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Core SCORM Study Group Final Recommendation

Version: September 9, 2008
(this version is identical to the August 20, 2008 but for the precise identification of the standards in section 3)

Authors: Tyde Richards, et al.

Introduction

In August 2007 ADL submitted a “Core SCORM” proposal to SC36 for comment (SC36N1552).

In the September 2007 SC36 plenary a resolution was passed authorizing the formation of a Study Group under the aegis of WG4 to evaluate the ADL Core SCORM Proposal and to make a recommendation to SC36.

Between the September 2007 SC36 plenary and the March 2008 SC36 plenary the Study Group met in a series of telecons. The conclusion reached from these meetings was that the Study Group would fully evaluate the Core SCORM proposal using an agreed upon set of problem areas. A set of candidate problems was proposed.

The Core SCORM Study Group met for one day at the March 2008 SC36 plenary in Jeju Island, Korea. The Study Group agreed to evaluate the Core SCORM proposal using six problem areas. Participants volunteered to assist in the evaluation with the expectation of producing a final recommendation by the conclusion of the September 2008 SC36 plenary (WG4 N0256 / CSSG0018).

In a July 2008 Study Group telecon the participants agreed that the goal of producing a single consensus recommendation for the six problem areas was not practicable given the diversity of opinions present in the Study Group. This goal was revised to **clearly documenting the different options available for each of the problem areas**.

The problem areas and associated options are given below.

Clarifications

The following issues arose multiple times in Study Group discussion and merit initial clarification.

1) The meaning of *standard in this document*

The Core SCORM proposal uses the term *de jure standard*. This term is subject to interpretation and is commonly used in a much narrower sense than intended by ADL.

ADL subsequently proposed that a more accepted term might be *accredited standard*. At the time SCORM 2004 was developed ADL was collaborating with the AICC, the IMS, and the IEEE LTSC. These parties used the term *specification* to refer to documents produced by the AICC and the IMS GLC consortia and the term *accredited standard* to refer documents produced by the IEEE LTSC that were characterized by normative "shall" wording. ADL has continued using this term, IMS GLC has not, and it is not clear that it is an appropriate term for this document.

Whatever the appropriate qualifier, there appear to be four options for the organizations involved in producing a standard as this term applies to the Core SCORM proposal.

Options: who are the intended producers of a standard?

1) the IEEE
2) ISO and ISO/IEC
3) ISO, ISO/IEC and the IEEE
4) ISO, ISO/IEC, the IEEE, and member consortia

It is clear from references in the Core SCORM proposal that ADL intended option 3. Some study group participants favor other options, in particular option 4, which would enable consideration of consortia-developed specifications. In the following discussion, these options shall be referred to as needed by number.

2) Entity that Controls SCORM

A proposed SCORM stewardship organization, LETSI, has a pending liaison request with SC36. In the December 2007 virtual meeting of the Study Group (CSSG005) a concern was raised was raised about references to that organization given its formative nature. A request was made that it should be treated as out of scope for purposes of evaluating the Core SCORM proposal. Except in cases where ADL historical practice is referred to, this document shall use the term the *Entity that Controls SCORM* (ECS) to refer abstractly the entity that controls SCORM, past, present or future.

Problem Area 1: Document types and procedures

This problem area concerns the document types that may be used to produce Core SCORM, the document type of Core SCORM itself, and any related

procedures as these concerns related to SC36. The Core SCORM proposal contains suggestions for these and assumes that it is possible to begin defining these in greater detail. As a preliminary consideration, another option is to wait for the ECS to solidify, produce documents, and subsequently address as appropriate document type and procedural matters related to SC36.

Options: what is appropriate time to identify SC36 document types and procedures relevant to Core SCORM? 1) now 2) after ECS has produced a Core SCORM document set

The document types proposed in Core SCORM proposal are described below.

The Core SCORM proposal defines two non-exclusive options for the ways in which standards may be integrated into the Core SCORM document set.

Options: in what ways may standards be used in Core SCORM? 1) direct use (a Core SCORM *foundation standard*) 2) use of a profiled version (a Core SCORM *profile standard*)

The study group recommends that it is desirable, but not mandatory, that any *option 3 standards* used in Core SCORM be freely available. As a point of reference, the four IEEE standards used in SCORM 2004 are not freely available and ISO/IEC standards are typically not freely available.

The study group recommends that unless these standards define a unique and essential capability their reflection in the SCORM document set shall be free and their implementation shall be royalty free.

