If content is king then knowledge is divine:
Advancing the value proposition for the use of repositories as contributors to industry capability development
Focus

• Translation of what this presentation is about
Digital Asset Management in Transport and Logistics Industry

• The challenge has been to shift paradigms from ones focussed on:
  – digital assets as inputs within a learning and content-centric paradigm
  – management of assets as a ‘cost’ to an ‘investment’ paradigm
  – From digital content management to a knowledge paradigm relating to capability enhancement at all levels – individual, group (professional, occupational, regional, etc.), organisational, industry and national.
TILIS

- Case study and focal point
What is TILIS?

Transport Integrated Learning & Information Service is:

• An **ATLAS** = A view of the transport and logistics industry based on your needs and preferences
• A **MAP** = A repository of destinations and data
• A **GPS** = A registry that allows you to discover where you are and search for digital information that helps you get where you need to go

By being virtual TILIS is more dynamic and able to be oriented to the user needs and preferences
TILIS value-adds to what exists
TILIS filters The Web to T&L and user needs

Multiple Sources → Refined → Needs
TILIS moves beyond the one to many marketplace

One provider to multiple users with an array of way to manage and control digital assets including:
- Interoperation
- Metadata
- Classification
- Search
- Discovery
- Identities
- Access rights
- Reuse
- Digital rights
TILIS enables the many to many marketplace

Many users seeking digital assets from multiple providers. Reduced and consistent ways to address:
- Interoperation
- Metadata
- Classification
- Search
- Discovery
- Identity management
- Access rights
- Reuse
- Digital rights
TILIS - A web gateway and digital repository

- A standards and web based, centralised facility which stores granular or compound copyrighted knowledge objects for reuse
- Supports single sign on and central authentication
- Provides rules and permissions for reuse and rendering of objects
- Implements a range of categorisation structures
- Makes objects/content discoverable and accessible where suitable permissions have been allocated with sign on

A CORDRA Digital Repository
- Allows content and data to be published and searched across many digital repositories, whilst maintaining user rights and privileges
So? Why is this different?
Old ‘input’ paradigm

- Learning is knowledge
Old ‘input’ Paradigm

• Content is knowledge
New paradigm TILIS and DAM

1. TILIS will leverage T&L paradigms on the supply chain to confirm value in how digital assets are managed.

2. TILIS is about knowledge capital creation and sharing.

3. TILIS needs to be an investment in an industry outcome, not another input cost.

4. TILIS needs to deal with multiples – multiple users, multiple suppliers, multiple networks, etc.
1. T&L supply chain paradigms can be leveraged to show value

- **Supply chain** management is about managing the activities which support the movement of a product from a firm’s supplier to a firm’s customers.
- The aim is to create a **value chain** where all activities operate in a coordinated, integrated manner whereby they contribute to customer-related outcomes at each stage and culminate with the optimal satisfaction of the end-customer’s needs and preferences.
- The three factors shaping value are:
  - Networks
  - Infrastructure
  - Collaboration
  - Standards
1a. T&L paradigms – Network value propositions

• Networks
  – networks usually evolve
  – volume and value are positively related (Moore Principle)
  – hubs/interconnections are critical
  – standards support interoperability
  – nodes provide the modal connection points
  – nodes are the base for value-added services
  – networks may carry different payloads
  – need to move seamlessly down the supply chain from source to delivery
1b. T&L paradigms – Infrastructure
value propositions

• Infrastructure
  – evolves from local to global
  – uses scalable, reliable existing technology
  – uses standards to maximise connections
  – provides common infrastructure and investment where it can add maximum value to existing providers and increase volume
  – connects a supply chain seamlessly (farm gate to plate)
  – builds business processes and service system, not a technology solution
  – applies appropriate policies and governance
  – business-based, contextual to local needs
  – enables value-added services
1c. T&L paradigms – Collaboration value propositions

• Collaboration
  – collaboration can create new knowledge
  – communicate at speed improves responsiveness
  – collaboration across the supply chain can improve investment in business and community outcomes
  – can often enhance innovation by operating outside formal structures and procedures
1d. T&L paradigms standards accelerate adoption

"Australia has a multiplicity of national problems, none of them small. But there is a background of problems larger still, and the question of a uniform railways gauge occupies the greatest amount of that background space."

