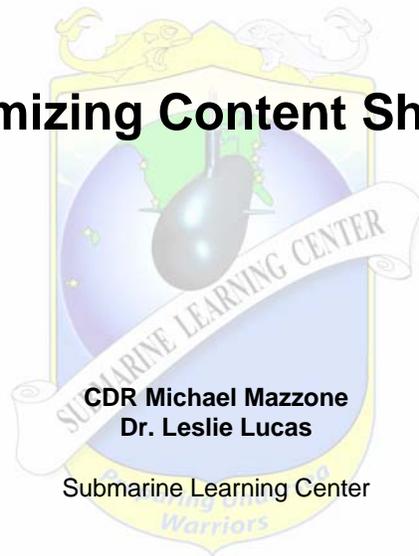


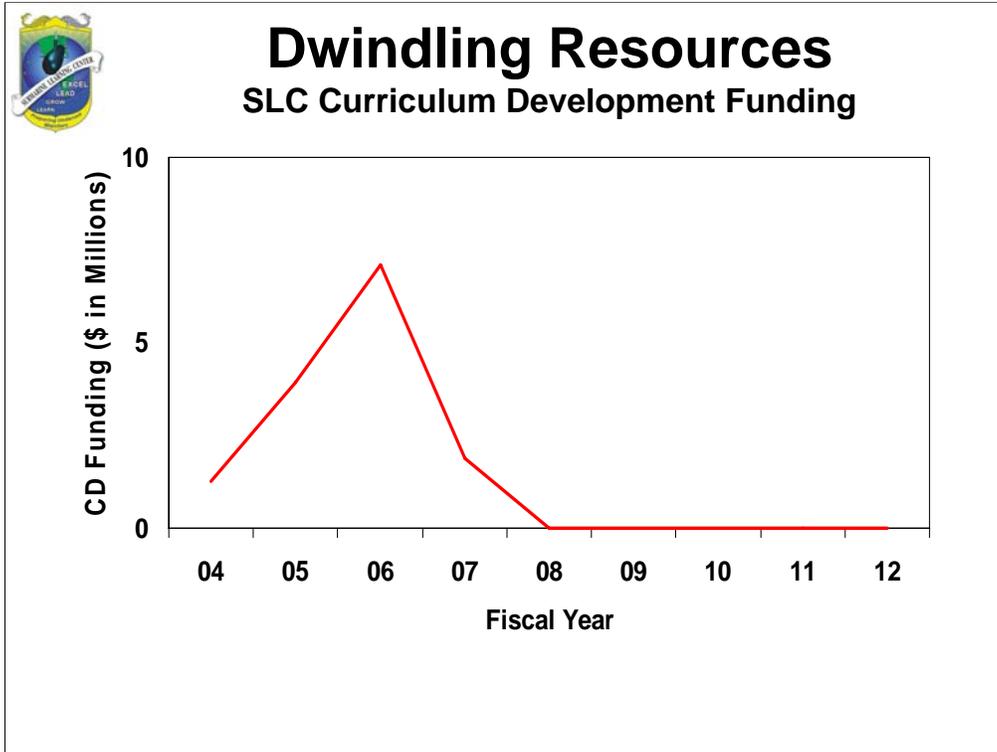
Optimizing Content Sharing



The Submarine Learning Center is just one of the Naval Personnel Development Center's 14 Learning Centers, charged with overseeing Navy training.

Today we will discuss some of the challenges we face as a Learning Center in the development and management of learning content.

We acknowledge that solutions for some of the challenges we will discuss could be in the works. However, if so, they may not be mature enough to have been communicated to the learning centers, the "front lines" of training.

