

Session W207: 7 SCORM Solutions and 1 Look Ahead

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Learning Objectives:

- Find and utilize authoritative resources and tools for testing, information, support, and best practices to apply to SCORM design and development.
- Apply your knowledge of the criticality of standards, the ADL plan for SCORM and the LETSI role in standards evolution to order to more effectively implement an e-learning strategy for your organization.
- Effectively assess if/when/how you or your organization might benefit from, participate in or monitor relevant LETSI activities.

Most recent slides also available at:

<http://mobilemind.net/presentation/astd-tk08>

or

<http://www.letsig.org>



7 SCORM® Solutions... and 1 Look Ahead to LETSI

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Agenda

- Background on ADL & SCORM
- Technical Overview of SCORM
- Current SCORM Status
- Solutions to Common Myths & Misunderstandings
- Looking Ahead to SCORM Evolution: LETSI

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Background- Drivers

- Search Defense Technical Info Center database
 - ▶ 396 DoD reports identified between 1976-2001
- Results: If properly used, technology works for training
- However: Lack of interoperability = lack of payoff
- So: ADL was created (1997), not on a single technology, but from a strong research foundation and the Internet

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ADL Vision

The ADL Vision:

Provide access to the highest quality education, training and performance aiding, tailored to individual needs, delivered cost effectively, anytime and anywhere.

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What is SCORM?

- SCORM = Sharable Content Object Reference Model
- A Reference Model that defines how to implement distributed learning systems in a common way
- A set of specifications developed with industry and combined into a set of ADL “Best Practices” that enable:
 - ▶ Sharable, reusable, searchable learning content
 - ▶ Directed, “adaptive” learning experiences
- A means to provide for conformance testing and uniform implementation by industry
- An ongoing consensus process with industry and academia
- An accelerator of uniform practice

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ADL “ilities” of SCORM

Accessibility: access instructional components from one remote location and deliver them to many other locations

Interoperability: use instructional components developed in one location, with one set of tools or platform, in another location, with a different set of tools or platform

Reusability: incorporate instructional components into multiple applications

Durability: operate instructional components when base technology changes, without redesign or recoding

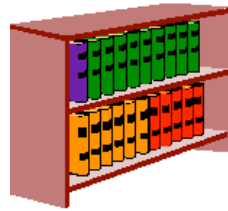
Affordability: increase learning effectiveness significantly while reducing time and costs

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SCORM 2004

SCORM
Overview



SCORM Content
Aggregation Model



SCORM
Run-Time Environment

SCORM
Sequencing and Navigation



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SCORM: Current Status

- SCORM 2004 3rd Edition released November 16, 2006
- Submitting to ISO as a Technical Report
- Working to find a long-range steward for SCORM
- Supporting Applications (<http://www.adlnet.gov/scorm/>)
 - ▶ Conformance Test Suite
 - ▶ Sample Run-Time Environment
 - ▶ Content Examples
- Test Suite software updated December 2007

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Key Resources

- ADLnet.gov (<http://www.adlnet.gov>)
 - ▶ ADL Initiative Overview
 - ▶ SCORM and Application downloads
 - ▶ News and Events
 - ▶ SCORM Technical Forums, Knowledge Base
 - ▶ SCORM “Ask the Experts”
 - ▶ Certified Products, SCORM Adopters
- ADL Community (<http://www.adlcommunity.net/>)
 - ▶ Additional Forums & Resources
 - ▶ Genuinely suited for global SCORM adoption

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7 Solutions to Common Challenges

- Getting Started with SCORM
- Metadata
- Simple Sequencing
- ECMAScript and ADA Section 508
- SCORM Versions and Vendor Products
- Testing Content
- How do I ... in Tool X

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Getting Started with SCORM

What is SCORM; how do I do it; where do I start?

- SCORM School (<http://www.academiccolab.org/initiatives/scormschool.html>)
- The SCourse
- ADLNet.gov
 - ▶ Official documents, examples, applications
 - ▶ SCORM Forums
 - ▶ Ask the Experts
- Non-ADL Resources
 - ▶ [www.conform2scorm](http://www.conform2scorm.com), www.scorm.com, www.ostyn.com,
 - ▶ Google Search SCORM
 - ▶ Use at own risk, come back to ADLNet.gov with questions

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Getting Started– ADL Community

What does it cost to join ADL; how do I become a member of ADL?

- There is no membership
- Like a Social Network of peers
- Message forums, events, sharing of information
- Many sectors represented: Government, Industry, Academia, International
- ADLNet.gov, ADLCommunity.net
- SCORM Certified and SCORM Adopters

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Metadata

SCORM requires metadata. I have to provide all of those metadata fields. Providing this metadata is cumbersome and expensive.

