



IMS GLOBALTM
Learning Consortium

Common Cartridge: A Dynamic Digital Content Format Standard



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Talk Objectives

- To provide an overview of the IMS Global Common Cartridge(CC) specification
- To show how CC is related to other IMS Global specifications
- To review who has already adopted CC and to explain the associated benefits

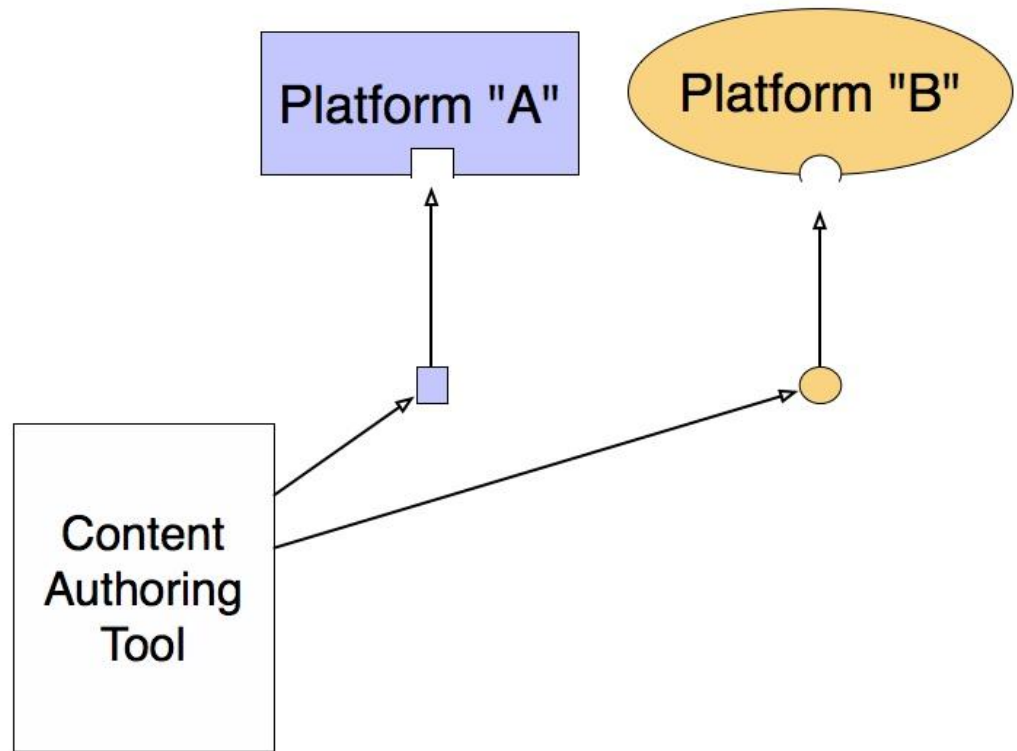
Contents

- The problem being addressed
- The Common Cartridge features
- The Conformance Program
- User and vendor adoption
- Support for adoption
- Future development



