Update on IMS Global Learning Consortium standardisation activities

EdReNe Seminar
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Head of Operations, Europe
IMS Global Learning Consortium
http://www.imsglobal.org
@LearningImpact
IMS Global
• **Non-profit, member-based** collaborative with a mission to improve the learning experience for students, teachers and administrators

• Members include institutions (K-12 & HED), corporate learning, publishers, and EdTech product developers and suppliers

• **Learning Impact** focused: primary focus is *educational improvement*; technology and interoperability are to provide a scalable foundation for better education
• IMS in practice: a **forum** for enabling leading educational institutions and product suppliers to **work together**, leading the sector forward in terms of innovation and impact.

  – Technical Working Groups
  – Technical Advisory Board
  – Executive boards
  – Communities of Practice
Towards an interoperable ecosystem: modus operandi

- Technical Specifications
- Best Practices & Guidelines
- Sample Code & Libraries
- Member Discussion Forums & Website
- Partnerships
- Certification & Product Directory
IMS = World Class EdTech Ecosystem

- **Well-resourced:** *Large enough to deliver on the value proposition of open standards:* 15 full-time staff, $4 million annual revenue, 20% CAGR over 10 years. Approaching the size and stature of the World Wide Web Consortium.

- **Game Changing Adoption:** 700+ product certifications

- **Sustainable support:** across HED (ubiquitous) and K-12 (growing fast) institutions & suppliers: supported through membership dues and member contributions

- **Partners with leading organizations:** EDUCAUSE, Internet2, Unizin, Bill & Melinda Gates Foundation, ISTE, Learning Counsel, Ed-Fi, CoSN, SETDA, K12 Federation, WCET, Online Learning Consortium, AACRAO, Quality Matters, Mozilla Foundation, Collective Shift (MacArthur Foundation), IDPF, ISO/IEC, PARCC, SBAC

- **Learning Impact focused:** Primary focus is educational improvement; technology and interoperability are to provide a scalable foundation for better education
IMS Global Learning Consortium Growth

IMS Member Organizations End of Year
Three Membership Levels:

- Contributing Member = Voting Member; Leader of the Movement
- Affiliate Member = Development network member across all IMS work
- Alliance Member = Development network member for a limited set of IMS work

see [http://www.imsglobal.org/imsmembership.html](http://www.imsglobal.org/imsmembership.html)

See All Members here: [http://www.imsglobal.org/membersandaffiliates.html](http://www.imsglobal.org/membersandaffiliates.html)
Engagement:

- Technical Advisory Board (Contributing Members)
- Executive Steering Groups (Contributing Members)
- Workgroups (Contributing Members)
- Member web site: Specific areas for Contributing, Affiliate and Alliance Members
- Face-to-face quarterly meetings in U.S.
- Regional meetings in active regions outside U.S.
- Community Communications

See technical activities here: http://www.imsglobal.org/developers
Upcoming IMS Global Meetings

Register now at imsglobal.org/lili2017

IMS Quarterly Meeting & Technical Congress: 14-17 August 2017
  • Ann Arbor, Michigan

IMS Quarterly Meeting & Analytics Summit: TBD November 2017

IMS Quarterly Meeting & Digital Credentials Summit: TBD February 2018
IMS Europe
A European Perspective

- **IMS Europe** currently in formation
  - Alongside IMS South Korea, IMS Japan
  - Executive Board forming
  - Annual summit on European soil
  - Topic specific workshops as well (e.g. Open Badges)
IMS Europe: goals

