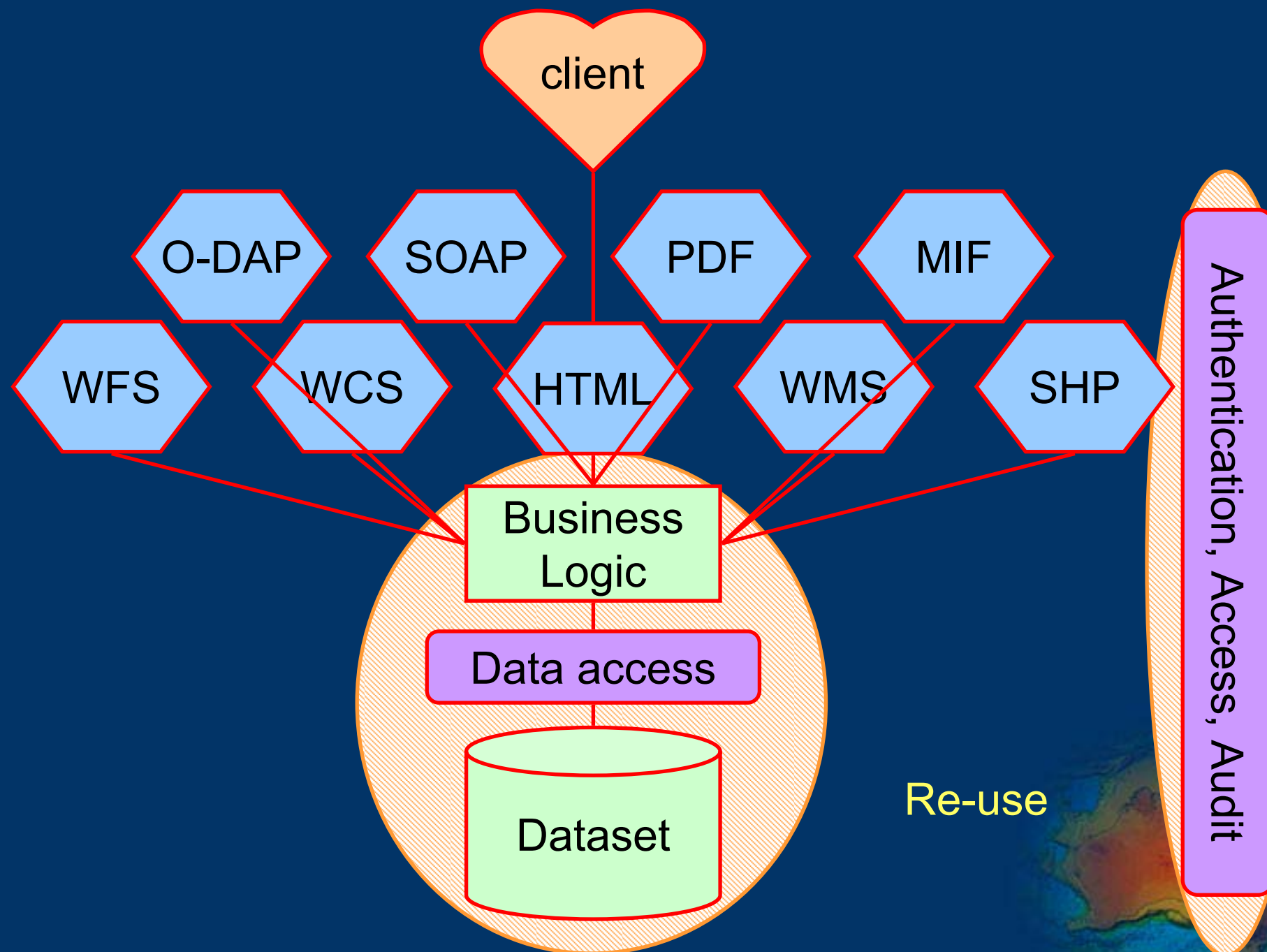
External demands

- **Government policy**
 - **Spatial Data Pricing and Access Policy**
 - **MAC connected government**
 - **AGIMO e-government**
 - **Customer base**
 - **Industry Action Agendas**
 - **Bushfire Inquiry**
 - **Co-operative projects**
 - **CRC's, other departments, anti-terrorism**
- 