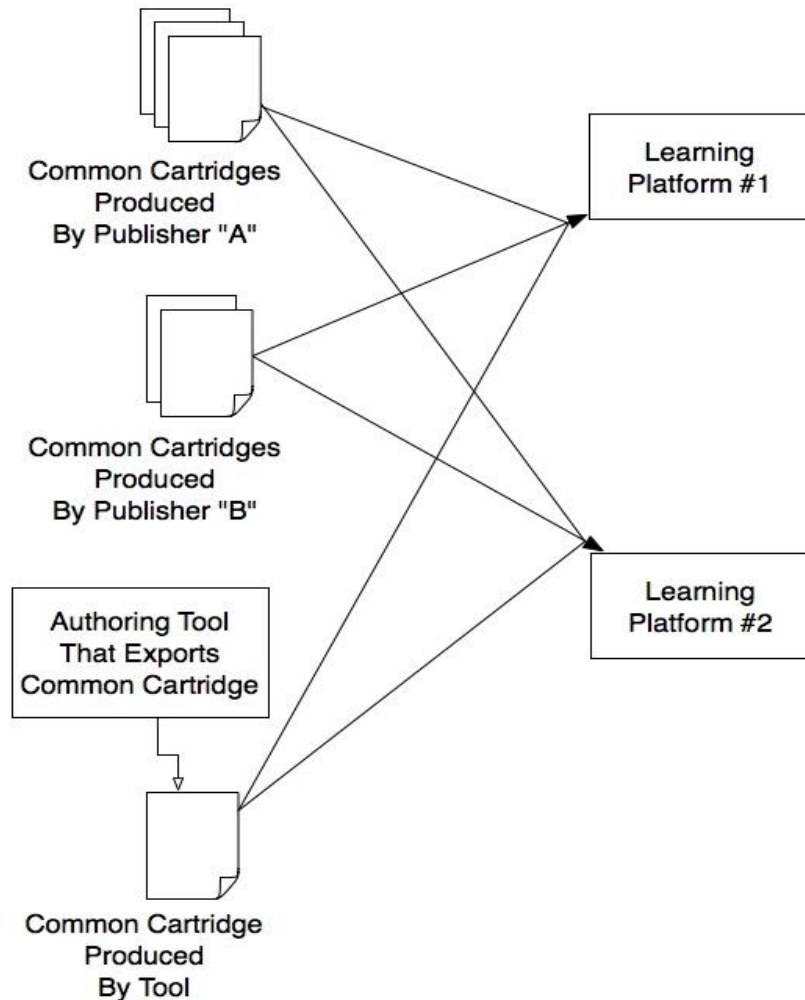
The Problem for CC to Solve

Because learning platforms and authoring tools are all different, there is a need for a standard interoperable format.





The CC Solution



Publishers, authoring tools, and learning platforms all need a format for interoperable, “mix and match” import and export.



What is Common Cartridge?

- Common Cartridge is a specification for packaging learning and assessment content.
- The package distills the latest and best community practices for sharing digital content among authoring tools and learning platforms.



What It Does

- Enables mapping to things we use and understand
 - Content and content containers such as courses, textbooks, media files, lesson plans, quizzes, discussion topics, and
 - Connections such as links to external content, single-sign-on
- Supports the predominant educational and training paradigm – self-directed but guided learning with an instructor in the loop, coordinated with assessment and online communal learning (discussions)