- SCORM 2004 **ALL** metadata is **Optional**
 - ▶ Different from SCORM Version 1.2 & early versions of SCORM 2004
 - ▶ Define use cases, community of practice guidelines & requirements, enforce. Use templates, *judiciously*.
- Conformant to IEEE Learning Object Metadata (LOM)
 - ▶ Other metadata schemes can be used, but LOM is recommended
- RELOAD Editor– <http://www.reload.ac.uk/>
- DoD community and the ADL Registry
 - ▶ Profile of LOM, required for registration into ADL Registry

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Simple Sequencing

It is not that simple; it is too difficult, so we are not developing SCORM 2004

- The “simple” was based on simple strategies for sequencing content
 - ▶ Linear Flow, Choice, N-way branching, etc.
- It gets easier to work with over time
 - ▶ Examples, Templates for common behaviors
 - ▶ Ask the ADL Experts for assistance
- Tool support is increasing
- Workshops such as ID + SCORM
<http://arclite.byu.edu/id+scorm/>

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ECMAScript & Section 508

I cannot develop to SCORM because it requires JavaScript (ECMAScript) and I have to be 508 compliant

- ECMAScript requirements for **communication only**
- Section 508 focuses in on scripting languages for rendering and display – assistive technologies

References

- <http://www.section508.gov/>

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SCORM Versions & Vendor Products

What about SCORM 1.2? What about compatibility?

- SCORM 1.2 goes back to October 2001
- Closing in on 6 years, 3 SCORM 2004 editions later
- Neither ADL nor LETSI will update SCORM Version 1.2 (documents, applications)
- Not sure why development is still happening
 - ▶ Required by environment (LMS), SCORM 2004 is too difficult, SCORM Version 1.2 works for us
- Underlying base work within SCORM has changed for the better – specification fixes, accredited standards, new features to support requirements
- SOLUTION: Migrate with transition tools, Start all new projects with SCORM 2004

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How do validate adopters & products

Explanation & Solution–

SCORM Adopter

- Completely volunteer basis
- Indicator of those organizations building products to SCORM

SCORM Certified Product

- Completely volunteer basis
- Products that have been independently tested to SCORM conformance

References

- SCORM Adopter: <http://www.adlnet.gov/scorm/adopters/index.aspx>
- SCORM Certified Product: <http://www.adlnet.gov/scorm/certified/index.aspx>

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How can I test without an LMS?

I have content, but now what? I don't have access to an LMS to test. Will my content will work on the LMS products from different vendors? What is the Sample Run-Time Environment?

- A “lightweight” LMS – proof of concepts, prototype tool
- Not an LMS
 - ▶ Implements aspects of the SCORM
- Does not test conformance to SCORM (use Conformance Test Suite)
- Can be used to see how content **MAY** behave in an LMS
- Is available as-is, source code, build scripts

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How do I ... in tool X

Difficulty with SCORM content creation

- Difficulties in using tools that developers are familiar with using
- Reasons
 - ▶ Lack of SCORM support
 - ▶ Lack of “communities of support”
 - ▶ Looking toward ADL for assistance
- Possible solutions
 - ▶ Use of SCORM development forums
 - ▶ Establishment and/or awareness of “communities of support” (e.g., Flash developers)

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SCORM Future...

SCORM 2004... ADL

Beyond SCORM 2004...

LETSI

(Federation for)
Learning, **E**ducation, & **T**raining
Systems **I**nteroperability

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Thank You

Questions?

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LETSI

The International Federation for Learning-Education-Training Systems Interoperability

LETSI and the Future of SCORM

Avron Barr, ADL Initiative
ASTD TechKnowledge
February 27, 2008

SCORM's Strategic Impact

K-12	Korea CHLS	A national platform for developing and delivering after-school tutoring (16 technically-autonomous districts)
Corporate Training	Chrysler/BBDO	Enterprise-wide learning content management at the SCO level
Professional Training	MedBiquitous	Content interoperability across 65 autonomous healthcare education and training organizations
US DoD	ADL-Registry DoD-I 1322.26	An ambitious plan to enable sharing of all digital training materials across the DoD. Procurement policy push.