• Represent European IMS members within IMS
• Create more awareness for the IMS standards in Europe
• Align specifications & implementations with European requirements & use cases
• Foster information sharing with European institutions & vendor communities
• Help European product suppliers reach larger markets
Technical Work Overview
Read more at:  http://www.imsglobal.org/institutions.html
<table>
<thead>
<tr>
<th>Technical Work</th>
<th>Technical Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility</td>
<td>Accessibility, inclusive design, and personalization of online learning resources to meet the needs of all users/learners</td>
</tr>
<tr>
<td>App Sharing &amp; Integration</td>
<td>Peer-to-peer educational app sharing catalogs and store fronts</td>
</tr>
<tr>
<td>Protocol</td>
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<tr>
<td>Caliper Analytics</td>
<td>Consistently capturing and presenting measures of learning activity and defining a common language for labeling learning data, with a standard way</td>
</tr>
<tr>
<td>of measuring learning activities and effectiveness enabling designers and providers of curriculum to measure, compare and improve quality</td>
<td></td>
</tr>
<tr>
<td>Common Cartridge</td>
<td>Organization, publishing, distribution, delivery, and search of a wide variety of collections of digital learning content, applications used as the basis for or in support of online learning of any type.</td>
</tr>
<tr>
<td>Digital Credentialing</td>
<td>Development of &quot;eT&quot;, an extended transcript designed to support competency-based programs and credentialing systems.</td>
</tr>
<tr>
<td>EDUPUB</td>
<td>Establishing a globally interoperable, accessible, open ecosystem for e-Textbooks and other Digital Learning Materials via EPUB3, Educational Sector Standards and the Open Web Platform</td>
</tr>
<tr>
<td>Learning Tools Interoperability</td>
<td>Integrating rich learning applications (often remotely hosted and provided through third-party services) with platforms like learning management systems, portals, learning object repositories, or other educational environments.</td>
</tr>
<tr>
<td>OneRoster and Learning</td>
<td>Exchange and synchronization of roster information and grades which focuses on people, memberships, courses and outcomes.</td>
</tr>
<tr>
<td>Information Services</td>
<td></td>
</tr>
<tr>
<td>OpenVideo</td>
<td>Creation of video capture metadata to enable information from any video to be shared and searched</td>
</tr>
<tr>
<td>Privacy and Security</td>
<td>Development of a Privacy Service which will carry privacy preferences across systems and tools</td>
</tr>
<tr>
<td>Question and Test Interop</td>
<td>Exchange of item, test and results data between authoring tools, item banks, test construction tools, learning systems and assessment delivery systems, including accessible assessments.</td>
</tr>
</tbody>
</table>
IMS Standards 101

- **Learning Tools Interoperability (LTI)** - Establishes a more efficient/effective way of integrating rich learning applications with platforms like learning management systems, portals, or other educational environments.

- **Common Cartridge (CC) / Thin CC / EDUPUB** - Provides a way to represent digital course or e-book materials, including assessments and discussion forums, for use in online learning systems or e-book readers. Content can be developed & exported in one format and then used across a wide variety of learning systems.

- **Question and Test Interoperability (QTI)** - Enables interoperability of assessment items, tests and assessment results, including support for accessible digital assessments.

- **OneRoster & Learning Information Services (LIS)** - Enables interoperability between teaching and learning applications and student information systems; allowing student data, class data and outcomes to move seamlessly between systems.

- **Caliper Analytics (Caliper Framework & Sensor API)** - Enables interoperability of a wide range of data capturing interaction of users with digital learning tools, content and platforms.

- **Competency Framework, Open Badges for Education, extended Transcript** - Enables interoperability of learning standards and digital micro-credentials within institutional systems and among credential issuers and users.
Conformance Certification
Conformance Product Directory

• Official listing of products guaranteed to meet the IMS benchmarks.
• IMS certified products implement the open architecture.
• IMS also provides:
  • The standards.
  • Code libraries.
  • APIs.
  • Reference implementations.
Adoption of certified applications/digital resources enables any application to seamlessly plug into another without requiring costly and timely custom integrations and share data to aid understanding of use of digital resources & student progress
How Does IMS Enable Better Digital Learning Experiences?

