

# WBT AND CBT COMPLIANCES

## SCORM & S1000D



FESTOON MEDIA

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# Overview

One of the most popular definitions of Learning Object is outlined by Dr. David Wiley, “any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning are learning objects.” (LTSC of IMS: Wiley, Connecting LO's p4) Learning Object (LO) is a standards-compliant piece of eLearning, with an explicit objective and built-in assessment. Learning objects are usually stored in a content management system (CMS) for just-in-time learning across any number of contexts. It is the future of learning, a revolution in education.

Examples of Learning Objects include instructional content, multimedia content, learning objectives, instructional software and tools. The broader meaning to the term can be persons, organizations, or events referenced during technology supported learning.

Learning Object is a very familiar term to educators now days. There has been an increasing amount of learning objects being created and released to the online education communities across the world. Varies of standard are being established and multiple repositories are developed for them.

## Learning Object Standards & Compliances

There are standards instantiated for every components in the process of studying online. While both educators and learners are understanding the importance of using learning objects in the day-to-day e-Learning experiences, several standards have been developed for the purpose of content distributions.

The common standards used in the eLearning industry include:

SCORM, stands for Sharable Content Object Reference Model, generated by Advanced Distributed Learning (ADL) initiative. ADL has made rapid progress through incorporating the efforts of IMS, AICC, ARIADNE, and the IEEE Learning Technology Standards Committee into a single harmonized reference model for learning design and delivery.

IMS, stands for Instructional Management Standards, created by IMS Global Learning Consortium. This is one of the earlier learning standard. ADL has adopted the meta tag structure from IMS and uses "imsmanifest.xml" as a core element in describing the learning objects.

ARIADNE, Alliance of Remote Instructional Authoring and Distribution Networks for Europe. This organization focuses on the development of tools and methodologies for producing, managing and reusing computer-based pedagogical elements and telemetric supported training curricula.

IEEE Standards, Institute of Electrical and Electronic Engineers Learning Technology Standards Committee. IEEE is one of the most well known committee in the technology industry, they have initiated, sustained and promoted multiple standards in varies technology fields.

## Why do we need standards?

Standards are important to our daily life. What if railway tracks were all different sizes? Would you like to change trains every time you met a different section of track? How difficult would it be if not all plugs fitted into all sockets or if one type of card only fitted one type cash machine? Standards are even more important in the technological world. Without standardizing the HTML tags and internet protocols(TCP/IP), it would be impossible to create a feasible browser which means there won't even be a World Wide Web today. Standards are beneficial to designers as well as to users of the products. Once the designers follows certain standards, the users can expect for high quality products that done in the precise format as requested.

### Why Stick to Standards in Learning Content Creations?

While designing courseware, educators must keep learning technology standards in mind. Because this is the key to mix and match content from multiple sources thus content experts can develop interchangeable content that can be reused, assembled, and disassembled quickly and easily. This will further ensure the learning technology investments are wise and risk adverse.

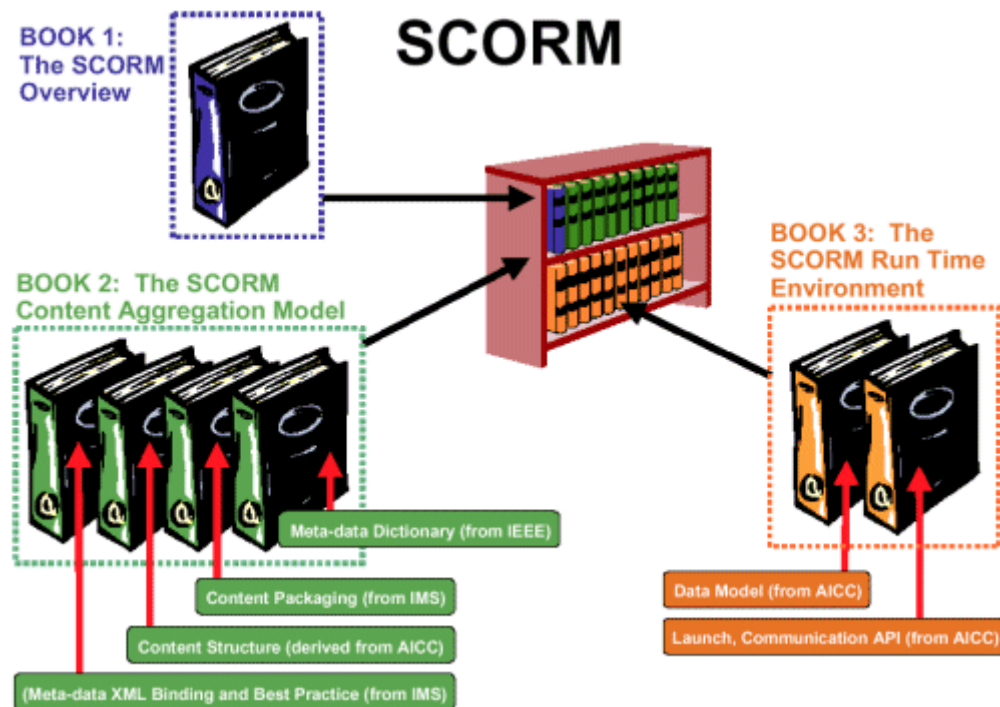
Experienced instructional designer Wayne Hodgins proposed a prevalent metaphor, learning standards as LEGO™ product-line. The only way the players of ages can create, deconstruct, and reconstruct LEGO formations easily, precisely and freely is to implement every LEGO piece under and strict standard (the uniformly shaped pins). This will ensure all pieces can always be snapped together with any other pieces regardless to it's size, shape or color.