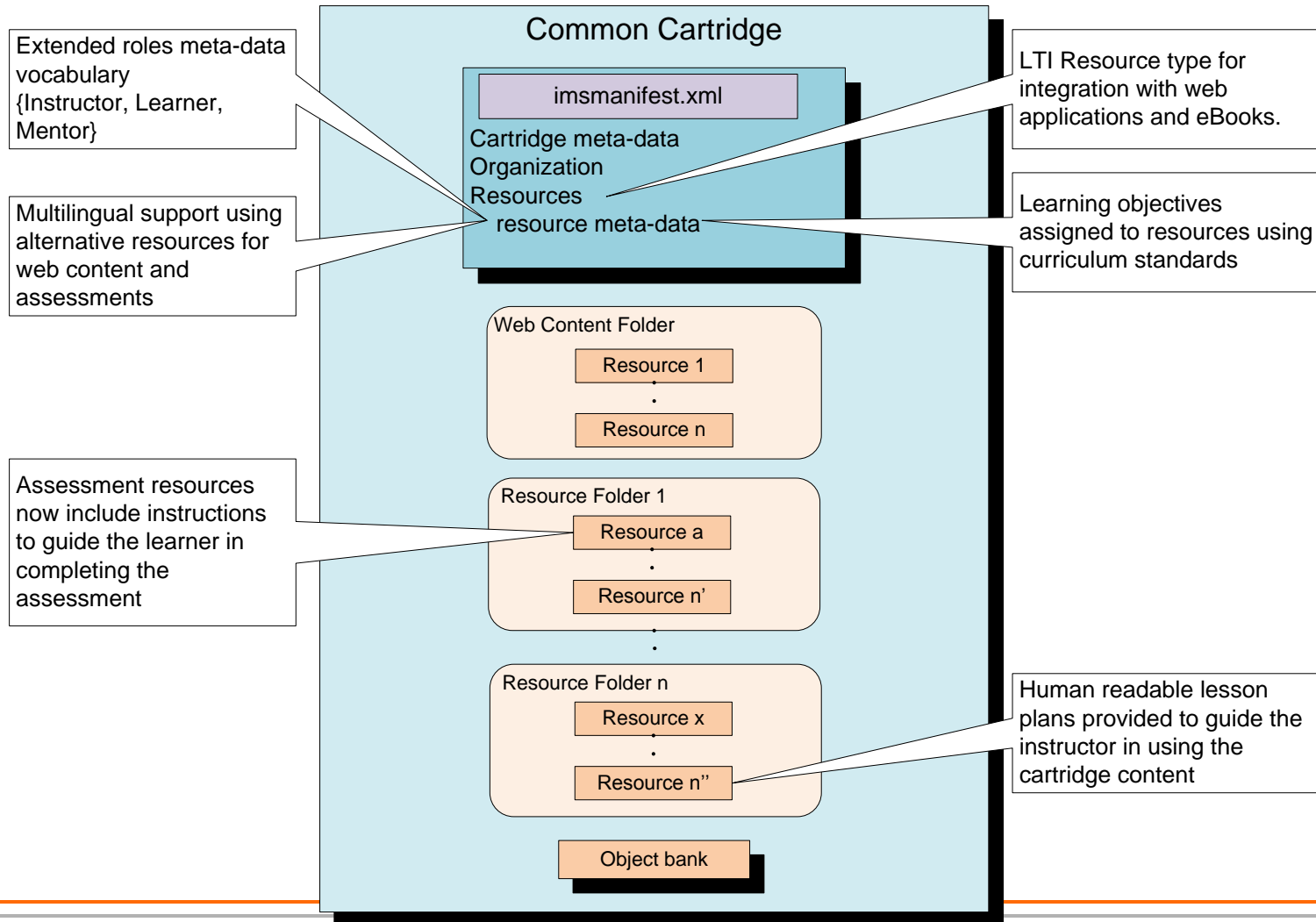
How It Does It

- Cartridge Metadata – describes the cartridge
- Resource Metadata – roles: instructor, learner, mentor
- Rich content
 - html, xml, web links
 - Media files (mpg, jpg, mp3)
 - Application files (e.g. Microsoft Office)

Note: Platform must be able to handle these
- Integrated assessments
 - Multiple choice, True/false
 - Essay, Simple fill in the blank, Pattern match
- Discussion forum integration
- Plain external Web Links and LTI links