An opportunity to change







client

O-DAP

SOAP

PDF

MIF

WFS

WCS

HTML

WMS

SHP

Business
Logic

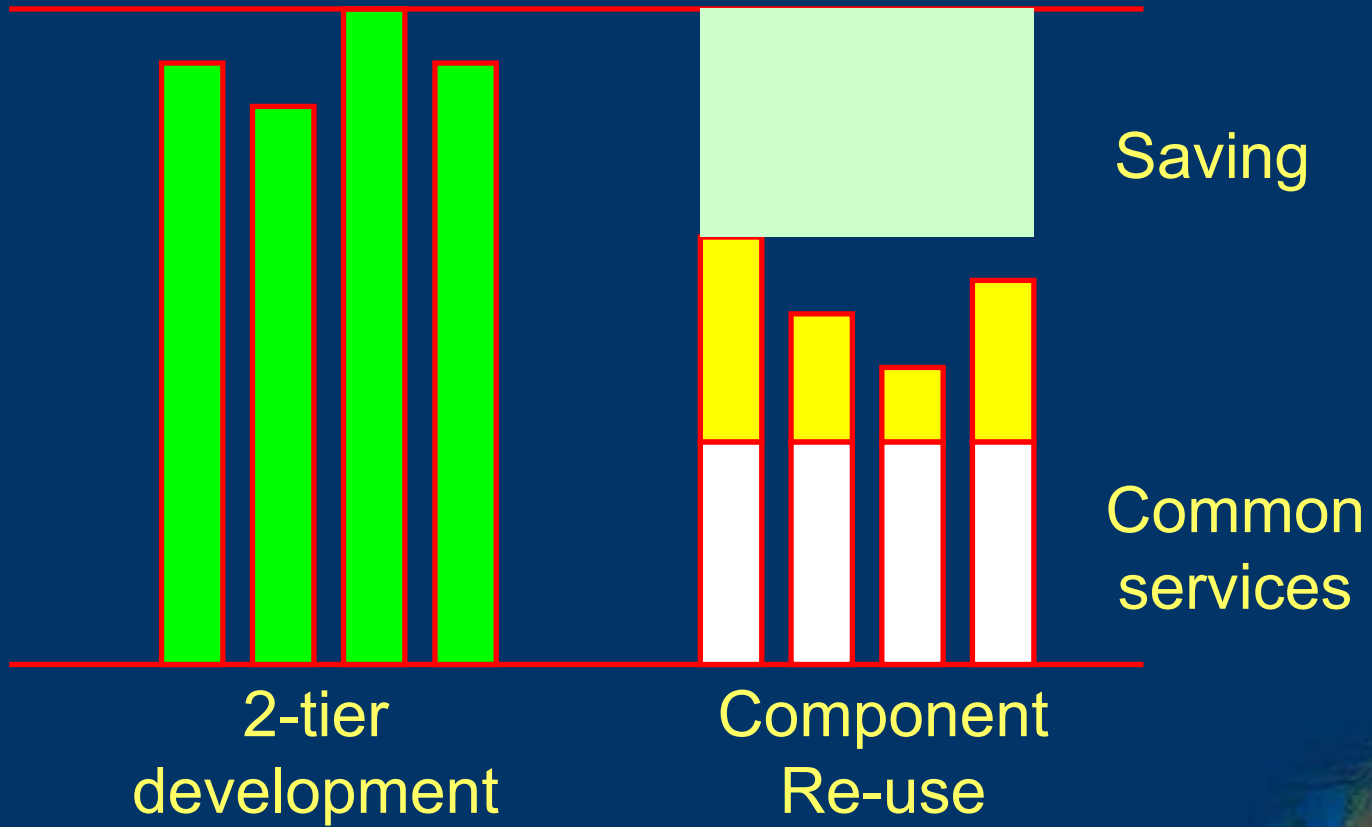
Data access

Dataset

Authentication, Access, Audit

Re-use

Time/cost to build



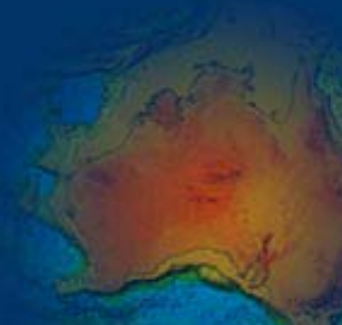
Saving

Common services

2-tier development

Component Re-use

Pilot projects



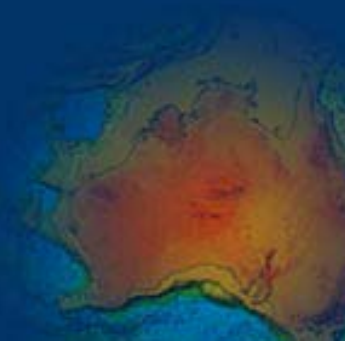
The pilot project

- **Team members are all believers**
- **Data custodian is a believer**
- **Data are manageable**
 - **Small**
 - **Without controversy**
- **Data have a champion**
- **The demo works in “a straight line” through the system**

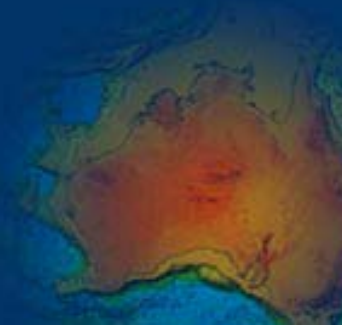


Things the pilot avoids

- **Bad quality data**
- **IP issues**
- **security issues**
- **Change management**
 - **senior managers**
 - **data custodians**
- **Performance issues**
 - **Availability**
 - **Response time**
 - **Bandwidth**
- **Clients who don't know what they want but won't be happy till they get it**