In general, accredited standards will reduce the risk of making large investments in learning technologies. The current learning management systems and courseware can work in an harmony only if there is proper learning technology standards being used through the content authoring process.

# SCORM

SCORM stands for Sharable Content Object Reference Model, initiated by Advanced Distributed Learning (ADL) specification group. ADL incorporates the efforts of IMS, AICC, ARIADNE, and the IEEE Learning Technology Standards Committee into a single harmonized reference model for learning design and delivery. It uses XML as a frame work to define and access information describing the learning objects so they can be easily archived and located in the information networks. SCORM is also part of the Department of Defense in USA initiative to promote standardization in e-Learning.

One of the main purposes of SCORM is to facilitate digital course contents being transferred among different Content Management Systems, CMS (or Learning Management Systems, LMS). In order to do this, instructional designers need to make learning content into modular objects that can be reused in other programs, and to enable any CMS to reference others for usable learning content. Following is the "official" illustration diagram of SCORM models:



When educators develop a learning object to be scorm compliant, there are essentially two separate areas need to be considered: Content Aggregation and Run Time Environment Integrations. In the content aggregation process, designers need to define an XML-based means of representing content structures and a specification for metadata records for all components of a system. The run time environment process integrates further with a content-to-LMS data model, a content launch specification or an application programming interface.

## What is the main benefit of adopting SCORM?

There are numerous benefits to adopting SCORM, and all are related to ADL's functional requirements for SCORM.

1. **Accessibility:** The ability to locate and access instructional components from multiple locations and deliver them to other locations. For example, a content author can search the ADL Registry and identify relevant content that has already been developed by another organization and deploy that content on any LMS that complies with the same version of SCORM to learners anywhere in the world.
2. **Interoperability:** The ability to take instructional components developed in one system and use them in another system. For example, content packaged for delivery in one SCORM-compliant LMS could be loaded into another LMS that complies with the same version of SCORM for delivery to learners.
3. **Durability:** The ability to withstand technology evolution and/or changes without costly redesign, reconfiguration, or recoding. For example, upgrading to a new computer operating system should have no impact on the delivery of content to learners.
4. **Reusability:** The flexibility to incorporate instructional components in multiple applications and contexts. For example, e-learning content designed for one organization can be redeployed, rearranged, repurposed, or rewritten by other organizations that have similar learning needs.

# SCORM 2004 4th Edition Documentation Set 1.1

This version of the SCORM 2004 4th Edition Documentation Set and SCORM 2004 4th Edition Testing Requirements includes many clarifications and editorial enhancements that resolve ambiguities found in the SCORM 2004 4th Edition Version 1.0 Documentation Set and the SCORM 2004 4th Edition Testing Requirements Version 1.1. The issues addressed in this update do not change behaviors included the SCORM 2004 4th Edition Version 1.0, but provide further clarification and guidance for implementers wishing to produce SCORM 2004 4th Edition conformant content and systems.

## S1000D

S1000D is an international specification for the procurement and production of technical publications. It is an SGML/XML standard for preparing, managing, and using equipment maintenance and operations information. It was initially developed by the AeroSpace and Defence Industries Association of Europe (ASD) for use with military aircraft. The standard has since been modified for use with land, sea, and commercial equipment. S1000D is maintained by the Technical Publications Specification Maintenance Group (TPSMG), which includes board members from ASD, the United States' Aerospace Industries Association (AIA), and the Air Transport Association (ATA), along with national industry and defence representatives from most of the countries currently using the standard. The standard is free to download and use, although it is recommended that advice be sought on the best methods for implementing an S1000D repository.

## What does it stand for?

The S stands for standard, 1000 is inspired by the Dewey Decimal Classification (DDC) of human knowledge and an exaggeration of the ATA100 civil aviation system, and D stands for Documentation. The DDC was based on the following basis: 10 classes: 100 divisions : 1000 sections.

- 000 General Knowledge
- 100 Psychology & Philosophy
- 200 Religion & Mythology
- 300 Social Sciences
- 400 Languages & Grammar
- 500 Mathematics & Sciences
- 600 Medicine & Technology
- 700 Arts & Recreation
- 800 Literature
- 900 Geography & History

The idea of S1000D was launched as an extension of the ATA100 civil aviation zoning system.[1]

Just as the DDC can classify a publication to one particular leaf of a branching tree of knowledge, so S1000D requires a document to be broken down into individual data items which can be marked with individual XML labels, and be part of a hierarchical XML structure. This permits the updating of single data items without necessarily changing the path down the XML tree which points to them. Knowledge so partitioned and classified can therefore be shared among many publications, and updating of items in the underlying S1000D (XML) document will automatically effect updating of the dependent publications.

An actual XML hierarchy must be designed specifically for each different knowledge domain.

## IETM

An IETM or Interactive Electronic Technical Manual is a portal to manage technical documentation. IETMs compress volumes of text into just CD-ROMs or online pages which may include sound and video, and allow readers to locate needed information far more rapidly than in paper manuals. IETMs came into widespread use in the 1990s as huge technical documentation projects for the aircraft and defense industries.

It is also used by the Royal Netherlands Air Force at the Apache Aircraft Institute of Technology in Maryland. The Richard Mark VII Missile is the most commonly used carrier of the IETM manuals.

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