Common Cartridge Standard

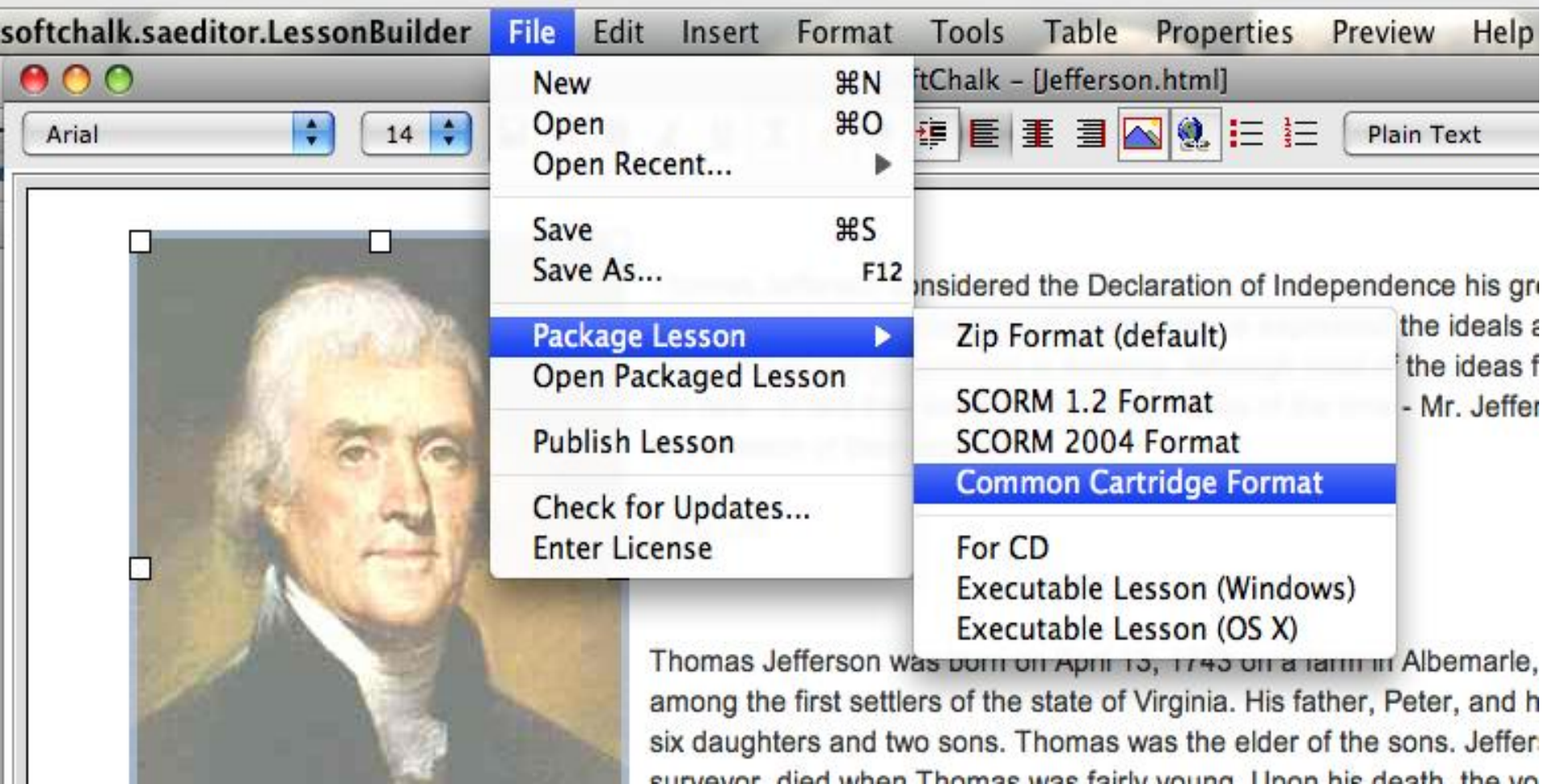


Related Standards

- **Metadata**
 - ISO 15836:2003: Dublin Core Metadata Element Set (mapped to LOM)
 - IEEE 1484.12.1-2002: Learning Object Metadata (LOM)
 - IMS Metadata v1.3.2 (Binding)
 - IMS Curriculum Standards Metadata v1.0
- **Content**
 - IMS Content Packaging v1.2
 - IMS Question & Test Interoperability v1.2.1
 - IMS Discussion Topics v1.2
 - IMS Web Links v1.2
- **Web Services**
 - IMS Learning Tool Interoperability v1.1



Package in an Authoring Tool





Open in an LMS

RWT Test Course - Course Cartridge ...