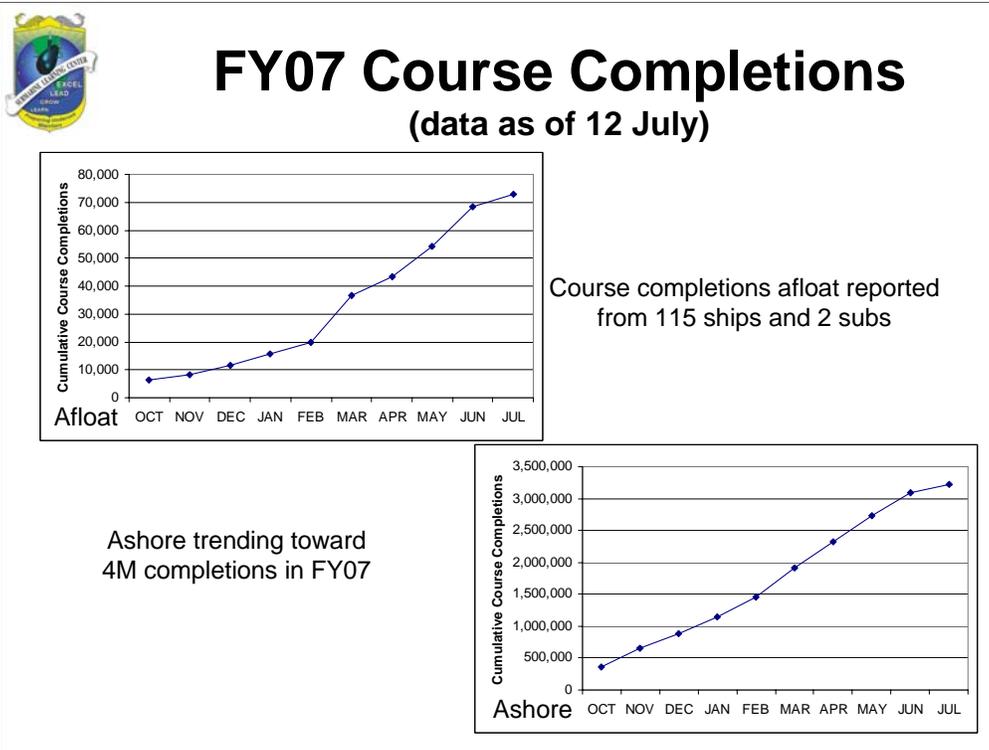


As always seems to be the case, funding availability plays a key part in determining the pace at which progress is made...

We are certainly seeing it in the training community, where not only funding has taken a hit, but the instructor resource pool as well, in the form of Individual Augments. Individual Augments are Sailors currently serving on shore duty, who are ordered to serve in places such as Iraq, Afghanistan, and Pakistan to support the Global War on Terror.

Of note, the above data does not reflect costs associated with Life Cycle Management of the developed content.

So, in summary funding and available manpower for Content Development are on the decline...



...while e-Learning is on the rise. This trend is unprecedented throughout the Department of Defense.

Unfortunately, the development of self-paced IMI is typically more costly than that for ILT.

So, how can we resolve this dilemma?

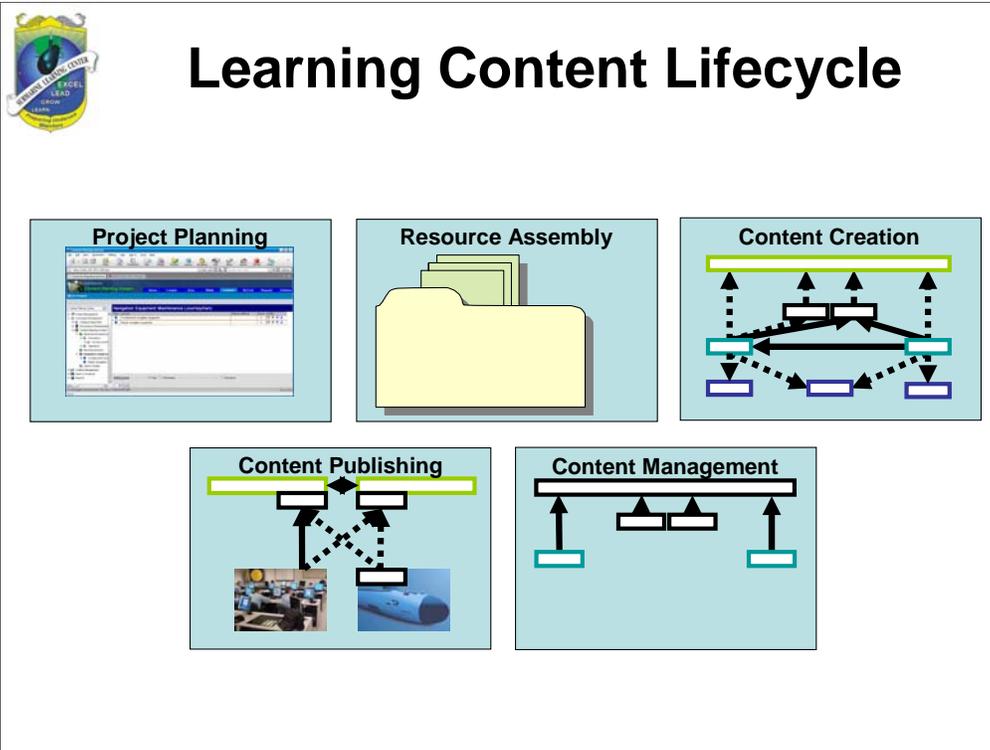
One option is to increase funding for the development of IMI. However, to do so would require that funding be cut for some other program.