**Seamless plug & play integration**
Creates better user experiences & enables greater educational insight.

**Agile open architecture & extensive ecosystem**
Enables flexibility, efficiency & choice.

**Effective member-based collaboration**
Means getting to the future sooner with sustainable progress.

[https://www.imsglobal.org/cc/statuschart.cfm](https://www.imsglobal.org/cc/statuschart.cfm)
Competency Based Education (CBE)
Open Badges
IMS’ Digital Credentials Vision

Free and open standard
Rigorous, relevant and trusted
Controllable by the learner
Portable and transferrable
Valued and connected through data to employers
IMS Global, Mozilla Foundation, and LRNG Announce Next Steps to Accelerate the Evolution of the Open Badges Standard

IMS Global, Mozilla Foundation, and LRNG Announce Next Steps to Accelerate the Evolution and Adoption of the Open Badges Standard

Mozilla Foundation and Collective Shift/LRNG to Transition Management of the Popular Open Badges Project to IMS Global to Ensure Long-term Support and Sustainability

LAKESIDE, Florida, 28 October 2016 — IMS Global Learning Consortium (IMS Global/IMS), the world leader in EdTech interoperability and innovation, the Mozilla Foundation, and Collective Shift/LRNG announced today an agreement for IMS Global to become the organization responsible for advancing the development, transferability, and market adoption of the Open Badges specification beginning January 1, 2017. As an open-governance, member-based standards consortium, IMS Global is committed to furthering the adoption, integration, and portability of digital badges to meet the needs of learners, educators, and employers.

"IMS is the smart choice for the next step in the evolution of the Open Badges Initiative," said Mark Surman, executive director of the Mozilla Foundation who serves on the Badge Alliance Steering Committee along with Dr. Rob Abel, CEO of IMS Global, and Connie Yowell, CEO of Collective Shift/LRNG. "The IMS community shares the values of openness and collaboration that have driven this project since its launch in 2011." Both the Mozilla Foundation and LRNG will become IMS Contributing Members to help lead and support the evolution of the Open Badges standard.

"I look forward to working with the IMS member community to build on the momentum gained by Mozilla and Open Badges contributors, as well as address some of the challenges identified, such as articulating the value of digital credentials," said Connie Yowell. "IMS is bringing together the wide range of stakeholders dedicated to working together to accelerate progress." Open Badges started as a Mozilla led project funded by the MacArthur Foundation that included the creation of the Badge Alliance community to help organize adoption. The work of the Open Badges community will continue via IMS Global, facilitated by a revamped website featuring both technical evolution and badge adoption community activities.

"The IMS community is a very good fit for this effort because of our leadership in the education technology market, our collaborative K-20 and EdTech supplier member network, and our existing investments in enabling better digital credentialing, specifically our focus on Open Badges extensions for education, the extended transcript, and competency-based education," commented Dr. Rob Abel. "Working closely with Mozilla Foundation and LRNG over the last year has confirmed that this move should help to accelerate development of the open badges product ecosystem."

IMS is inviting Open Badges contributors, who have invested their time and talent in this movement, to join a new Open Badges Community Council. The Community Council will be a channel to showcase thought leadership around Open Badges and provide guidance to IMS activities. IMS will also be forming an executive leadership council for IMS member organizations that are actively contributing to market development and adoption. During the transition, the Open Badges community is actively working towards the release of Open
What are Open Badges?

Open Badges are verifiable, portable digital badges with embedded metadata about skills and achievements.

The Open Badges Specification is a general purpose semantic web vocabulary and set of verification tools for describing and understanding any achievement.
Open Badges Data Model Overview

Extensible Linked Data/RDF data model, expressed primarily as JSON-LD, but can translate to/from XML, N-Quads, etc.

Can add domain-specific metadata and make it reusable through Open Badges Extensions.

