



IMS GLOBAL[®]
Learning Consortium
Better Learning From Better Learning Technology[®]

IMS Europe Summit 2019

**Advancing Next Generation EdTech, Digital
Credentials, and Actionable Data**

BARCELONA, SPAIN
10-11 OCTOBER 2019



Realizing the IMS Roadmap

Learn about the essential technical elements forming the foundation for a plug-and-play interoperable ecosystem and share your ideas on areas of collaboration that are relevant and most beneficial to Europe. Hear about the new Unified Data Model approach as a new way of representing data interoperability in a transparent and relatable way.

Realizing the IMS Roadmap

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IMS Global
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Content



IMS Specifications Context



Technical Highlights 2018-2019



Technical Objectives 2019-2020



Short Biography

- Joined IMS in May 1999
- Responsible for the development of many IMS specifications inc.
 - Question & Test Interoperability (QTI)
 - Learning Information Services (LIS)
 - OneRoster
 - OpenVideo Metadata
- Currently IMS Chief Architect and responsible for:
 - How the specifications fit together to create the IMS ECOSYSTEM
 - Overseeing the technical details of the specifications
 - Supporting adoption of the specifications
 - Unified Data Model



On this Day ...

1985 – Death of Orson Welles

1813 – Birth of Giuseppe Verdi

1718 – Funding for Yale College at New Haven secured





IMS Specifications Context



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IMS Specification Suite

[Accessibility](#)
[Accessible Portable Item Protocol®](#)
[Caliper Analytics®](#)
[Competency Definitions](#)
[Content Packaging](#)
[Common Cartridge®](#)
[Competencies & Academic Standards](#)
[Exchange™](#)
[Course Planning & Scheduling](#)
[Digital Repositories](#)
[Enterprise](#)
[Enterprise Services](#)
[ePortfolio](#)
[General Web Services](#)
[Interactive WhiteBoard/ Common File Format](#)

- [Learner Information](#)
- [Learning Design](#)
- [Learning Information Services](#)
- [Learning Object Discovery and Exchange](#)
- [Learning Tools Interoperability®](#)
- [LTI Resource Search](#)
- [Meta-data](#)
- [OneRoster®](#)
- [Open Badges](#)
- [Question and Test Interoperability](#)
- [Resource List Interoperability](#)
- [Shareable State Persistence](#)
- [Simple Sequencing](#)
- [Tools Interoperability](#)
- [Vocabulary Definition Exchange](#)

A wide range of specifications (29) published since 1999.

We have an extensive legacy responsibility.