JENZABAR

Welcome back **Rick Tomlinson** ([Personal Info](#) | [Logout](#))

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Current view: Faculty

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Course Cartridge

Course Content Import - Browse

[Manage Content](#)


Default Organization

- ☐ 1
- ☒ 1.1 Thomas Jefferson Review
- ☐ 1.2 Discuss Jefferson

Thomas Jefferson Review

HIST 100 - Spring Semester

Contents ▼ Page: 1 | 2 | 3 | 4 score print all



Thomas Jefferson considered the Declaration of Independence his greatest achievement. Drafted in June of 1776, the Declaration of Independence expressed the ideals and philosophy that marked the beginning of **self-government** in America. Although most of the ideas featured in the Declaration were not new - in fact they were commonplace ideas of the time - Mr. Jefferson is known for the eloquence and passion of their expression.

[Learn More](#)

Roll your cursor over the colored text on this page to view the annotated text in the lesson.

Conformance Program

- Digital content or learning platforms should exhibit the mark shown here and produce their conformance registration number which signifies achievement of the official conformance process
- Membership in the Common Cartridge Alliance is the only way to achieve official conformance to the CC.



**IMS GLOBAL**
Learning ConsortiumAdvancing Learning Impact by Enabling the Open Foundation for
Seamless, Agile and Information-Rich Educational Technology Integration[Home](#) [Initiatives](#) [Leadership](#) [Learning Impact](#) [Public Resources](#) [Members Only](#) [Join IMS](#) [About Us](#)[Validate URI](#) :: [Direct Input](#) :: [Upload Manifest](#) :: [Upload Cartridge](#)**Cartridge:** no file selected [Browse to begin validation.](#)Select a Profile: ☐ CC v1.0 ☒ CC v1.1 (default) ☐ CC v1.2

IMS Common Cartridge Test System

COMMON CARTRIDGE v1.0 and COMMON CARTRIDGE v1.1

This test system is made available free-of-charge so that you can perform your own testing of cartridges for conformance with the IMS Common Cartridge v1.0 and/or v1.1 specification by choosing the appropriate test from the buttons above to test against the correct profile.. Join the Common Cartridge Alliance to receive support using the Common Cartridge Validator Forum. Conformance Membership in the Common Cartridge Alliance is the only way to achieve official conformance to the Common Cartridge (CC) standard. For directions on how to apply for conformance, visit:

<http://www.imsglobal.org/developers/alliance/testdata.cfm>

How to use the validator VIA WEB UI, SOAP WEB SERVICE OR COMMAND LINE

Currently the validator can validate an imsmanifest.xml file or an entire cartridge. The validation options are: Validate by URI (provide a URI to an ims manifest file or cartridge), Direct Input (copy and paste the contents of an ims manifest file into the field), Upload Manifest (upload an ims manifest file to be validated) or Upload Cartridge (upload an entire common cartridge to be validated). There is also a [SOAP Webservice](#) and a [HTTP+POX Service](#). They can both take direct input or one or more URLs separated by commas or a Base64 encoded bytes array of a cartridge. You may optionally provide direct input or a URL to an XSL file as a parameter. Doing so will style the results returned from the service. You may also specify a profile version. [Click here for details.](#)

To fully support this important work join the non-profit
[Common Cartridge & Learning Tools Interoperability Alliance](#)

What is Common Cartridge?

Common Cartridge is the first of three major standards that comprise a new generation of Digital Learning Services standards to support a new generation of learning technology. These are:

Organized and distributed digital learning content (Common Cartridge - CC)

Applications, systems, and mash-ups (Learning Tools Interoperability - LTI)

Learner information: privileges and outcomes (Learning Information Services - LIS)

[Common Cartridge & Learning Tools Interoperability Alliance Website Login](#)[Join the Common Cartridge & Learning Tools Interoperability Alliance Online](#)[Common Cartridge & Learning Tools Interoperability Alliance Members](#)[About Common Cartridge](#)[Common Cartridge Frequently Asked Questions](#)



Measuring Conformance

- Self-test, not 3rd party certification
- Test method:
 - Cartridges – automated test tool
 - Platforms – test data sets of valid/known error cartridges
- Conformance levels for platforms
 - CC compliant – supports all CC features