**Possible examples:**
Badge level or grade level
Hours / credits / points
Alternate certification name
Evaluator / assessment information
Additional issuer or recipient identifiers
Open Badges Technical Update

Open Badges Ecosystem Overview

- **Issuers**: Education Providers, Afterschool Class, Website, Organizations
- **Verification**: Badge
- **Displayers**: Badge
- **Consumers**: Employers, College Admissions

Recipient
Open Badges Data Model Improvements

Rich criteria and evidence vocabularies to bring more metadata into the machine-readable components of the badge.

Additional properties to identify recipients besides email addresses. (New: Issuers can be recipients of badges)

Internationalization/localization using JSON-LD's @language tag.

Supporting embedding
Open Badge Extensions for Education (OBEE)

- **Focused on the employer** as the primary badge consumer
- Refining badge contents using **standard extensions**
- A simple **classification framework** to define minimum badge requirements of rigor for education
- Certify technical compliance and portability through **IMS-based online compliance certification**
- Research embedding data for analytics
- Explore ways to maximize search and discoverability
OBEE Extensions

Two new “extensions” - proposed additions to the spec

Assessment

Accreditation
What is the Assessment extension?

Provides information about a single or multiple assessments that are required of a recipient of an Open Badge. Separate, independent evaluations of a single assessment could result in multiple assessment/evaluation records, all included in a single instance of the extension.
Minimum required data:

Assessment type (keyword): Exam, Performance or Artifact

Participation context type (keyword): Individual or Group

Assessment Description (Text)

Evaluation (URL): Information about how the assessment is scored. e.g. What do the scores represent in a range of scores? If a rubric was used, what are the score ranges for each criteria?
OBEE Extension: IssuerAccreditation

What is the IssuerAccreditation extension?

Provides a reference to a single or multiple accreditation bodies as related to the IssuerOrganization of an Open Badge
OBEE Extension: IssuerAccreditation

Minimum required data:

**legalName**: The official name of the organization, e.g. the registered company name

**contactInstructions**: Contact instructions for an accrediting organization

**url**: URL of the organization

**address** Physical address of the organization

Underlined items are consistent with definitions in schema.org
Extended Transcript
## Guidelines for the Extended Transcript

**Academic/Business Requirements**
- Registrar controlled
- Issued by Institution
- Web-based e Transcript
- Authentic, unalterable

**Technology Implementation**
- Machine Readable, Digitally Signed
- Linkable via URI to other resources (JSON/LD)

**Additional Features**
- AACRAO guidelines
- Shareable by learner
- Secure and private
- Printable
- Supportive of SPEEDE and other outputs (e.g. PDF)
- An IMS context of Open Badge specification
Extended Transcript Phase II

Achievement Records Store and SkillsCenter Search™
Phase 1 of the Extended Transcript (eT) produced a standardized file specification that supports courses, competencies and co-curricular achievements. The eT record can be displayed via an engaging web experience for the learner.

This image is used by permission of IMS members University of Wisconsin Extension and Learning Objects.

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eT Phase I was a big success.
Benefits of Extended Transcript

The benefits of the extended transcript (eT) are recognized by students. 80% of pilot participants recommended eT for all students.

However, administratively, sourcing the eT data was a struggle. In most institutions, no one system contains all of the necessary data to produce eT. A new strategy and is needed for achievements management in learning organizations.
Issues with the Current Situation

• Student information systems (SIS) do not supporting competency based curricula, but do support course based achievements, competencies are stored separately
• Records of mastery emit from a learning management system (LMS) or assessment tool
• Separate or external systems manage internships and co-curricular activities - the necessary data for eT is widely distributed
Solution for the Current Issues

• The various sources of achievements data must be collected and managed in a strategic **system of record for achievements** based upon the eT standard

• An Achievements Record Store (ARS) standard
Why an eT ARS Standard?

Knowledge, skills and achievements earned by students represent **valuable assets** that the learners want to share with the outside world.

Data is buried in proprietary databases which cannot support a scalable ecosystem.