Current Specification Activity

New Specification

- Comprehensive Learner Record
- Open Video
- Computer Adaptive Testing

New Version

- OneRoster 1.2
- QTI 3.0
- Badge Connect 2.1
- Thin CC 1.4
- Caliper 1.2 + MPs

Profile

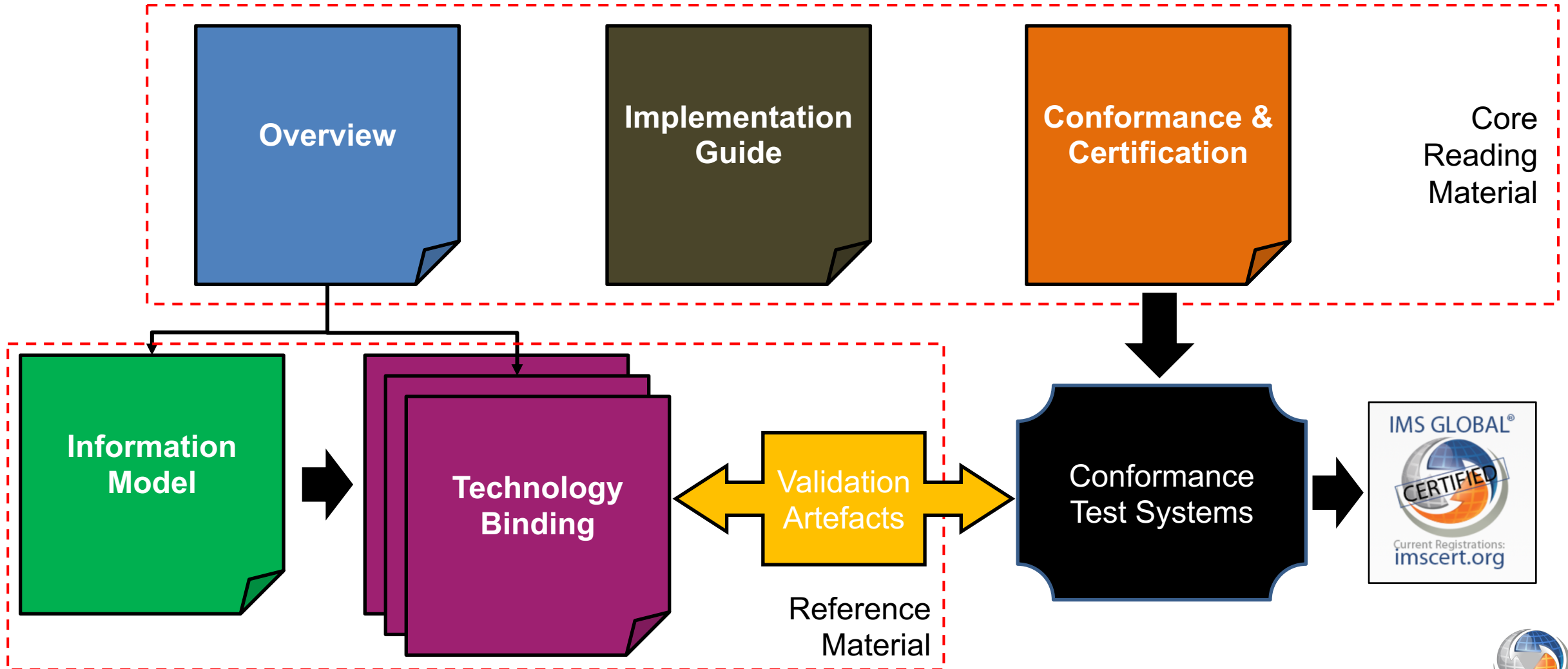
- Proctoring
- SBAC of QTI
- Japanese OneRoster
- **European OneRoster 1.2 Profile**
- Assessment Results Profile

Evaluation

- CASE
- Caliper Metric Profiles
- **EDU APIs**



Published Documentation



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Security Framework

www.imsglobal.org/ims-security-framework

IMS Security Framework

Trusted Exchange of Student Data

CIOs, CSSOs, and Data Protection Officers have critical security-related concerns about sensitive and personally identifiable information (PII) passing between platforms and tools. Older security frameworks have demonstrated vulnerabilities. IMS Global members are leading the drive to improve student privacy and security by adopting the IMS Security Framework across its standards.

IMS Global creates service-oriented and message-exchange interoperability specifications. These service-based specifications recommend or require many different security patterns: for example, the use of OAuth 1.0 based message signing, OAuth 2.0 based authentication and authorization, and so forth. The IMS Security Framework defines a set of patterns for security that all IMS specifications should use (only in special circumstances will IMS consider exceptions). These security patterns are premised on the appropriate standards and specifications published by other organizations such as the Internet Engineering Task Force (IETF) and its Requests For Comments (RFCs). The core standards used are:

- OAuth 2.0 - RFCs 6749 and 6750 from the IETF
- JSON Web Tokens - RFCs 7515, 7516, 7517, 7518, 7519 and 7523
- Open ID Connect Core - an identity layer, from OpenID Foundation, on top of OAuth 2.0

The use of the IMS Security Framework promotes consistent and compatible implementation requirements and simplifies adoption when more than one IMS specification is being implemented.

In the case where IMS has defined a web services-based standard, such as OneRoster, the specification will describe the set of web service calls that can occur between a service consumer (or Client) and a service provider (Platform). Typical service calls include when a Client 'pulls' the data from the Platform and when the Platform 'Pushes' the data to the Client. In many cases, these service calls must occur within an appropriate security framework. For IMS specifications using a web services approach, the Figure on the right shows a schematic representation of this security framework

The IMS specification will define how the Client and Platform will exchange information. This document defines how to achieve the "Authentication" and "Authorization" using a separate set of message exchanges and how the actual corresponding set of IMS service calls will use this authorization and authentication information. The authorization and authentication uses an "Authorization Server" which may be a system independent of the Platform or may be endpoints hosted by the Platform.