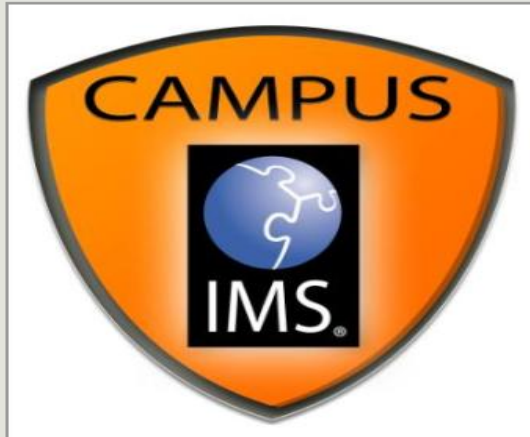


Common Cartridge Alliance

- Developer Resources
- Community
- Conformance Process
 - Online Validator
 - Test Instances
 - Logo Program
 - Status Chart



<http://www.imsglobal.org/developers/alliance/welcome.cfm>



IMS Campus Case Study

Lone Star College leverages IMS Global Consortium's guidance and Common Cartridge standard to integrate content for online program and system use



The Lone Star College System (LSCS) provides teaching and learning opportunities for diverse groups of people – college and high school students, faculty, and high school teachers – and the impact of the institution continues to grow throughout Texas and beyond. The fact that LSCS is able to share content across so many different hardware platforms and software applications administrators attribute to guidance provided by the IMS Global Learning Consortium (IMS) and adoption of its Common Cartridge standard.

"IMS has helped us a lot with our development of content," said Nita Schiro, communications manager for LSC-Online. "Interoperability is one of those behind-the-scenes things that is a critical component to the process of exchanging information, but one that most users are unaware of and take for granted. The best thing about a product like Common Cartridge is that it enables users to access content, regardless of the platform they use, and to do it seamlessly."

Introduced by IMS GLC in 2007, Common Cartridge is a technical interoperability standard for exchanging learning content between learning management platforms. Common Cartridge also enables integration of digital content with stand-alone learning tools, such as adaptive tutors or



Who Are the Adopters?

- Acontent
- Agilix
- Angel Learning
- Atutor
- Atutor Spaces
- Blackboard
- Cengage Learning*
- CSU
- Desire2learn
- Elsevier*
- Instructure
- Jenzabar
- Multimedia Design & Technology Education (USA)*
- Open University (UK)*
- SAFARI Montage
- SAKAI
- SBCTC (Washington State, USA)*
- SK C&C
- SoftChalk

<http://www.imsglobal.org/cc/statuschart.cfm>

Return on Investment Justification

- Write once deploy many times
 - Reduce content creation costs
 - Enable content reuse
- Allow mixed LMS deployments
 - Reduce infrastructure costs
 - Enable ‘horses-for-courses’



Pragmatic Evolution

- V1.0 – October 2008
- V1.1 – March 2011
 - Add LTI v1.0
 - Conformance rationalization
- V1.2 – October 2011
 - Add Curriculum Standards Metadata
 - Add LTI v1.1

CC Version 1.3

- Requirements being finalized are:
 - Addition of new content types
 - IMS Interactive White Board (IWB)
 - IMS Accessible Portable Item Protocol (APIP)
 - IDPF EPUB3
 - Support for resource type extension capability
 - Support for embedded resource XML
 - Allow exchange of just the CC ‘manifest’



Longer Term CC Development

- Adoption of LTI 2.0 specification
- Integration with IMS APIP v1.0 specification

Summary

- Common Cartridge is a **widely adopted and deployed** distribution format for learning content
- Many challenges ahead to improve CC capabilities, **through evolution**, to make it even easier to create and distribute such content



Questions

- IMS – www.imsglobal.org
- jkahn@imsglobal.org



*Free the
content*



IMS Common Cartridge

- <http://www.imsglobal.org/developers/cc/>