Rail Gauge 11 Jul 1927

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2. Aspects to Knowledge Capital

Structural Capital

+ Social Capital

+ Human Capital

= Knowledge Capital
2a. Structural capital – TILIS as digital infrastructure

- internationally compliant, standards-based
- national facility (do once everyone can use)
- support single sign-on and central authentication
- provide rules and permissions for reuse and access to objects
- implement an industry specific range of categorisation structures
- make objects/content discoverable and accessible where suitable permissions have been allocated with sign on
- the ability to share and access content based on the owners’ permissions and rights management
2b. Social capital – TILIS as network hub

- a ‘hub’ or node to a national network
- internationally compliant, standards-based
- link the very many locally managed web sites, content and knowledge
- add volume and value to the existing industry virtual network(s)
- provide a user friendly national entry point
- support students and other non-industry users make decisions on options
- support information and content search, sharing and access
- support business systems
- work ‘at scale’
- be robust and reliable
- be sustainable
2c. Human capital – TILIS as a learning and development exchange

- mechanism to enhance how industry and enterprises:
  - attract, recruit and retain staff
  - train, educate, coach and mentor
  - exchange learning objects and technical documentation to create and sustain learning related to capability needs
- supports the matching of students with education providers and learning
- supports enterprises seeking information on education providers, courses or undertaking content search, sharing and access
- enables individuals to find relevant career pathway and labour market information and services from existing providers

(See Transport and Logistics centre charter www.talc.com.au)
3. Input and output value in the digital object repository

**Inputs:**
- The capacity to import, classify, archive, search, harvest and manage all forms of explicit knowledge within a single regime that encompasses all aspects of the enterprise.
- Demonstrated utility of codified knowledge (its value through use - intellectual property value is confirmed)
- Cater for knowledge push and pull (learning and knowledge on demand)
- A means to communicate, collaborate and cooperate

**Outputs:**
- Show knowledge capital generation beyond skills development to include:
  - Utility of objects/content accessible to the organisation.
  - The improved capacity to be more agile and responsive.
  - Enhanced identification, transfer and generation of tacit knowledge
  - Devise an integrated ‘currency’ used to describe how content can enable outcomes across careers, jobs, performance, customer service, and process quality.
TILIS provides capacity for DAM that is an investment in T&L industry capabilities

- **Accessability** - Infrastructure supports access by many, to their preferences
- **Flexability** to create multiple strategies for metadata, pedagogical models
- **Re-useability** of content across organisations, locations and sectors
- **Discoverability** of knowledge and content
- **Sustainability** of service
- **Accountability** of maintenance and government structure
- **Interoperability** with existing technology and systems
- **Searchability/Browseability** across systems and different types of content
- **Reliability** of service
- **Affordability** - making learning objects and information sharing more cost effective
- **Scalability** of solution and service
TILIS as a value adding project

- Infrastructure
- Network
- Collaboration
- Standards

*TILIS is an integrated system created for the national transport and logistics industry to enable the expansion of national capabilities through initiatives that are ultimately owned and executed locally.*

*Dr Daryll Hull, Director, Transport and Logistics Centre*
TILIS High Level Architecture

- Standards and governance
- Web interface
- Personalisation
- Content repository
- Infrastructure
TILIS repository model

- Authoring Tools
- Search Tools
- Assembly Tools
- User Access

HTTP, CGI, C-APL, SOAP, JAVA, OAI, etc...

