



Metadata for e-Learning Objects

Ya-ning Arthur Chen, Shu-jiun Sophy Chen
Computing Centre, Academia Sinica

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Outline

- **Definition**
- **Scope of e-Learning**
- **Overview of Current Metadata Standards**
- **Position of Metadata**
- **Snapshot on Metadata Standards**
- **Issues and Future Works**





Definition¹

- **Learning Object**

Leverage database, Internet, and other digital technologies to prepare learning content as discrete small “chunk,” or “Learning Objects,” that can be used alone or dynamically assembled to provide “just enough” and “just in time” learning.





Definition²

- **Learning Object**

A re-usable, media-independent chunk of information used as a modular building block for e-Learning content. Learning objects are most effective when organized by a metadata classification system and stored in a data repository such as a Learning Content Management System (LCMS). (The MASIE Center, 2002)





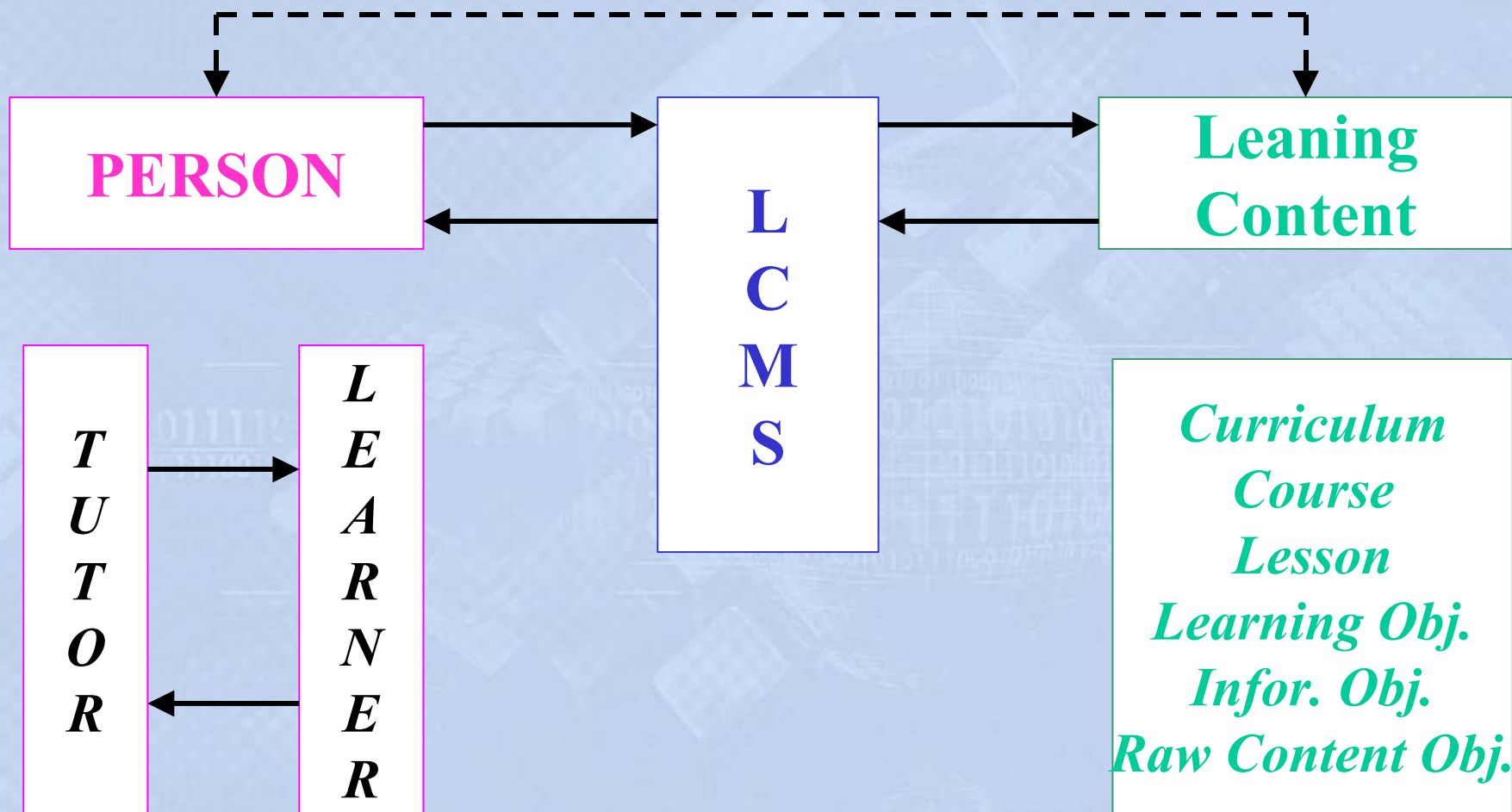
Scope of e-Learning¹

- **Person – tutor, and learner**
- **Platform – a content management system for e-Learning (LCMS)**
- **Content**
 - **Curriculum**
 - **Course**
 - **Lesson**
 - **Learning objects**
 - **Information objects**
 - **Raw content items**



