

E-LEARNING AND DIGITAL LIBRARY TRENDS:



An International Perspective

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PRESENTATION GOALS



A series of snapshots of current international developments.



An analysis of particular systemic issues.



Identification of opportunities for collaborative development.



The Elearning Strategic Vision

To embed e-learning in all its forms into the education sectors in order to develop a more vibrant learning society based on:

- ✧ The primacy and empowerment of the learner.
- ✧ A flexible and innovative infrastructure.
- ✧ Sustainable resourcing of the total enterprise.
- ✧ A highly skilled teaching and support workforce.

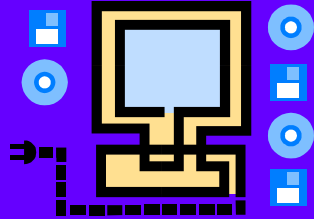
E-LEARNING BUSINESS DRIVERS

- Business drivers:
- To exploit new markets.
- To provide more flexibility and convenience in existing markets.
- To improve quality of the learning experience.
- To provide more cost effective teaching and learning programs.



E-LEARNING: The cottage industry phase

- Dominated by a small number of early adopters.
- Wide variety of online learning applications.
- Few totally online programs.
- Under investment in technical infrastructure.
- Little research into pedagogical implications.
- No agreed frameworks for institutional interoperability.
- Digital learning content locked in learning management systems.
- Little attention to cost-effectiveness.

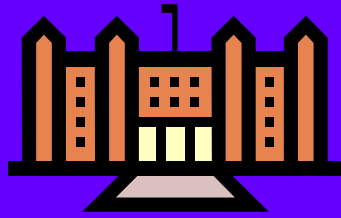


DIGITAL LIBRARIES: The “Push” Phase

- Rapid development of e-reserves.
- Emergence of virtual reference services.
- Integration of commercial information services.
- Considerable portal-type activity.
- Development of online training modules.
- No integration with learning management systems.

CULTURAL ISSUES

- No shared view between teachers, librarians, technologists, instructional designers and administrators.
- Widely varying levels of information and IT literacy.
- No consensus on relationships between the application of technologies and pedagogic practice.
- A reluctance to embrace new forms of collaborative endeavour.



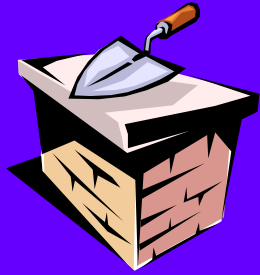
Institutional digital assets management

- Digital assets managed in “silos”.
- No concept of stewardship of assets.
- Little agreement on how to store and access digital learning content.
- Rapid take-up of content management systems.
- Almost complete absence of institutional metadata strategies.
- Systems interoperability limited.



HOT TOPICS

- Flexibility through open-source applications.
- Interoperability between various kinds of repositories.
- Exposing of digital libraries services in the e-learning space.
- Application of technology to learning activities.
- Metadata strategies.



BUILDING INTEROPERABLE INFRASTRUCTURE

The building blocks include:

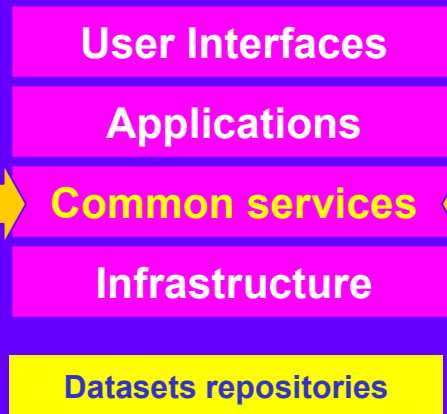
- Clear articulation of service models and functional requirements.
- Development of appropriate technical architectures.
- Identification of common services to support multiple service domains.
- Development of open systems framework.
- Sustained investment strategies.