The State of SCORM Adoption

- ◆ Hundreds of LMS and content authoring products implement SCORM
 - ◆ The ADL has supported the vendor community technically and has conducted a relatively open and inclusive stewardship
 - ◆ SCORM is the de facto international standard for digital learning content
- ◆ The ADL Initiative is an R&D organization.
"Spinning-off" SCORM was always the plan.
- ◆ Many adopters see the need for a new international, learning-focused, organization to continue the open stewardship of SCORM

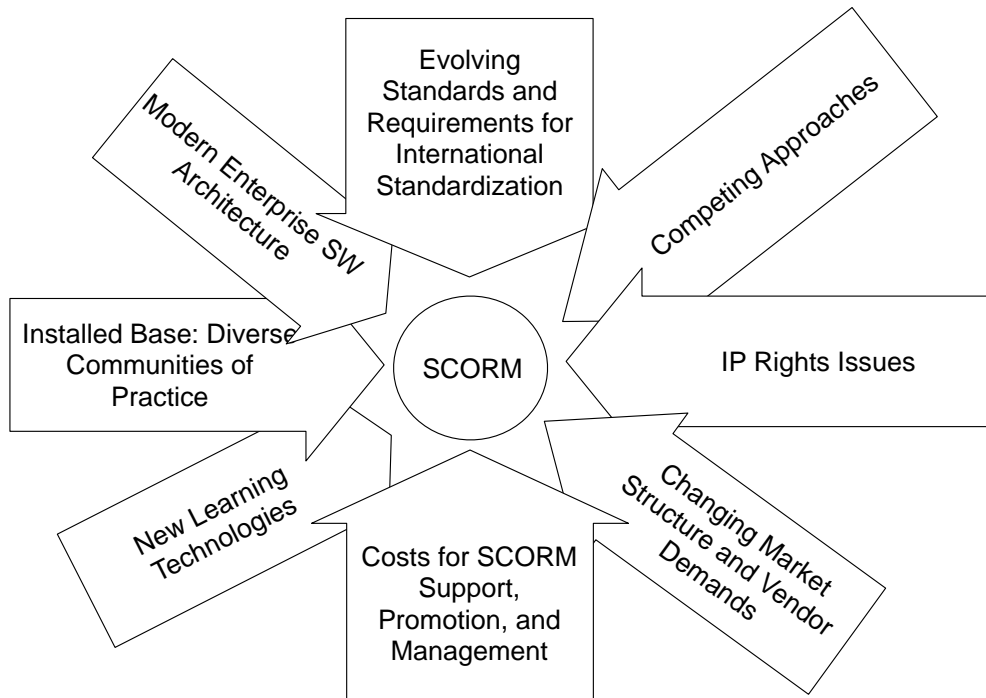
LETSI - SCORM's New Steward

- ◆ The federation for Learning-Education-Training Systems Interoperability - an international, not-for-profit organization
- ◆ A catalyst for global eLearning adoption across all market sectors: compulsory education, higher education, corporate training, professional education, and on-the-job performance support
 - ◆ A community of teachers and technologists
 - ◆ Collaborating with standards bodies and industry associations
 - ◆ Supporting national standards efforts
 - ◆ Encouraging innovation in learning technology
- ◆ The future steward of SCORM – a public trust

LETSI's Founding Sponsors - 2007

- ◆ Adobe Systems Incorporated
- ◆ Advanced Distributed Learning Initiative
- ◆ Aviation Industry Computer-Based Training Committee
- ◆ Booz Allen Hamilton
- ◆ IEEE Computer Society
- ◆ IEEE Learning Technology Standards Committee
- ◆ Fraunhofer Institute Digital Media Technology
- ◆ Korea Institute for Electronic Commerce
- ◆ Latin American Institute of Educational Communication
- ◆ Masie Learning Consortium
- ◆ MedBiquitous Consortium
- ◆ Schools Interoperability Framework Association

The Forces on SCORM



SCORM Today and Tomorrow

Stable SCORM 2004

- ADL to maintain & support
- Facilitate implementation
- Promote adoption
- Listen to users

New Learning Technologies

- Simulations, games and virtual world
- Performance support, S1000D tech manuals
- Mobile systems
- Intelligent tutoring systems
- Team training
- Collaborative learning
- Auxiliary on-line resources