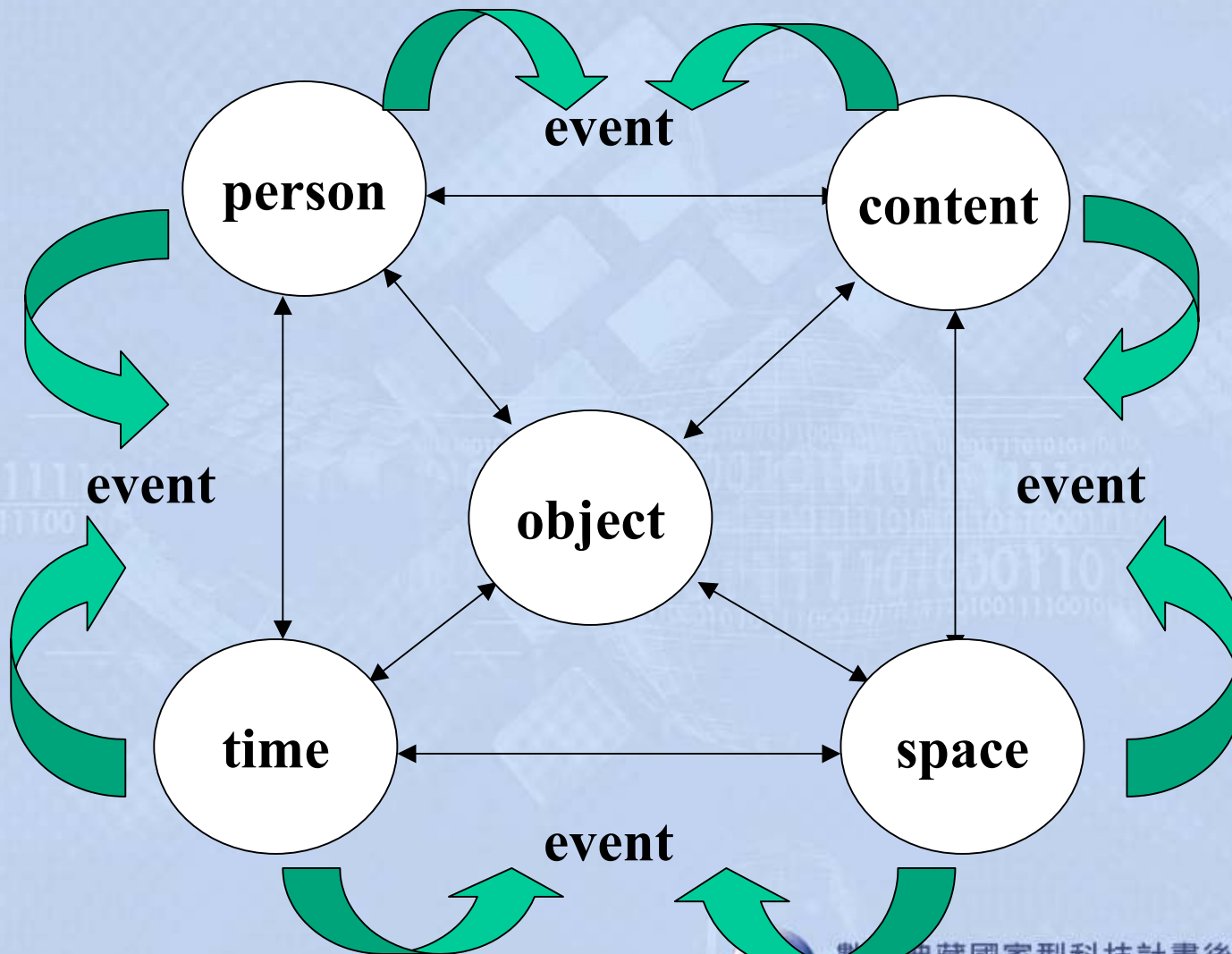


Scope of e-Learning²



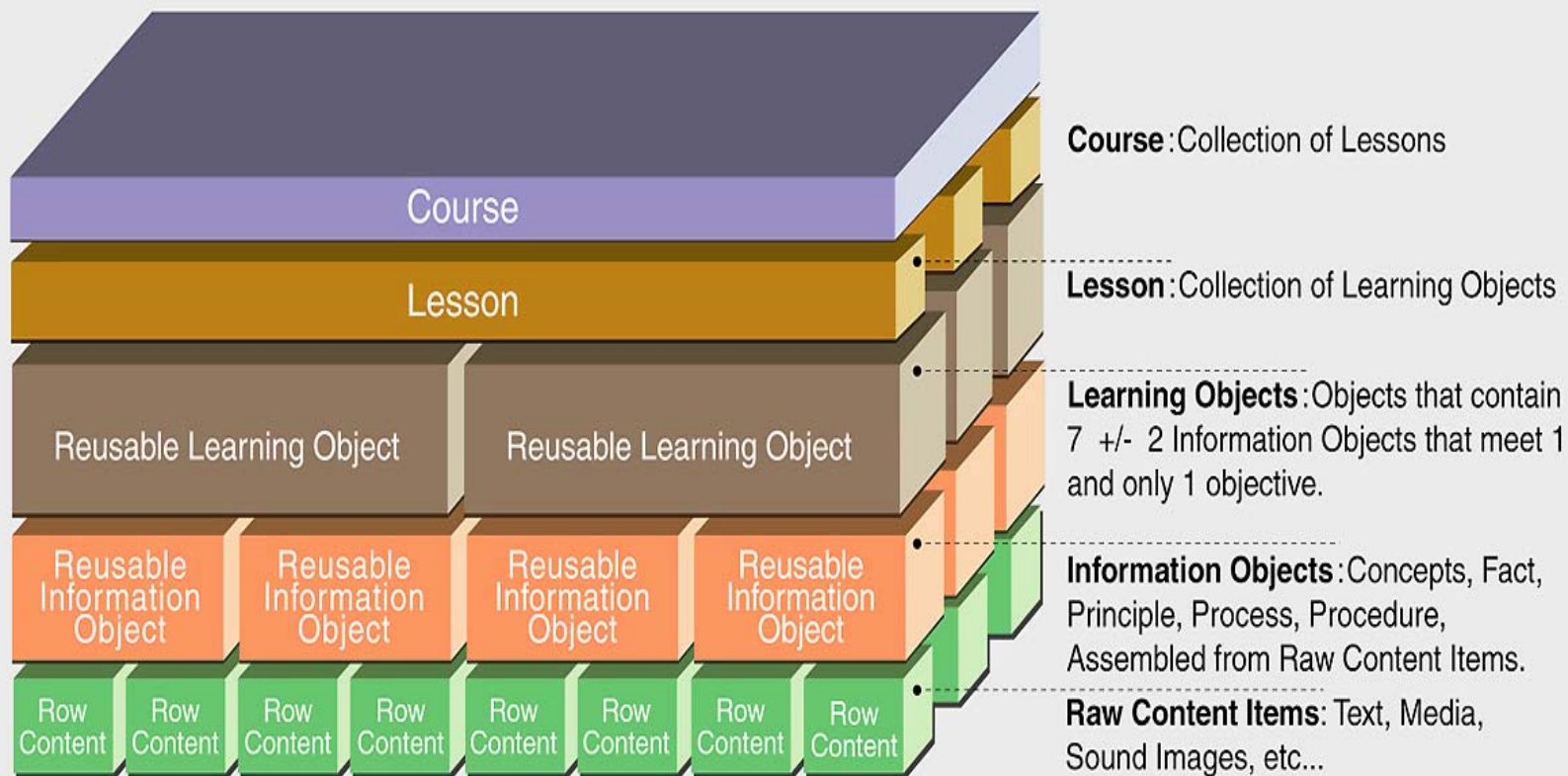


Generic Metadata Attributes





Scope of e-Learning⁴ Content Model



autodesk Content Model





Overview of Current MD Stds.¹

Functions of Standard

- **Standard helps e-Learning in achieving to**
 - **Interoperability**
 - **Re-usability**
 - **Manageability**
 - **Accessibility**
 - **Durability**