Convergence of Higher Education Domains

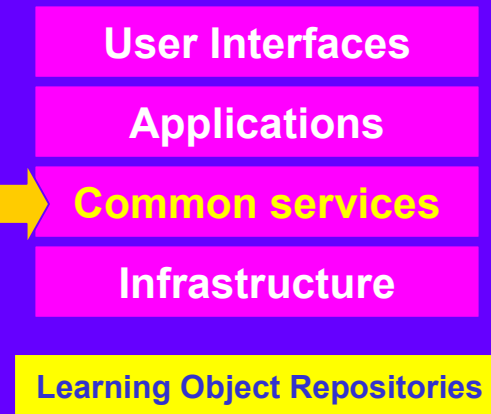
SCHOLARLY INFORMATION



GRID COMPUTING



E-LEARNING



Common services include:

- * Authentication and authorisation services.
- * Search services.
- * Digital rights infrastructure.
- * Metadata support services.

WHY STANDARDS?

- ❑ Optimise interoperability between systems.
- ❑ Facilitate information exchange across domains.
- ❑ Permit sharing of common services.
- ❑ Allow scalable solutions.
- ❑ Provide orderly base for infrastructure developments.
- ❑ Ensure migration strategies.
- ❑ Maximise return on IT investment.



IMS GLOBAL LEARNING CONSORTIUM

Principal forum for e-learning interoperability issues:

- Develops specifications not standards.
- Much recent work on learning design and interactions between digital libraries and learning management systems environments.
- Refers specifications to standards bodies such as IEEE and ISO SC36.

DIGITAL LIBRARIES/ E-LEARNING INTERACTIONS

An IMS/CNI White Paper to be published in July.

Functional requirements already identified include:

- The exposing of library resources in the learning management systems
- The ability to integrate and display in a variety of information windows.
- Aggregated access to content in any given learning context.
- Integration of third-party commercial information services.
- Customised portal facilities for storing personal preferences.

Digital Libraries/E-Learning Interactions (cont.)

Functional requirements:

- Exposing bibliographic tools to permit ease of search and completion of references.
- Easy access to virtual reference services at point of need.
- Exposing training modules to assist in information seeking activities.
- Access to tools which will render and present content in preferred formats.

METADATA STRATEGIES

Major review underway worldwide.

Issues include:

- Construction of application profiles.
- Interoperability between application profiles.
- Unpacking of learning object concept.
- Creation of metadata.
- Actual use of metadata.
- Use of controlled vocabularies.
- Value-added metadata services.
- Cost-effectiveness.

TECHNICAL ISSUES

Major issues include:

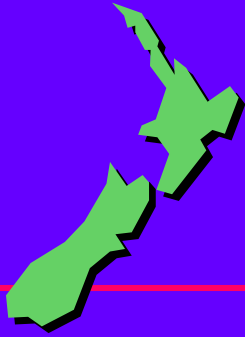
- ➡ Authentication and authorisation to support distributed service environments.
- ➡ Application of Web services technologies over legacy systems.
- ➡ Incorporation of digital rights management infrastructure.
- ➡ Development of query protocols across multiple domains.

COMMON INFRASTRUCTURE

The challenge is to find common services infrastructure, which will support the specific e-learning needs of the three education sectors, namely:

1. Higher Education
2. Schools
3. Training

And support the incorporation of digital libraries services into the e-learning process.



DEVELOPING A NATIONAL AGENDA

- Identify appropriate service models for each sector incorporating information service requirements.
- Extrapolate functional requirements for each sector.
- Develop technical architectures within an overarching interoperability framework.
- Identify the common services layers.
- Map the technical requirements against existing standards frameworks.

Proposed national agenda (cont.)

- Build infrastructure using a modular components-based approach.
- Invest in relatively large-scale demonstrator in the applications areas relying on the use of one common services initiative.
- Develop appropriate mechanisms to ensure cross-fertilisation between project initiatives.
- Establish close links with industry partners.

CONCLUSION

Collaborative systemic infrastructure initiatives require a strong consensus between key stakeholders and government funding agencies.