Another option would be to cut back on the delivery of e-learning. However, to do this would:

- 1) increase the training burden on an already heavily tasked instructor pool, and
- 2) Be contrary to the vision of Sea Warrior, which is the Navy Program overseeing all Training, Education, and Career Management systems.

So, the only real option is to develop training more cost effectively!!!

We will analyze the learning content development and management processes to identify areas that could be improved.



The development and management of Learning Content can be grouped into five broad phases:

- Project Planning
- Resource Assembly
- Content Creation
- Content Publishing, and
- Content Management.

From the inception of a project through its transition to Life Cycle Management, there exist areas in each phase where commonalities can be leveraged and efficiencies realized.

We will now talk about each one of these phases in more detail.



Phase 1 – Project Planning

- ***Identify Training Requirements***
- Designate Learning Sites
- Course Curriculum Model Manager
- Obtain Course Identification Number
- ***Construct Navy Learning Objective Statements (NLOS)***
- Determine Assessment Strategy and Delivery Method
- Identify Training Resource Requirements
- ***Search For Existing Material***
- Create Course Outline of Instruction
- Develop Evaluation and Project Plan
- Brief Key Stakeholders of Plan

The first phase is the Project Planning Phase, which consists of these events

Bold-faced, italicized events are areas that could be improved.



Project Planning

- Identification of Training Requirements
 - Skills Data Format and Standardization
- Construction of Navy Learning Objective Statements (NLOS)
 - Enterprise Mapping of NLOS to Skills Data
- Content Searching
 - Enterprise Repository for Search
 - ILE Metadata Schema Definition and Enforcement

Identification of Training Requirements

Skills data describes the work the Sailors perform, and how they perform it.

The manner in which this data is collected, organized, and managed is currently in a state of transition.

Several different models are being evaluated, which include revised Occupational Standards, Navy Job Analysis, and Competencies.

Construction of Navy Learning objective Statements

Once we've captured the work being performed, we must then formulate an instructionally meaningful statement to ensure that the content developed and delivered focuses on the true requirement. This infers the need to map skills data to these learning objective statements – no enterprise tool currently exists to perform this function. In addition, not all Learning Centers construct learning objective statements in the same manner.

Content Searching

Much of ILT is located on local servers at various learning sites.

Expedient searches of IMI content is a challenge because many Learning Centers have not populated metadata elements in a consistent and uniform manner.

The ILE metadata schema is in a state of transition as the vision of the ILE evolves.



Project Planning Way Ahead

- Identification of Training Requirements
 - Establish Standardized Skills Data Policy
- Construction of NLOS
 - Standardize NLOS Construction and Storage
- Content Searching
 - Reevaluate and Promulgate the ILE Metadata Schema

Establish and enforce policy for:

Skills data management

NLOS development, and

Metadata element population

Solidify the standards and specifications for:

The structure of the metadata schema

Decide upon, and invest in, enterprise tools:

One that maps NLOS to skills data. The Content Planning System (or CPS) is one such prototype that could be transitioned to an enterprise solution.

A repository for both IMI and ILT content. The Content Management Administration Desktop (or CMAD) is in the process of being enhanced to meet this requirement.



Phase 2 – Resource Assembly

- ***Prepare Work Solicitation Package***
 - ***Statement of Work***
 - Request for Proposal
 - Team Selection
- Kick-off the Project
- Hold NLOS Conference
- Announce Delivery Dates
- ***Create and Review Instructional Media Design Package (IMDP)***
- ***Create and Review Test Package***

The Resource Assembly Phase can be further refined as shown.