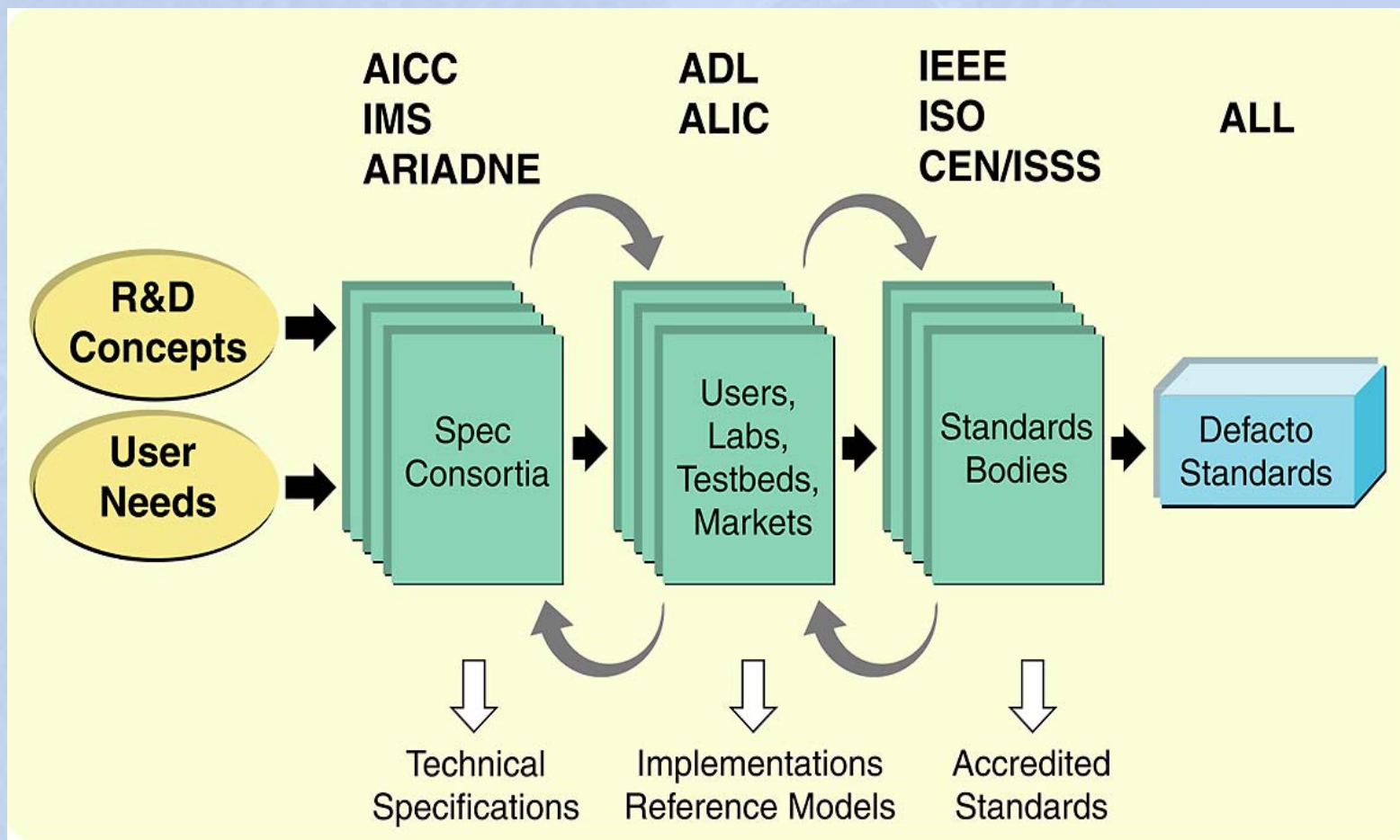
Overview of Current MD Stds.²

- **Technical Specifications**
such as **AICC, IMS, ARIADNE**
- **Implementation Reference Models**
such as **ADL SCORM (sharable content object reference model)**
- **Accredited Standards**
such as **IEEE, ISO, and CEN/ISSS**
- **De facto Standards**





Overview of Current MD Stds.³





Position of Metadata¹

Definition

- **Metadata**
 - **Data about data.**
 - **Structural** data about data.
 - To structure and annotate data which can then be easily **reused, transformed, accessed,** etc., in order to **gain** more information and knowledge **on demand** (ASCC, 2002).





Position of Metadata²

Sample of Metadata

- the **author** of a book
- the **file size** of an animation
- the **location** of a file in a database
- **learning preferences** or **styles** of an individual
- the **collective opinion** of a group who has seen the same movie





Position of Metadata³

Vision – 6R

- Just the right **CONTENT**, to
- Just the right **PERSON**, at
- Just the right **TIME**, on
- Just the right **DEVICE**, in
- Just the right **CONTEXT**, and
- Just the right **WAY**





Position of Metadata⁴

Function

- **Metadata can help e-Learning attain to**
 - **Find**
 - **Select**
 - **Retrieve**
 - **Combine**
 - **Use/re-use**
 - **Target**
it for appropriate use.
 - **Furthermore, categorization and taxonomies can be also attained.**





Snapshot on MD Standard¹

ADL Initiative: SCORM¹

- In 1999, ADL (Advanced Distributed Learning) was initiated by DoD and established ADL Co-Laboratory (Co-Lab).
- ADL Vision
 - Sharable content objects from **across** the world wide web
 - **Assembled** in real-time, on-demand
 - To provide **learning and assistance** anytime, anywhere