New Enterprise Architectures

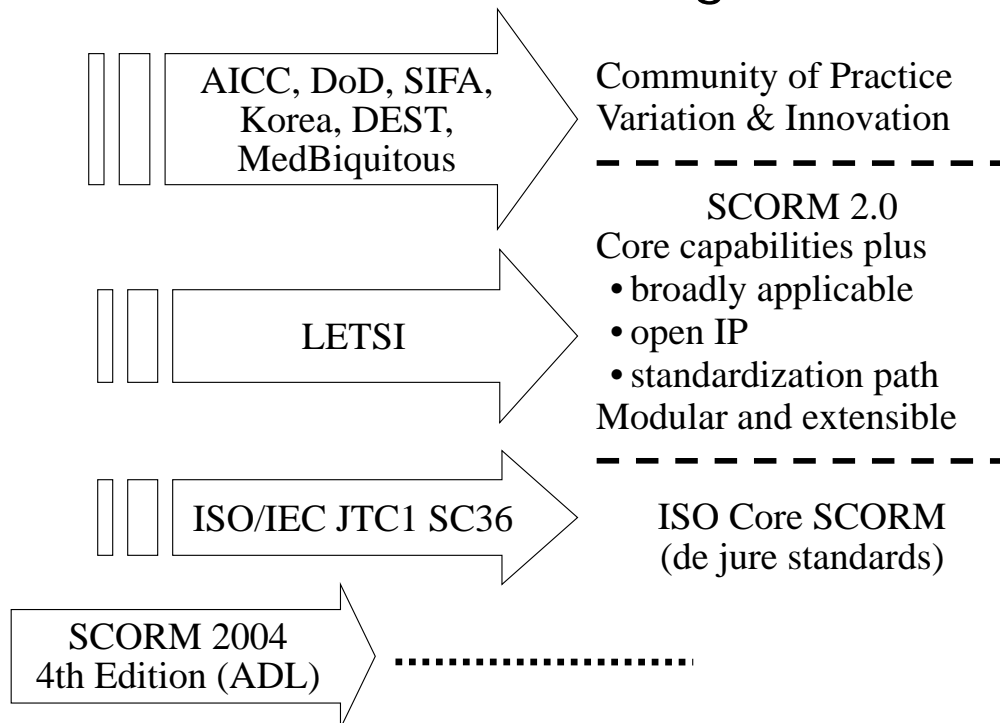
- Post-Google knowledge management
- Service-oriented software architecture
- Content management and repositories
- Future LMS architectures
- HR Competency/skills management

Today

Goals of SCORM 2.0

- ◆ An interoperability model that can be used strategically across market sectors and geographical regions to:
 - ◆ Reduce adopters' risks and costs; grow markets
 - ◆ Allow communities of practice maximum flexibility to profile and to experiment
 - ◆ Support legacy content and long transitions
 - ◆ Support implementers and be realistic about vendors' costs and schedules
 - ◆ Level the playing field for innovators
 - ◆ Move the learning technology community towards the use of public, de jure standards

SCORM Going Forward



What Goes in the Core?

At least this	Probably this	Who knows?
<i>RTE Support</i>	<i>CAM Support</i>	<i>Relevant de jure Standards</i>
IEEE API IEEE Data Model SCORM 2004 currently being fast-tracked as ISO/ IEC tech report	IEEE LOM Some permutation of ISO/IEC 21000-2:2005 (aka MPEG 21.2)	IEEE RDCEO IEEE XML binding of DM SC36 Collaborative Workplace SC36 Quality SC36 Access for All SC36 MLR

To Get Involved

- ◆ Read and contribute via the wiki
- ◆ Consider joining one of the “requirements gathering” working groups being formed now:
 - ◆ Business Requirements WG
 - What kind of functionality and interoperability do adopters actually need? - Ed Cohen
 - ◆ Teaching and Learning Strategies WG
 - What will technology-supported learning look like in the future? - Jackie Haynes and Nina Deibler
- ◆ www.lets.org

SCORM Job Aid

ADL SCORM 2004 Documentation Suite

<http://www.adlnet.gov/downloads/DownloadPage.aspx?ID=237>

ADL SCORM Software Resources

**SCORM 2004 Conformance Test Suite,
SCORM 2004 Sample Run-Time Environment**

<http://www.adlnet.gov/downloads/>

Be sure to download and read the README file before installing either pieces of software.

SCORM Conformance Test and Run-Time Environment Installation Prerequisites

Windows Vista, or Windows XP SP1 or SP2

Internet Explorer 6.0 or above, or Firefox 2.0.0.3 or above

HTML and Javascript

- Java SE 6, any update level
- J2SE 5.0, Update 10 or later
- J2SE 1.4.2_13 or later

Java releases are available from: <http://java.sun.com/javase/downloads/>

NOTE: The Sample RTE requires the full Java Development Kit. The Java Runtime Environment (JRE) alone is NOT sufficient for that software.

ADL Community Site for Support & Discussion

<http://www.adlcommunity.net/>

SCORM Certified Products

<http://www.adlnet.gov/scorm/certified/>

SCORM Adopters

<http://www.adlnet.gov/scorm/adopters/>

Community Sites & Resources

ADL SCORM School (4 week web-based course, \$395)

<http://www.academiccolab.org/initiatives/scormschool.html>

Conform2SCORM (Independent directory)

<http://www.conform2scorm.com/>

Ostyn Consulting (tools & resources)

<http://www.ostyn.com/>

Reload (Metadata/packaging editor & more)

<http://www.reload.ac.uk/>

Rustici Software (*Test Track* for Content & Sequencing)

<http://www.scorm.com/>

LETSI Wiki (Community and Technical Workgroup Information)

<http://www.letsi.org>