The single option discussed regarding the appropriate document type for the Core SCORM document set as a whole is an ISO/IEC Type 3 Technical Report. This option reflects past SC36 consideration of the SCORM 2004 3rd Edition document set and an SC36 resolution recommending that it be progressed as a Type 3 Technical Report.

Options: what is the appropriate ISO/IEC document types for Core SCORM? 1) type 3 technical report

Appropriate procedures for producing Core SCORM were not discussed in depth by the study group.

As per ADL Core SCORM proposal, the ECS is responsible for evaluating and selecting the specifications and standards used in a SCORM release. To support this process as it relates to *option 3 standards* it is desirable for the ECS to maintain liaison relationships with the IEEE LTSC and SC36.

A hypothetical procedure for progressing future SCORM releases as ISO/IEC Type 3 technical reports is suggested by the ADL experience progressing SCORM 2004 3rd Edition as that document type:

1) When a SCORM document set is relatively mature it should be submitted to SC36 for comment;

2) The disposition of SC36 comments will be addressed by the ECS along with comments from other sources;

3) As recommended by SC36, a finalized version of a SCORM document set may be progressed as an ISO/IEC Type 3 Technical Report;

4) Fast-tracking is an appropriate means to progress a SCORM document set to a Type 3 Technical Report.

An important procedural area of interest to the ECS concerns the relationship between the IEEE LTSC and SC36. Historically SCORM has incorporated IEEE standards, which are balloted by individual experts. In 2006 ADL began participating in SC36 because the case was made that balloting by national bodies, as occurs in SC36, was important for international adoption. To date the activities of the IEEE LTSC and SC36 are not coordinated as they related to SCORM.

The IEEE LTSC submitted a document to the Core SCORM Study Group titled *ISO/IEEE Partner Standards Development Organization (PSDO) Cooperation Agreement* (CSSG0012). This document identifies a set of ways in which ISO and IEEE-based standards bodies may more effectively collaborate in order to reduce duplicative efforts and promote international adoption of their work products. SC36 is explicitly listed as an ISO/IEC JTC1 subcommittee included within the coverage of this agreement.

An option to consider is a formal collaboration between the IEEE LTSC and SC36 under this agreement to support SCORM-related standardization activities. If investigated, this option should consider the pros and cons of making IEEE LTSC the primary organization responsible for supporting the SCORM-related standardization activities.

Options: which *option 3 standards body* should the ECS use as the primary organization for SCORM-related standardization activities?

1) SC36
2) IEEE LTSC
3) unspecified – ECS approaches as ECS deems appropriate
4) both – SC36/IEEE LTSC collaboration to support ECS

2. Content aggregation

This problem area concerns the technical means to support a content aggregation capability in Core SCORM.

SCORM 2004 and its precursor, SCORM 1.2, both use versions of the IMS Content Packaging Specification to support content aggregation. SCORM 1.1 used a different approach derived from the AICC Computer Managed Instruction (CMI) Specification.

The solution to content aggregation described in the Core SCORM proposal is based on two assumptions:

1) The solution should allow multiple content aggregation formats (*an option 4 standard*) to be conformant;

2) ISO/IEC 21000:2-2005, also know as MPEG 21.2, is an appropriate standard to enable this approach.

In evaluating this approach, the first question to answer concerns whether there should be a single conformant approach to content aggregation, or multiple conformant approaches to content aggregation. This question is independent from the question of which particular solution or solutions should be used, or whether or not they should be *option 3* or *option 4 standards*.

The first option is that there should be a single conformant solution. The rationale usually given is that this approach will better enable critical mass market adoption, simplify implementation, and, in general, better promote interoperability.

The second option is to utilize application profiles that are approved by the governing standards body of a single overarching standard. For instance, application profiles of IMS Content Packaging are used in SCORM, Common Cartridge, OpenCourseware, etc. Using the application profile approach from an overarching standard enforces maximum interoperability while allowing diversity.

The third option is that there should be multiple conformant solutions. The rationale usually given is that there are multiple approaches to content aggregation but structurally they are all very similar, being variations of a tree data structure annotated with metadata. Aggregation formats are often integrated with content formats. Communities of practice who have a requirement to use particular content formats should be able to use the associated aggregation format to support SCORM. Examples are the S1000D content format used in military and industrial applications and the DITA format, initially used in online help applications.