- Interface
- Protocols
- Functions
- Rights

TILIS Repository

Submit/Publish
Search/Discover
Assemble/Package
Deliver/Access

Workflow
Metadata
Assets
Render/Index

Directories
- LDAP
- Other

Copyright & Audit Trail

Registry & Metadata

Access
Conditions
Accept
Pay/Free

DAMAP 2006
The repository service

Repository

- Workflow
- Objects
- Assets
- Collaborative tools

Version Control

- Digital Objects
- Links
- Stored Objects

Metadata

Virtual Library

- Catalogue
- E-Books
- Reference
- Journals
- Prints
- Reports
- Information
- Access to other Resources
Features of the repository

- Personalised delivery
- Build once, use many times
- Supports multiple metadata schema
- Standards compliant
- Flexible output capability
- Branding for reuse
- Version control
- Access point to discover legacy content

Collaborative tools
- Manages workflows, and processes
- Shared areas and mechanisms for communication
- Updates made in one place are automatically changed across the whole content
- Track, trace and manage copyright
- A repository for any object type
Content on the repository

- Technical manuals/documents
- Scholarly papers (advocacy campaign)
- Library collections (born-digital or digitised)
- Learning materials (interactive, multimedia)
- Research materials (texts, images, films, etc.)
- Organisation-wide shareable datasets
- Administrative records
- E-journals & E-books
- Website and intranet content
Link to different content on other repositories
Leverage existing learning objects better …

Analyse needs
- Skill gaps
- Career bottlenecks
- Technology change
- Recruitment pool

Develop, design, reuse, customise

Satisfy need and build value

standard
standard
standard
standard
Global approach to standards

CEN/ISSS
PROMETEUS
CETIS/JISC
ARIADNE
Dublin Core
eLIG
Singapore
IMS Asia
ALIC & AEN
ALIC
ISO/IEC JTC1 SC36
LOM (metadata) is an approved IEEE standard.
AICC
API and CMI data model based on the AICC CMI document and widespread SCORM usage are now approved IEEE standards.

From Dan Rehak ADL Update
SCORM 2004 and CORDRA, Nov 2005

- ADL partnership
- IMS Australia
TILIS and alignment with global work

- Advanced Distributive Learning Co-Laboratories and SCORM (Sharable Content Object Reference Model)
- Job Performance Technology (S1000D)
- Content Object Repositories Discovery and Registration/Resolution Architecture (CORDRA)
- Web-services and accessibility (W3C)
CORDRA “Triangle”

- Context
- Delivery
- Discovery
- Retrieval
- Identification
- Resolution
- Location

From Dan Rehak, ADL Update
SCORM 2004 and CORDRA, Nov 2005
TILIS

Phase 1: Portal requirements & CORDRA preparation

TILIS clients
- Individuals
- University
- TAFE
- Transport company
- Logistics company

gateway interfaces (client “windows”)
- Public
- Individual
- Organisation
- ...

gateway Applications (“services”)
- LMS
- Competency
- Search
- Document library
- ...

Resources
- Portfolios
- User data (Administration)
- ...

Content
- Content Exchange (shared repository)

Infrastructure services
- CORDRA interface
- TILIS Identifiers

Content providers
- University
- TAFE
- Transport company
- Logistics company
TILIS

Phase 2: integrate with national infrastructure

TILIS clients
- Individuals
- University
- TAFE
- Transport company
- Logistics company

Gateway interfaces (client “windows”)
- Public
- Individual
- Organisation

Gateway Applications (“services”)
- LMS
- Competency
- Search

Resources
- Portfolios
- User data (Administration)
- Content Exchange (shared repository)

Infrastructure services
- CORDRA interface
- TILIS Identifiers

National services
- CORDRA Registry
- Identifier infrastructure

Content providers
- University
- TAFE
- Transport company
- Logistics company

Content

...
CORDRA Architecture
CORDRA Levels
TILIS can become part of an Australian Federated CORDRA
Search, discover and access objects/content

- Object identifier
- Metadata schema
- Different content sets
- Application of Different Standards
- Output type (i.e. Print, CD Rom, etc)

Adapted from the CORDRA model