In the case where IMS has defined a non-web services based standard, such as Learning Tools Interoperability (LTI), the specification will describe the set of messages that can occur between a Platform and a Client. In scenarios where the message exchange is vulnerable (for example, when launching from a web browser), the messages will be signed. This signing MAY include data derived from the identity-based authentication. The IMS specification defines how a Client can transform the messages exchanged between the Platform and the Client (including a user's browser-based interaction) into a Client-based experience. This document defines how to achieve Authentication and Authorization using a separate set of message exchanges between Platform and Client and how to encode the authorization and authentication information in JWT-based message signing of these message exchanges. The authorization and authentication process uses an authorization server which may be a system independent of the Platform or may be endpoints hosted by the Platform.

The IMS Security Framework was published as Final Release to the public in May 2019. It is upon this framework that all IMS service-based specifications should make reference, including the [LTI v1.3](#) and [LTI Advantage](#) services.

Public Resource

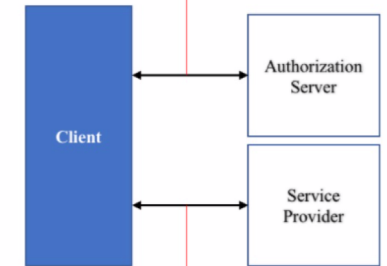
Security Framework

- [IMS Security Framework v1.0 - Final Release \(15 May 2019\)](#)

LTI Security Update

- [IMS Security Bulletin - Announcement \(22 July 2019\)](#)
- [IMS LTI Security Update v1.0 - Final Release \(22 July 2019\)](#) addresses a potential Cross-Site Request Forgery threat in earlier versions of LTI (v1.0 and v1.1.1).

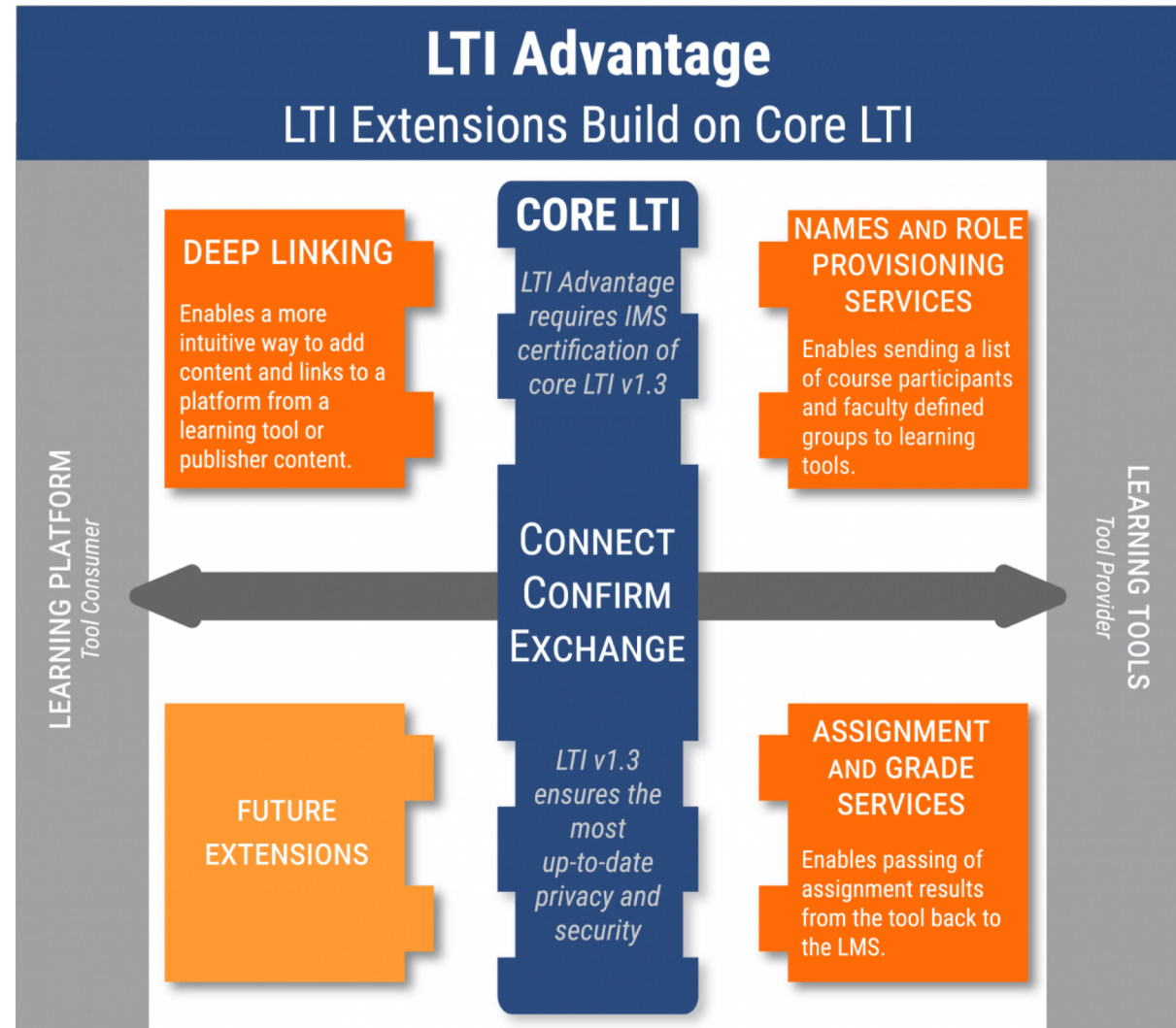
Authentication and authorization
based upon OAuth 2.