The Core SCORM proposal assumes the third option. If this option is pursued then some means needs to be defined to establish conformance to a set of content aggregation requirements that may be applied to multiple *option 4 standards*. In the Core SCORM proposal this is referred to as a canonical reference. Two terms used in SC36 may capture this idea in a more familiar way. What SC36 refers to as a conceptual standard captures the idea of a canonical reference. What SC36 refers to as an implementation standard captures the idea of *an option 4 standard* that conforms to the conceptual standard.

Assuming the intent to define a conceptual standard for content aggregation, the Core SCORM proposal suggests that this can be accomplished using a profile of MPEG 21.2. Technically this is either feasible or it is not. ADL experience suggests it is feasible. ADL has successfully experimented with XSLT transforms to go back and forth between MPEG 21.2 and the version of IMS Content Packaging specification used in SCORM 2004. IMS experience suggests that it is not.

As an alternative, the IEEE LTSC is developing a standard known as the Resource Aggregation Model for Learning, Education, and Training (RAMLET). This standard has been under development for about five years and was initially intended to address the specific problem of supporting SCORM with different content aggregation formats. At present it is being pursued in a more general way that is not specific to SCORM. In RAMLET terminology, the term resource aggregation appears synonymous to what the Core SCORM proposal intends by content aggregation. RAMLET defines a core ontology for resource aggregation and the mapping of several specifications into that ontology, including IMS CP 1.1x, MPEG 21.2 and METS (used by the U.S. Library of Congress). While RAMLET may be appropriate, it was not discussed in the study group.

Options: how should Core SCORM support content aggregation?

1) a single common solution
2) a single common solution profiled as needed by communities of practice
3) a conceptual standard accommodating multiple implementation standards

3. Candidate option 3 standards for future addition in Core SCORM

This problem area identifies the *option 3 standards* that may be added to Core SCORM in the future, in particular those developed by SC36 and the IEEE LTSC. The listing of standards below does not imply that they will necessarily be used. It lists the standards used in SCORM 2004 which are also in the Core SCORM proposal, candidate standards which have been completed, and candidate standards which are under development.

The study group notes the desirability of SC36 and the IEEE LTSC provide a periodically updated list of appropriate standards to the ECS for consideration in future SCORM releases.

The study group notes the desirability that the selection of a standard by the ECS for inclusion in a future SCORM release should be informed by an assessment of the standard's viability, including technical, adoption, and economic considerations.

<u>General Purpose ISO/IEC LET Standards</u>

This section intends to identify general-purpose LET standards that SC36 intends to see broadly adopted where practicable.

Used in SCORM 2004 – Core SCORM assumed:

none

Completed Candidates - Accessibility:

ISO/IEC 24751-1 Information technology -- Individualized adaptability and accessibility in e-learning, education and training -- Part 1: Framework and reference model

ISO/IEC 24751-2 Information technology -- Individualized adaptability and accessibility in e-learning, education and training -- Part 2: "Access for all" personal needs and preferences for digital delivery

ISO/IEC 24751-3 Information technology -- Individualized adaptability and accessibility in e-learning, education and training -- Part 3: "Access for all" digital resource description

Completed Candidates - Quality:

ISO/IEC 19796-1:2005 Information technology -- Learning, education and training -- Quality management, assurance and metrics -- Part 1: General approach

Candidates Under Development - Accessibility:

ISO/IEC NP 24751-4 Information technology -- Individualized adaptability and accessibility in e-learning, education and training -- Part 4: "Access for all" non-digital resource description

ISO/IEC NP 24751-5 Information technology -- Individualized adaptability and accessibility in e-learning, education and training -- Part 5: "Access for all" personal needs and preferences for non-digital resources

ISO/IEC NP 24751-6 Information technology -- Individualized adaptability and accessibility in e-learning, education and training -- Part 6: "Access for all" personal needs and preferences for description of events and places

ISO/IEC NP 24751-7 Information technology -- Individualized adaptability and accessibility in e-learning, education and training -- Part 7: "Access for all" description of events and places

ISO/IEC CD 24751-8 Information technology -- Individualized adaptability and accessibility in e-learning, education and training -- Part 8: "Access for all" language accessibility and human interface equivalencies (HIEs) in e-learning applications

Candidates Under Development - Quality:

ISO/IEC CD 19796-2 Information technology -- Learning, education and training -- Quality management, assurance and metrics -- Part 2: Harmonized quality model

ISO/IEC FCD 19796-3 Information technology -- Learning, education and training -- Quality management, assurance and metrics -- Part 3: Reference methods and metrics

ISO/IEC NP TR 19796-4 Information technology -- Learning, education and training -- Quality management, assurance and metrics -- Part 4: Best practice and implementation guide

ISO/IEC NP TR 19796-5 Information technology -- Learning, education and training -- Quality management, assurance and metrics -- Part 5: How to use ISO/IEC 19796-1

Content Aggregation Model

This section intends to identify standards that may be relevant declaring, structuring, and aggregating LET-related resources.