Snapshot on MD Standard² ADL Initiative: SCORM²

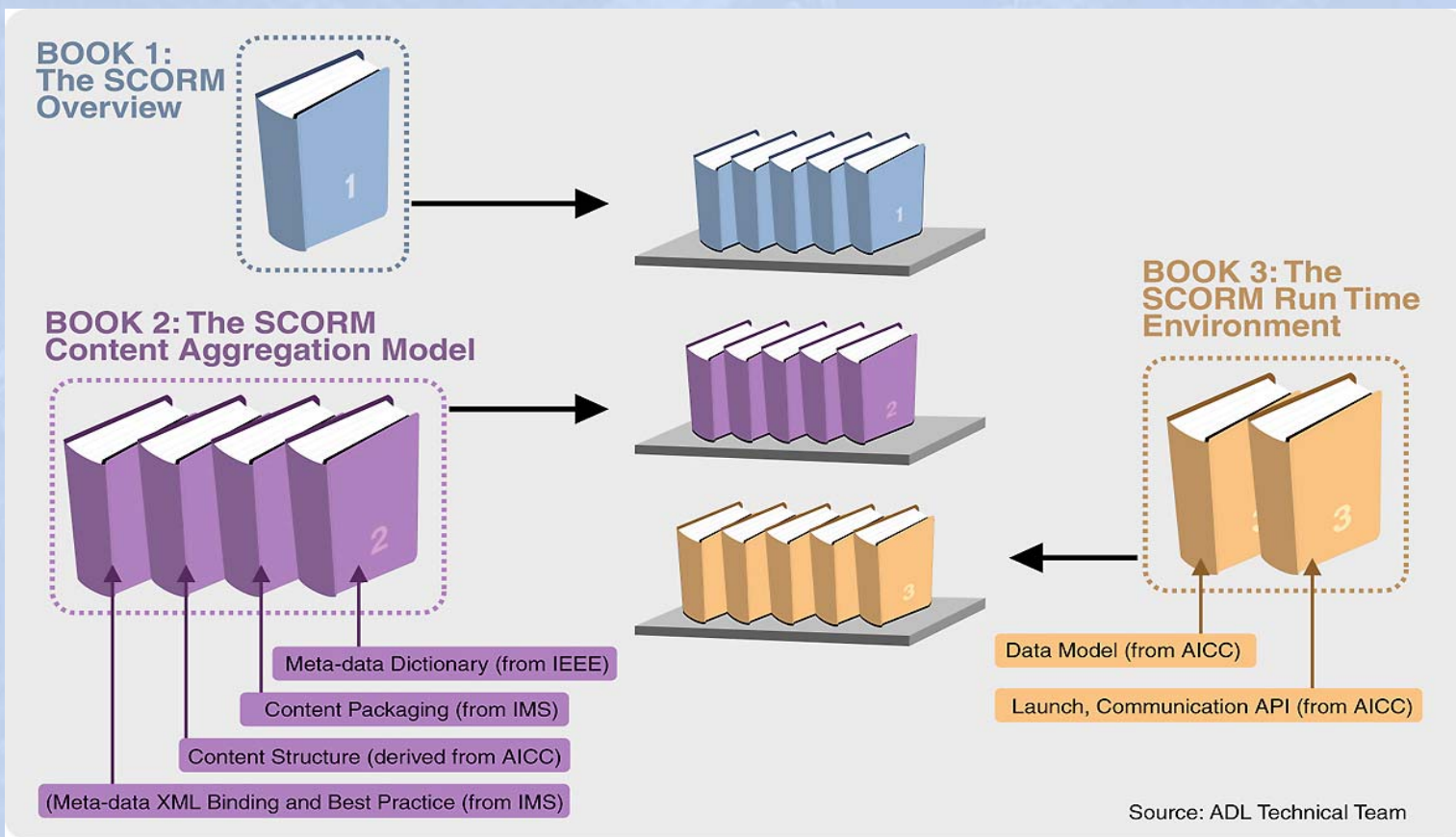
- **High-level requirements**
 - Accessibility, interoperability, durability, and reusability
- **Web-based design assumption**
- **Describing “Learning management Systems” (LMS)**
- **Tracking the Learner**
- **Toward adaptive and intelligent tutoring**





Snapshot on MD Standard³

ADL Initiative: SCORM³





Snapshot on MD Standard⁴ *IEEE LTSC: LOM¹*

- **Initiated date: 1996**
- **Achievement:**
1484.12.1-2002 has been approved as an IEEE – SA Standard on Jun. 12, 2002.
- **Collaboration**
 - **A formal connection between IEEE’s LOM and DC has been formulated.**





Snapshot on MD Standard⁵

IEEE LTSC: LOM² — Category

- **General**
- **Life Cycle**
- **Meta-Metadata**
- **Technical**
- **Educational**
- **Rights**
- **Relation**
- **Annotation**
- **Classification**





Snapshot on MD Standard⁶

DCMI: Education Working Group¹

- **Launched Date: 9 August, 1999**
- **Current Progress**
 - **Dec. 2001: Audience Level Proposal**
 - **Feb. 2002: Complete discussion of audience characteristics data**
 - **Jun. 2002: Complete work gathering teaching processes and characteristics data**
 - **Aug. 2002: Proposal for ‘type’ vocabulary**
 - **Jun.-Aug. 2002: Discussion: Intrinsic learning objectives (DCMI 2002 Annual Meeting)**





Snapshot on MD Standard⁷

DCMI: Education Working Group²

- **Completed documents**
 - Audience Characteristics – draft
 - Teaching Methods/Strategies – draft
- **Collaboration**
 - A formal connection between IEEE's LOM and DC has been formulated.





Issues and Future Works

- **More case studies will be examined for e-Learning Objects and verify the feasibility of and issues related to current metadata standards in Taiwan, such as the Hsichih Community College in Taipei County.**
- **To use the practices and results of the National Digital Archive Program as a base to extend into e-Learning metadata and related services.**
- **An application profile will be employed for developing current metadata standards of e-Learning Objects in Taiwan. Furthermore, best practice will be prepared for users.**





***Thank for your join, and
welcome any comments!***