Badges are important as achievement recognitions, many but not all knowledge, skills and achievements will be “badged”
The Achievements Records Manager is a system process that collects required skills, achievements and credentials data from the systems of origin and publishes the eT records in the CRS.

All of a learner’s knowledge, skills and achievements may not be badged, but they are available for SkillsCenter Search.

Phase III of the work will provide a secure, digital Personal Achievement Record to the Learner.

An open API in the records manager stores the eT records and ensures that no more than one eT is active for a learner at any time. Earlier eT records are changed to archival status.

Through the use of linked data (json-ld), supporting documents can be readily associated.

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**SkillsCenter Search™**

Employer recruiting platforms will have authorized, controlled access to the institution’s SkillsCenter achievement record store, where anonymized candidate matching can occur.

Individual’s credentials may (when applicable) link to the Credential Registry, a national catalog.

Selected credential can be recorded and verifiable via BlockCerts™ Distributed Ledger.

Based upon eT, the IMS digital Extended Transcript Specification 1.0.

The achievements record store (ARS) is the system of record for learners’ skills, achievements and credentials.

SkillsCenter™ is a standards-based achievements records store. searchable because is standardized and supported by open API’s. Secured by institution-controlled firewalls and protections.

Credential can be recorded in a permanent ledger using BlockCerts™ and subsequently verified for validity and trust, most critical for high stakes credentials.

The eT SkillsCenter is free and supports each institution’s mission to help their students find employment using secure, 21st century methods.
Phase III - Personal Achievements Management

Learners need unencumbered access to their digital credentials (badges, micro-credentials and eTranscripts) to store in their “folio” No controlling system should be required to collect, store and secure a copies of one’s credentials Systems to allow custom presentation and sharing will continue to develop in the market
Personal Achievements Folio

Export Digital Credentials
- Badges
- Micro-Credentials
- eTranscripts

PAF - A lightweight specification supporting learner identity and security

Folio Management Platforms will support self-curation, employment search and discovery
Curriculum
OneRoster
Provision key roster related data including student, course and related enrollment information between various platforms such as a student information system (SIS) and a learning management system (LMS).

Flexible implementation options to align with an institution’s needs and capabilities, supporting simple spreadsheet-style (CSV) exchanges as well as system-to-system exchanges using REST API’s.

Improves data exchange among multiple systems with roster and gradebook information, thus eliminating problems before they happen.

Transmit scored results between applications, such as student scores from the LMS back to the SIS.
For OneRoster the information being exchanged is collated in three groups:

- **Class Rosters** - the set of people enrolled on a class at a site and for a set period;
- **Resources** - to identify the set of resources that are required for a class and/or a course;
- **Gradebooks** - the data is broken into results, lineItems (a set of results) and categories (a set of lineItems).
Houston ISD Ecosystem

Learning Content & Apps

- KNOVATION
- NBC LEARN
- gooru
- ABC CLIO
- Discovery Education
- PEARSON
- McGraw Hill Education
- WILEY
- CENGAGE Learning
- BRAINPOP
- Houghton Mifflin Harcourt
- learn3.com
- Smithsonian
- openstax
- myON Books
- CK-12
- Istotn

IMS Open Standards:

- LTI®
- Thin Common Cartridge®
- OneRoster™

LEARNING PLATFORM/PORTAL/LOR

Launch, Search, Authorize, Results

SCHOOL DISTRICT DATA

Roster Sync
Competencies & Academic Standards Exchange (CASE)
The Challenge

Standards-aligned Digital Content from Provider A
Standards-aligned Assessment Data from Provider B
Standards-aligned Digital Content from Provider C
Standards-aligned Activity Results from Provider D
Competencies & Academic Standards Exchange

A defined method for
• Representing academic standards digitally
• Representing relationships to other academic standard sets
• Representing rubrics (criteria & performance level) that may be aligned to learning standards
CASE includes the following key attributes:

- The original competencies or academic standards (document)
- Machine-readable statements of what the learner will know and be able to do (items)
- Explanations of relationships between standard sets and/or among individual standards or courses where applicable (associations)
- Guides listing specific criteria for grading or scoring academic papers, projects, or tests (rubrics)
CASE Task Force Status

• The task force has been meeting since February 2016 and working through the effort of creating the specification
• We have a draft specification that is now moving through IMS formalization
• We have a number of pilots under way that are vetting the framework specification.
• Florida, Texas and Wisconsin have active projects to publish their Learning Standards in the new format
• A number of vendors are engaged in these pilots along with districts in the respective states
• Tool sets are being built and tested
Learning Tools Interoperability (LTI)
Hey, this is great, I just need to write one integration using my own language of choice. This certainly beats having to upgrade our systems every time we add a new application. This is way better; no more separate logins, everything is available from within our online course. Wow, I can now link to new applications myself and get instant access!
Learning Tools Interoperability®

in the Context of Institutional Rostering and Results Reporting
<table>
<thead>
<tr>
<th>LTI Extensions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content-Item Message</strong></td>
<td>Provides a one-step way to add content and links to an LMS platform from the content tools.</td>
</tr>
<tr>
<td><strong>Gradebook Services</strong></td>
<td>Solves the need for grades to be passed back to the LMS Gradebook from learning tools.</td>
</tr>
<tr>
<td><strong>Membership Services</strong></td>
<td>Sends a list of participants enrolled in a course to a learning tool.</td>
</tr>
<tr>
<td><strong>LTI Content Packaging</strong></td>
<td>Using TCC. Presents a <em>table of contents</em> of course materials which reside in a cloud-based repository and uses LTI to launch the content for inclusion in an LMS platform</td>
</tr>
</tbody>
</table>
## LTI Extensions

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Registration Message</strong></td>
<td>Automates pairing between a tool and learning platform, avoiding the need to send tool credentials (key and secret) manually and in potentially insecure ways. Enables a tool to be configured automatically within the LMS.</td>
<td>LTI 2.0</td>
</tr>
<tr>
<td><strong>Tool Settings service</strong></td>
<td>Allows a tool to use the LMS for storing data to be returned when it communicates back to the tool.</td>
<td>LTI 1.2/LTI 1.1 (Basic Outcomes Service), LTI 1.2 (Gradebook Services 2.0)</td>
</tr>
</tbody>
</table>
Analytics
Caliper = Learning Analytics Ecosystem

IMS Caliper Enabled Services
- Caliper Sensor Endpoint(s)
- Compliant Data Mgmt Services

EDU
- Students
- Instructors
- Curriculum
- Admins
- Learning Research

OPERATIONS PLATFORMS
LEARNING PLATFORMS
PUBLISHER / COURSEWARE SOLUTIONS
MOBILE EDU APPS
EDU TOOLS / SERVICES

DATA MANAGEMENT SERVICES
Data Stores

Sensor = S
Sensor EndPoint = EP
Scope: Caliper 1.x

instrument

describe
collect
transport

persist

store

feedback

use

analyze
visualize
report
share
predict
intervene
adapt

feedback
Scope: Caliper 1.x

instrument

describe
collect
transport

persist

store

use

analyze
visualize
report
share
predict
intervene
adapt

use
Caliper latest (1.1)