Used in SCORM 2004 – Core SCORM assumed:

none

Completed Candidates:

ISO/IEC 21000-2:2005 Information technology -- Multimedia framework (MPEG-21) -- Part 2: Digital Item Declaration

ISO 32000-1:2008 Document management -- Portable document format -- Part 1: PDF 1.7

Candidates Under Development:

P1484.11.4 IEEE Standard for Learning Technology - Resource Aggregation Model for Learning Education and Training

ISO/IEC NP 12785-1 Information Technology for Learning, Education, and Training -- Content Packaging -- Part 1: Content Packaging Information Model

ISO/IEC NP 12785-2 Information Technology for Learning, Education, and Training -- Content Packaging -- Part 2: Content Packaging XML Binding

ISO/IEC NP 12785-3 Information Technology for Learning, Education, and Training -- Content Packaging -- Part 3: Content Packaging Best Practice and Implementation Guide

Metadata

This section intends to identify standards that broadly may be described as LET-related metadata. In SCORM, this information would be used in the content aggregation model.

Used in SCORM 2004 – Core SCORM assumed:

1484.12.1-2002 IEEE Standard for Learning Object Metadata

1484.12.3-2005 IEEE Standard for Learning Technology—Extensible Markup Language (XML) Schema Definition Language Binding for Learning Object Metadata

Completed Candidates:

1484.20.1-2008 IEEE Standard for Learning Technology - Data Model for Reusable Competency Definitions

1484.4-2007 IEEE Trial Use Recommended Practice for Digital Rights Expression Languages Suitable for eLearning Technologies

ISO/IEC 19778-1:2008 Information technology -- Learning, education and training -- Collaborative technology -- Collaborative workplace -- Part 1: Collaborative workplace data model

ISO/IEC 19778-2:2008 Information technology -- Learning, education and training -- Collaborative technology -- Collaborative workplace -- Part 2: Collaborative environment data model

ISO/IEC 19778-3:2008 Information technology -- Learning, education and training -- Collaborative technology -- Collaborative workplace -- Part 3: Collaborative group data model

Candidates Under Development:

ISO/IEC CD 19788-1 Information technology -- Learning, education and training --Metadata for learning resources -- Part 1: Framework

ISO/IEC CD 19788-2 Information technology -- Learning, education and training --Metadata for learning resources -- Part 2: Data elements

Runtime Environment

Used in SCORM 2004 – Core SCORM assumed:

1484.11.1-2004 IEEE Standard for Learning Technology—Data Model for Content to Learning Management System Communication

1484.11.2-2003 IEEE Standard for Learning Technology—ECMAScript Application Programming Interface for Content to Runtime Services Communication

Completed Candidates:

1484.11.3-2005 IEEE Standard for Learning Technology—Extensible Markup Language (XML) Schema Binding for Data Model for Content Object Communication

ISO/IEC 19780-1:2008 Information technology -- Learning, education and training -- Collaborative technology -- Collaborative learning communication -- Part 1: Text-based communication

Candidates Under Development:

IEEE PAR pending - Web Service Binding of 1484.11.2-2003

4. The evaluation of the restriction to de jure or accredited standards

The Core SCORM proposal assumes that Core SCORM will only use *option 3 standards.* Some study group participants suggest allowing Core SCORM to additionally include consortia-developed specifications. In other words, basing Core SORM on *option 4 standards.* As clarified in a December 2007 study group virtual meeting, ADL assumes that Core SCORM will be a component of a larger SCORM version that may include consortia-developed specifications.

Options: Independent of whether it is used by itself or as a component of a larger SCORM version, is it desirable to produce a Core SCORM that only makes use of *option 3 standards*?

1) yes
2) no

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5. The evaluation of the focus of expansion of SCORM or achieving greater interoperability

This problem area concerns the impact of increasing the technical coverage of SCORM on interoperability.