Data exchange as defined by the
IMS service specification.

Learning Tools Interoperability Advantage

- LTI 1.3 Core
 - IMS Security Framework
- LTI Extensions
 - LTI Deep Linking
 - LTI Names & Role Service
 - LTI Assignment and Grade Service
- Reference Implementation



1EdTech Data Comparison Report

This report is generated for every comparison and is available to both Districts and Suppliers helping them and the 1EdTech team identify areas that require additional testing on implementation

1EdTech | Milltown County Public Schools

Home / Comparisons / LC-Min vs. Digital

Comparison Details

Characterization: LC-Min
Run Date/Time: 02/07/2019 17:20:12
District: Milltown County
Product: Digits
Supplier Name: Supplier
Specification: OneRoster
Version: 1.1
Format: CSV
Type: Bulk

Comparison Overview

File	Status
academicSessions.csv	✓
classes.csv	✓
courses.csv	✓
demographics.csv	✓
enrollments.csv	✓

Comparison Status

Alerts
Report Date: 02/20/2019 09:48AM

Download Report
Print Report

Comparison Report Notes + Add Note

Comparison Report Details Expand All Collapse All

Implementation Documentation URL: <http://www.documentationurl.com>
Online Help URL: <http://www.onlinehelpurl.com>
Product Support Email: productsupport@company.com

File Set Notes:
These notes will be shared with Districts during the comparison process. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

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academicSessions.csv

File Notes:
Here are some notes about the file that are provided by the Supplier. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Required Prohibited Optional

Field	Description
* sourceId GUID	Description: Sourceid of this academicSession. Note: Here is where Consumer modeled field notes would show up
status Enumeration	Description: See section 4.13.8 [OneRoster, 17a] for the enumeration list.
dateLastModified DateTime	Description: The date that this record was last modified.
* title String	Description: Name or title of the academic session.
* type Enumeration	Description: See section 4.13.7 [OneRoster, 17a] for the enumeration list.
* startDate Date	Description: Inclusive start date for the academic session.
* endDate Date	Description: Inclusive end date for the academic session.
* parentSourceId GUID Reference	Description: Sourceid of the parent of this academic session Alert: This optional field is required by the consumer and is consistently populated within the characterized data set.
* schoolYear Year	Description: The school year for which the academic session contributes. This year should be that in which the school year ends. (Format is: YYYY)

classes.csv ✓
courses.csv ✓



CASE Network

CASE® Network of
Academic Standards &
Workforce Competencies
is live!