- Doc rewrites
  - Spec
  - Impl guide
  - Ontology

- Event model revisions
  - Discussion Forum Profile
  - Event model

- Payload thinning
  - LTI integration
  - Payload thinning

- Cert suite
  - Upgrade

- LTI integration
  - POST
  - Tool consumer
  - Tool provider

- Sensor updates
  - Caliper-java
  - Caliper-js
  - Caliper-python
  - Caliper-php
  - Caliper-ruby
  - Caliper-net
Caliper code repos (Github)

sensors
- caliper-java
- caliper-js
- caliper-ruby
- caliper-python
- caliper-php
- caliper-net

sample code
- caliper-java-example
- caliper-js-example
- caliper-net-example

support
- caliper-central
- caliper-contexts
- caliper-common-fixtures

docs
- caliper-spec
- caliper-ontology
- caliper-impl-guide

public
- caliper-java-public
- caliper-js-public
- caliper-ruby-public
- caliper-python-public
- caliper-php-public
- caliper-net

cert suite
- caliper-conformance-tests
Caliper profiles

current

Basic
Assessment
Forum
Media
Annotation
Reading
Assignable
Session
Outcome
ToolUse
Authoring
Credentials
Feedback
Participatio
n
Problem Set
QTI
Search
Simulation
Social
Survey
Entity Mgmt

future?

new entities?

Badge
Survey
Location
Problem
Rating
CPS calls API Key service using SSL wire encryption & standard LTI credentials; call can be performed outside depicted sequence and the API key cached.

Caliper profile service (CPS)

POST
launch request
+ custom_caliper_profile_url,
+ custom_caliper_session_id

CPS response apiKey, eventStore.url, expiryTime

sensor config

GET

apiKey scoped to Caliper profile URL; CPS should specify an expiry in order to avoid repeated lookups of apiKey prior to expiration.

CPS declared in Tool Consumer Profile

POST

GET

CPS calls API Key service using SSL wire encryption & standard LTI credentials; call can be performed outside depicted sequence and the API key cached.

data stream secured using SSL wire encryption and tuple: apiKey (header), sensor_id & session_id

event store

GET

tool provider

tool consumer

Sensor

Caliper/ LTI 1.x workflow
IMS Global Announces Caliper Analytics Progress and Plans

Caliper v1.1 Release, Formation of Executive Product Steering Committee, and Future Support for xAPI are in the Works

LAKE MARY, FLORIDA (PRWEB) MARCH 13, 2017

IMS Global Learning Consortium (IMS Global), the world leader in EdTech interoperability and innovation, announced plans for the next year in support of the emerging field of learning analytics.

The public release of IMS Global Caliper Analytics® v1.1 is targeted for May 2017. Caliper is a set of APIs and semantic data vocabularies for enabling widespread, low cost real-time sharing of data to help students, teachers and educational institutions understand progress and improve success. Eighteen leading learning platforms, tools and publisher products have achieved Caliper v1.0 certification. Caliper v1.1 brings a refined and extended vocabulary for describing learning events, including a new, simple profile for capturing tool usage statistics. The specification now provides improved efficiency of over-the-wire transmissions as well as guidance on conformance certification for endpoints receiving Caliper events.

To support the future evolution of Caliper, IMS Global is organizing a new executive Product Steering Committee to facilitate market feedback and guide the market requirements for Caliper going forward. Mike Sharkey of Blackboard, formerly with Blue Canary and University of Phoenix, will be the inaugural chair of the steering committee.

"It is great to see the rapid adoption of Caliper among leading sector suppliers and institutions," said Mike Sharkey, vice president of analytics at Blackboard. "As we continue to see growth in the learning analytics space, the formation of the new IMS Global steering committee will help to focus on key use cases that will accelerate progress for all stakeholders."
Common Cartridge
Common Cartridge

Sources
- Publisher Repositories
- ECMS
- Client File systems
- Server File Systems
- eLib
- Dynamic Packaging Services

Server
- Supported Content
  - Discussion Forums (with seed topics)
  - Question Test
  - Interoperability (Assessments & Question Banks)
  - Basic LTI (links to remote services)

Client
- Supported Content
  - HTML/DHTML,
  - Javascript,
  - Java Applets*,
  - Flash (SWF)*,
  - Rich Media*

* Common Cartridge provides a way for packages to identify any third party components required to execute its content.
IMS Thin Common Cartridge

Interoperability Standard Example