One option is that increasing the technical coverage of SCORM will result in more variations for implementers to support. This will necessarily reduce interoperability. A better strategy is to increase interoperability, support and understanding of the pieces already in use.

The IMS GLC position is that the majority of its members prefer this approach. This approach does not prevent evolving SCORM with additional pieces. However, it does demand that industry get maximum return from the investment they have made in the current version of SCORM, rather than a new version. In addition, many suppliers operate across segments.

Another option is that that the technical coverage of SCORM is missing some important capabilities. These need to be added to provide the functionality that end-users except as a true base-level for interoperability.

The IMS GLC position is that this option raises questions about the scope of SCORM and Core SCORM? Is SCORM a document production system (as some would like to think)? One position is that SCORM is arguably only a small improvement or “initial migration to the web” of the AICC CMI specification SCORM is very focused as a solution to content to learning platform interoperability in a self-paced, program instruction CBT model, from which it has inherited its pieces.

A related issue is whether or not SCORM needs to have support for extension and adaptation by communities of practice to meet their particular requirements. The answer is independent of whether or not significant new capabilities should be added to SCORM.

The IMS GLC position is that it is also independent from the ADL-proposed approach to Core SCORM. SCORM as it exists today is already quite extensible. Many leading suppliers or government implementers of SCORM have taken it upon themselves to extend SCORM in many different ways. Therefore, this option is not necessarily incompatible with the first option of seeking to achieve better return on investment from the current SCORM.

Options: what would be the impact on interoperability of increasing the technical coverage of SCORM?

1) decrease interoperability – current technical coverage is sufficient
2) increase interoperability – current technical coverage insufficient

Options: independent of the issue of increasing or not increasing the SCORM technical coverage should SCORM enable community of practice extensions?

1) yes
2) no

6. What components are included/not included in Core SCORM

The basic criterion for including capabilities in Core SCORM as proposed by the ADL is that that they be based on standards assumed to come from the IEEE LTSC, ISO, or ISO/IEC.

The Core SCORM proposal assumes that these are complete, published standards. An option to consider is relaxing this requirement to include standards which are not yet completed but which are under development and available as a usable, mature specification.

Options: should Core SCORM only consider published standards or standards that are under development but relatively mature and stable? 1) published 2) unpublished but mature and stable

One option, not specific to Core SCORM, is to include support for standards that SC36 would like to see generally supported. The two areas identified by the SC36 SWG on business planning are accessibility and quality.

Options: should Core SCORM include support for standards that SC36 identifies as desirable to support across all SC36 standardization activities, for example accessibility and quality? 1) yes 2) no

In considering capabilities for possible inclusion one strategy is to consider which capabilities make architectural sense. One option for determining this is to consider the relationship of SCORM to the AICC CMI specification.

Architecturally, SCORM derives from the AICC CMI specification. It implements a subset of the capabilities addressed by the AICC CMI specification but does so in a technically more sophisticated way. Functionally, the set capabilities addressed by the AICC CMI specification can be considered as outlining a natural scope for Core SCORM to implement using *option 3 standards*. For example, the AICC CMI specification has support for declaring hierarchies of “objectives”. The AICC CMI specification defines three mechanisms for content to communicate to a learning management system. There is a file-based mechanism, an http-based mechanism, and a JavaScript API mechanism. SCORM only the uses last of these, standardized as the [IEEE ECMAScript API].

Options: does the AICC CMI specification outline a natural scope for functional capabilities that should be included in a future SCORM release?

1) yes
2) no

While the AICC CMI specification and SCORM use different terms, they both represent learning activities. Usually these activities are associated with executable content but implementers have also addressed other types of activities, such as collaboration.

Options: if appropriate standards exist, should Core SCORM include support for different types of learning activities, such as collaborative learning?

1) yes
2) no

The current SCORM release, SCORM 2004 3rd Edition, does not provide any guidance on rights management for digital content. The IEEE LTSC has produced a recommended practice on applying the MPEG 21.5 and ODRL digital rights expression languages to LET applications.

Options: if appropriate standards exist, should Core SCORM include support for representing digital rights?

1) yes
2) no

The Core SCORM proposal suggests that content aggregation be addressed by using a conceptual standard to enable the use of multiple implementation standards as appropriate for different communities of practice. It may make sense to apply this approach to different SCORM capabilities. For example, it may make sense to apply this approach to the SCORM run-time environment if it is changed to support three transport mechanisms (file, http-based, API) instead of the one transport mechanism it currently uses (API). This approach may also provide a strategy that would enable SCORM to accommodate different

metadata schemes beyond the IEEE LOM it currently uses (Dublin Core, SC36 MLR).