IMS Specifications Context

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New Specifications Final Release



Competency Learner Record (CLR) 1.0



Computer Adaptive Testing (CAT) 1.0



Open Video Metadata 1.0



New Versions Final Release



Caliper 1.2



OneRoster 1.2



Question & Test Interoperability 3.0



Open Badges / Badge Connect 2.1



Common Cartridge (CC) / Thin CC 1.4



New Profiles Final Release

Proctoring 1.0 – profile of LTI Advantage

Assessment Results Profile of Gradebook 1.0 – profile of OneRoster 1.2 Gradebook Service

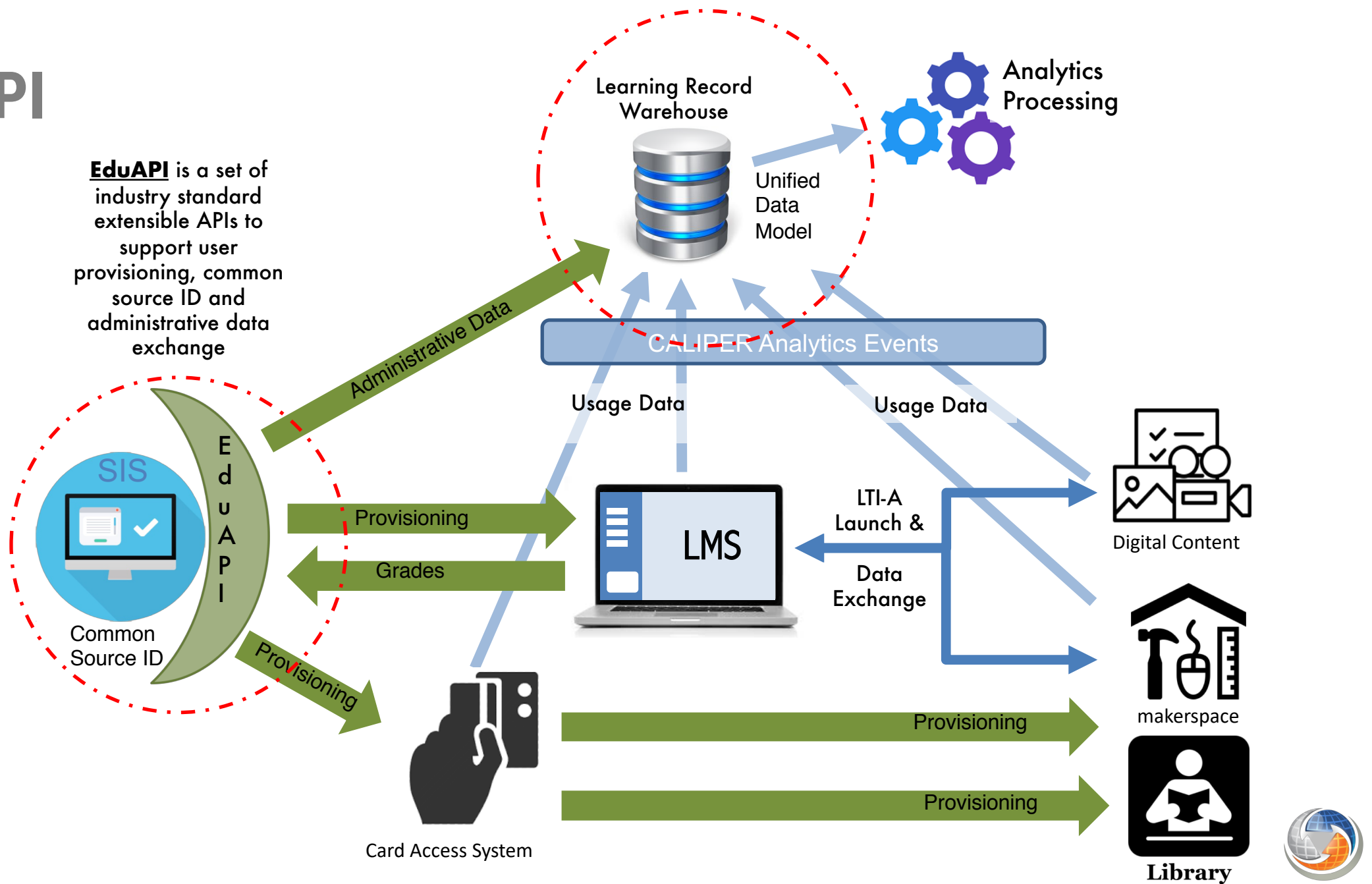
OneRoster 1.2 European Profile 1.0

Smarter Balanced Assessment Consortium (SBAC) QTI 3.0 Profile



EDU-API

EduAPI is a set of industry standard extensible APIs to support user provisioning, common source ID and administrative data exchange