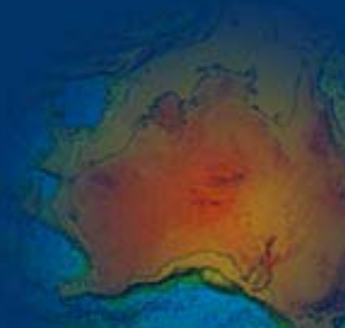


Business process issues



Issue 1: The client's [mission critical] business process relies on your web service

- **Creating Service Level Agreements**
 - Shared understanding of availability
 - Disaster recovery process and timetable
 - Data quality
 - Technical support
 - Dispute resolution



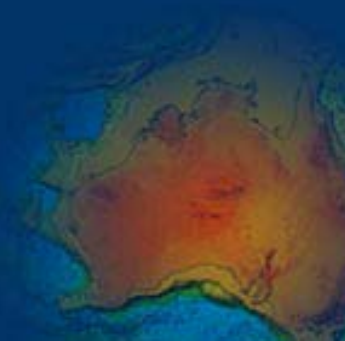
Issue 2: Data management

- **Controlled vocabularies**
 - **Minimisation of free text**
 - **Taxonomies, ontologies and semantics**
 - **Quality controlled data**
 - **No longer annual snapshots**
 - **Structured data models**
 - **Community acceptance**
- ... not every database is WS-ready!**



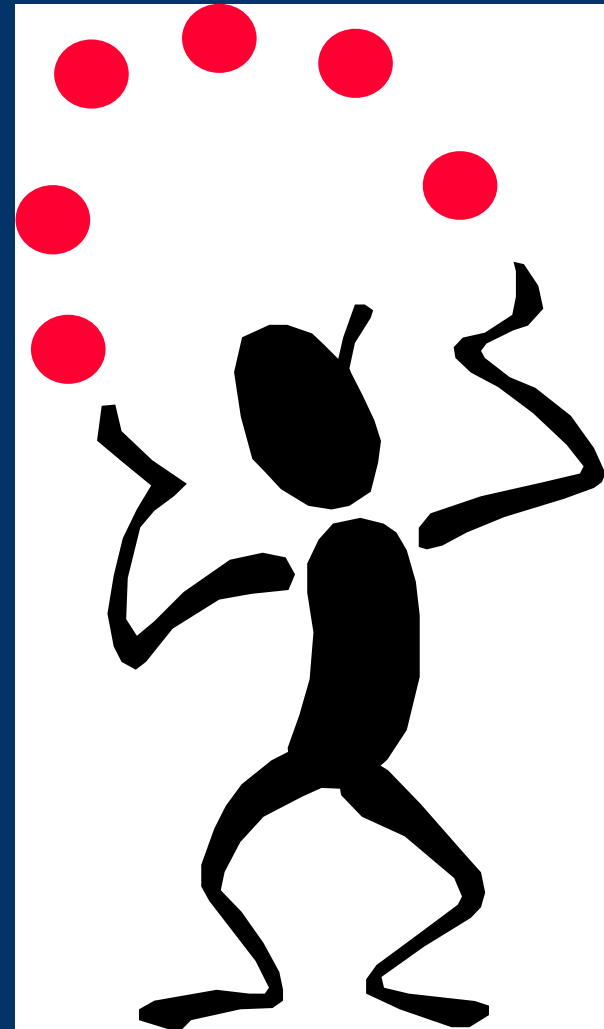
Issue 3: Application development

- **The use cases aren't well defined**
- **The information model must be developed**
- **Flaws in the data can be exposed**
- **Procedural languages aren't suited to web services**
- **1-tier applications don't scale**



Issue 4: Herding butterflies

- **Web applications**
- **Web content**
- **Database administration**
- **Data custodians**
- **Data users**
- **Data standards**
- **Data licensing**
- **Enterprise Architecture**
- **IT infrastructure**
- **High-performance computing**



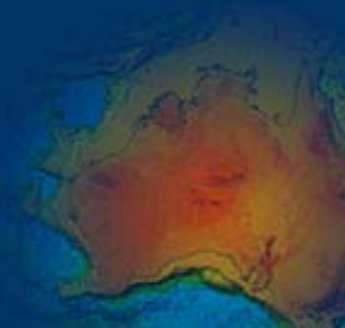
Future challenges

- **Evolving standards**
- **Intellectual property**
- **Security**
 - Authentication
- **Transactions**
 - data entry
- **Community data models**
 - Taxonomies
 - Ontologies
 - Semantics



Summary

- ***“... the amount of data in the world is doubling every 20 months” - IBM Research***
- **The printing press enabled access to knowledge and information for people.**
- **Interoperability through web services offers a similar nirvana for computing.**





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