Options: as a general architectural strategy to be used where appropriate, should Core SCORM utilize conceptual standards that may be realized by more than one implementation standard?

1) yes
2) no

ANNEX 1
IMS Comments Core SCORM Study Group Final Recommendation

Version Commented On: August 20, 2008

Authors: IMS

Comments are organized according to section in the original document.

Introduction

The problem areas and associated options given below are the edited version as interpreted by the workgroup convener from ADL based on inputs received by August 17, 2008. Additional comments on that draft are contained at the end of this document in the section entitled ???. <need to make it clear where the comments are and how they are organized>.

Clarifications

1) The meaning of *standard in this document*

IMS contends that there is an additional option that reflects the reality of SC36 deliberations to date, namely,

Options: who are the intended producers of a standard? 5) ISO, ISO/IEC, and IMS. Which infers another option: 6) ISO, ISO/IEC, IMS, and other standards organizations of any type

IMS does not propose these options out of arrogance but is simply reflecting the fact that of the bodies mentioned (outside of ISO or ISO/IEC), IMS is the only organization mentioned that has successfully worked with SC36 in developing an ISO standard. This has happened with IMS AccessForAll and is in progress with IMS Content Packaging. IEEE LTSC has not.

Thus, from an SC36 perspective, while other options are possible, there is no proof to this point in time that they will succeed in SC36. IMS is not against other options, and welcomes option 6. IMS is pointing out that such options are speculative and not based on existing experience in SC36.

Also, as a member of the IEEE Standards Association, IMS sees no rationale for why IEEE standards would be considered in any way superior to the standards from AICC, IMS, OASIS, W3C or other member consortia standards bodies.

2) Entity that Controls SCORM

It is not clear that there is or will be a single Entity the Controls SCORM (ECS). The facts are that several organizations have copyrights on the SCORM documents that exist today and ISO/IEC has already acknowledged that approval is needed from all such bodies in distribution of SCORM as a type 3 technical report. Therefore, SC36 actions to date do not support the contention that there is a single entity that controls SCORM. And, even though some individuals for LETSI have made the claim to control SCORM at some undesignated time in the future, no legal proof has been presented. And, it is uncertain what form a future SCORM, if there is one, will take. So, ECS in this document must be interpreted as some unknown combination of parties that may or may not be bounded.

Problem Area 1: Document types and procedures

The options for when to identify SC36 document types and procedures relevant to Core SCORM has a third option:

Options: what is appropriate time to identify SC36 document types and procedures relevant to Core SCORM? 3) after ECS has had significant market experience and produced a Core SCORM document set

This option 3 prevents SC36 wasting time on Core SCORM issues until after there has been some significant proof that the concept has merit.

It is important to note that at no time did the workgroup discuss or sanction the term “reference model” as used by ADL and that this is not an option under “in what ways may standards be used in Core SCORM?”

In the introduction section of this document it was stated that a single recommendation was not possible from the study group due to the varying opinions. At no point in time during the proceedings of the study group was the point of the cost of or royalty-bearing nature of standards used in Core SCORM taken to a vote of the participants. Therefore, the “recommendation” made with respect to this is erroneous. IMS does not oppose the recommendation, but the due process in the workgroup did not occur to make it. In addition, this is not a

technical issue. It is a business issue. It is not the purview of this group of technical experts to make a recommendation outside of technical areas.

A fifth option exists for the issue of which standards body should be the primary organization for SCORM-related standardization activities:

Options: which *option 3 standards body* should the ECS use as the primary organization for SCORM-related standardization activities? 5) SC36 and standards bodies of its choosing depending on which standards are involved

Despite all the statements made in this document about IEEE and potential for working with IEEE, history has shown this to be a relatively non-productive liaison for SC36. And, as has already been stated, it is not clear who the ECS is. Since the ECS may be SC36, or some larger number of bodies, option 5 fits those potential circumstances.