New Technical Activities



Security Committee



IMS Extensions Framework



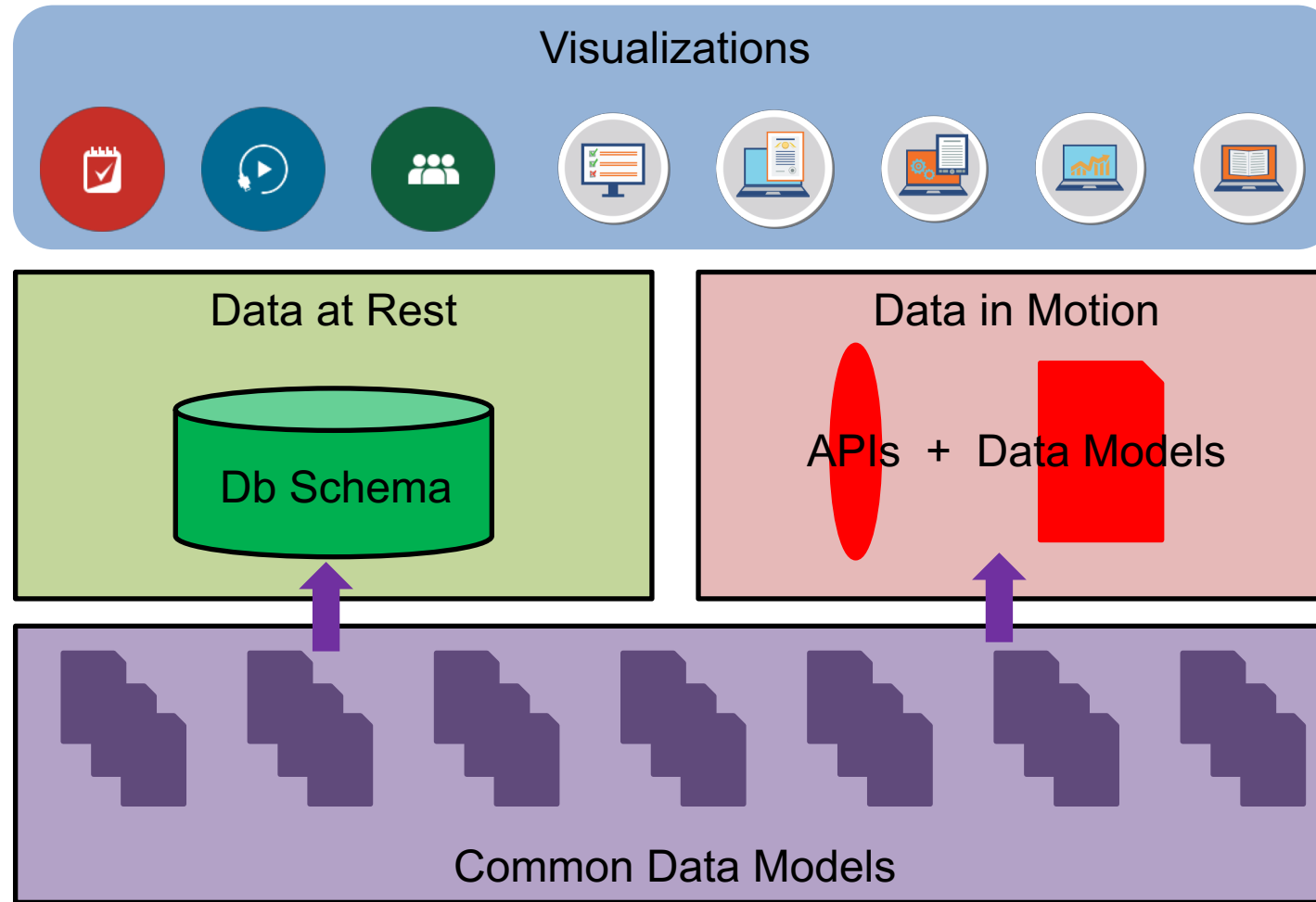
LTI Advantage / Assessment Results Profile integration



Next Generation Metadata



Unified Data Model



Future IMS Europe Technical Briefings



December 2019 - November IMS Quarterly Review (tbd - specification review)



March 2020 - February IMS Quarterly Review (tbd - specification review)



June 2020 - LILI 2020 Review (including IMS Members Meeting)



Questions & Comments?





THANK YOU!

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