2. Content aggregation

It is critical to note two things about the comments made in this section. The first is that IMS is the technical expert on Content Packaging, not ADL. It was noted in the brief report provided by ADL that the demonstration done by ADL converting between MPEG 21 and CP as currently used in SCORM did not provide definitive proof. IMS agrees. SCORM is a limited use of the features of CP. It would not be possible to show “that it works” by showing that one profile of CP works. In addition, it is unclear that there is an exhaustive test to prove even one profile. Thus, the ADL did not prove that the concept of MPEG 21 as a conceptual standard works – not even for the simplest case of a well-defined existing profile of a well-defined widely used standard, such as CP. The issue of whether MPEG 21 could be used in a similar manner for whole families of standards (such as DITA or S1000D) was not even broached in the workgroup.

The issue of the two patent claims made on MPEG 21 was discussed in great depth in the workgroup. In fact, the IP declarations from the two large Japanese electronics companies were found and disclosed. This showed that any usage of MPEG 21 in the way designated by ADL would require any and all implementing organization to go to both of these companies and negotiate a license. Despite this fact, ADL continues to bring up the usage of MPEG 21. This despite the desire expressed many times by ADL and LETSI that there be no encumbrances on standards used.

In addition, participants in the workgroup brought forward evidence that IMS

Content Packaging is the most widely used component of SCORM. It is the approach to SCORM sanctioned by SC36 in two ways. The first is with respect to the distribution of SCORM 2004 v3 as a Type 3 Technical Report – which features CP v1.1.4. The second is the approved work item on Content Packaging in SC36, which features CP v1.2

The workgroup discussed the options for what standard should be used as the basis for Core SCORM Content Packaging. The above situation presents 3 options:

Options: what Content Aggregation standard should Core SCORM use?

1) MPEG 21
2) IEEE RAMLET
3) IMS Content Packaging v1.1.4
4) IMS Content Packaging v1.2
5) Some other standard

3. Candidate option 3 standards for future addition in Core SCORM

The study group did not discuss this area at all. In addition, “option 3 standards” were in no way sanctioned or recommended by the workgroup. Option 5 or 6 standards could be just as acceptable. Therefore, the list provided in the document is premature and unwarranted. It makes it appear that work was done by the workgroup that was not. And makes it appear as if “option 3 standards” were in some way favored by the participants – but they were not.

4. The evaluation of the restriction to de jure or accredited standards

Again, it should be noted here that the workgroup did not agree on or in any way sanction the proposal by ADL for “option 3 standards.” It was noted in several contributions from IMS that SC36 should consider how successful candidate standards have been in the marketplace and in particular the learning and educational technology marketplace in selecting standards for Core SCORM or anything else.

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5. The evaluation of the focus of expansion of SCORM or achieving greater interoperability

IMS takes no issue with the write-up of this evaluation area but finds the options presented as confusing. IMS believes the set of options to be considered are:

Options: what would be the likely impact on interoperability of increasing the technical coverage of SCORM?

1) decrease interoperability
2) increase interoperability
3) it depends on what it is increased to and how interoperability is supported

Options: Which approach is more likely to increase interoperability in practice across sectors and regions that currently use SCORM?

1) The Core SCORM proposal that allows widely varying packaging standards under the umbrella of a new SCORM packaging model such as MPEG 21?
2) The IMS proposal that is based on application profiling under the umbrella of existing proven SCORM standards, such as Content Packaging, with some improvements as needed?

Options: independent of the issue of increasing or not increasing the SCORM technical coverage should SCORM enable community of practice extensions?

1) yes
2) no

6. What components are included/not included in Core SCORM

Again, the workgroup did not agree to recommend that only standards from ISO or IEEE be considered for Core SCORM. There was discussion in the workgroup regarding what SCORM components are most widely used. Evidence was presented that IMS Content Packaging is the most widely used standard in SCORM.

SC36 has an approved set of work items. Among those work items, some are clearly related to SCORM (such as Content Packaging) and others may include reference to potential use in SCORM (such as Accessibility). Preference was

expressed by some participants that SC36 support a version of SCORM that features SC36 sanctioned work, such as these.

The option here can be expressed as follows:

> Options: Should the Core SCORM that SC36 recommends be scoped to be consistent with the work considered as SCORM-related in SC36 such as the distribution of SCORM 2004 v3, IMS CP v1.2, MLR, and Accessibility?
>
> 1) yes
> 2) no

Finally, it should be noted that the ECS is unknown and should not be assumed. One option for this entity is SC36. This presents the following option:

> Options: Should SC36 take control of SCORM and make its own decisions, taking input from National Bodies and Liaison organizations, but not being dictated to by ADL in terms of what is in so-called “Core SCORM” or any other “SCORM”?
>
> 1) yes
> 2) no