Bold-faced, italicized events are areas that could be improved.



Resource Assembly

- Statements of Work Standardization
- IMDP
 - Existing ILE “Requirements” are Promulgated as Guidance
- Test Package
 - No ILE “Requirements” Exist

Statements of Work

Statements of Work reference the standards and specifications provided by the established ILE guidance. “Guidance” is a key word here, as each of the Learning Center’s customize documents.

We reviewed numerous Statements of Work and found that the majority of a curriculum development SoW is independent of the actual content proposed for development, and need not reflect customization. Other documents that are tailored include:

IMDP & Test Package

Instructional Media Design Package and the Test Package.

When developing the Test Package, significant points of variance exist in the following areas:

- What is the Level of Testing – do we test out at the Course level? The Lesson level? Or The Section Level?
- Are the assessment items embedded in the content? Are they separate?
- Will the test consist of a randomized sampling from a test bank?

When we customize to this level, how are we positioning ourselves to leverage commonalities?



Resource Assembly Way Ahead

- Statements of Work & IMDP
 - Establish and Enforce Adherence to Requirements
 - Provide SoW and IMDP Templates
- Test Package
 - Evaluate NCOM to Establish Appropriate Assessment Location

Statements of Work, IMDP, Test Package

Establish the ILE Guidance as enterprise policy.

Facilitate adherence to standards by providing detailed enterprise templates for all content design documents.



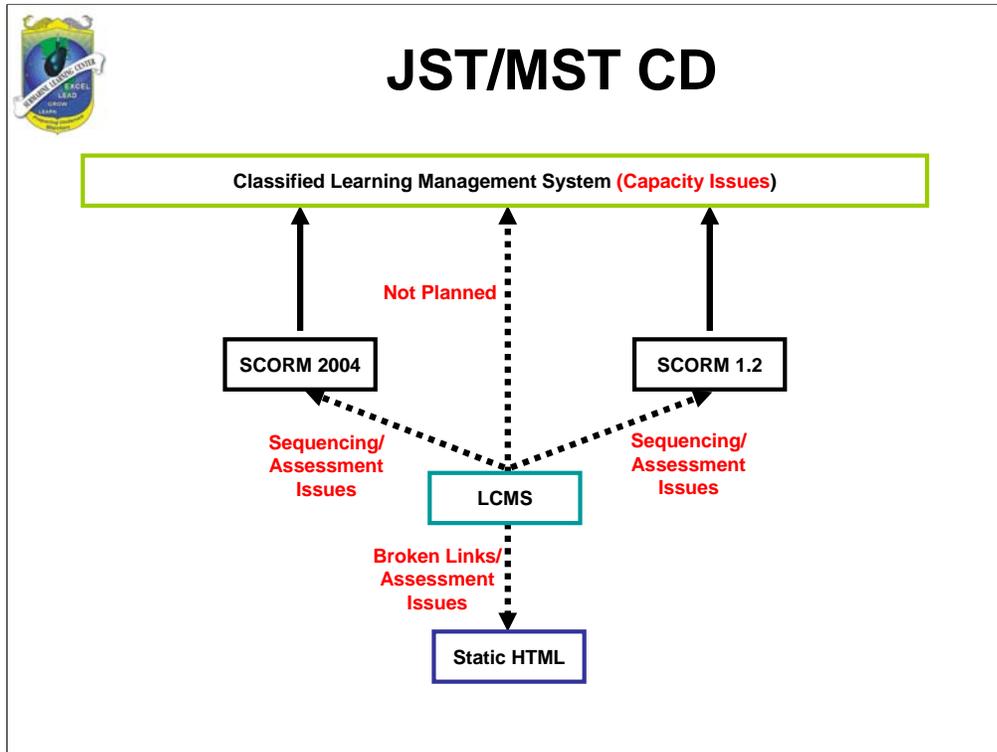
Phase 3 – Content Creation

- ***Prepare and Review ILE Content Prototype***
 - *Design Interface and Controls*
 - *Design for Accessibility*
 - *Conform to Sharable Content Object Reference Model (SCORM)*
- ***Develop and Review Storyboards, Trainee Guides, and Lesson Plans***
 - *Portion Mark Content*
- ***Construct and Review Content Learning Objects***

The Content Creation Phase can be further refined as shown.

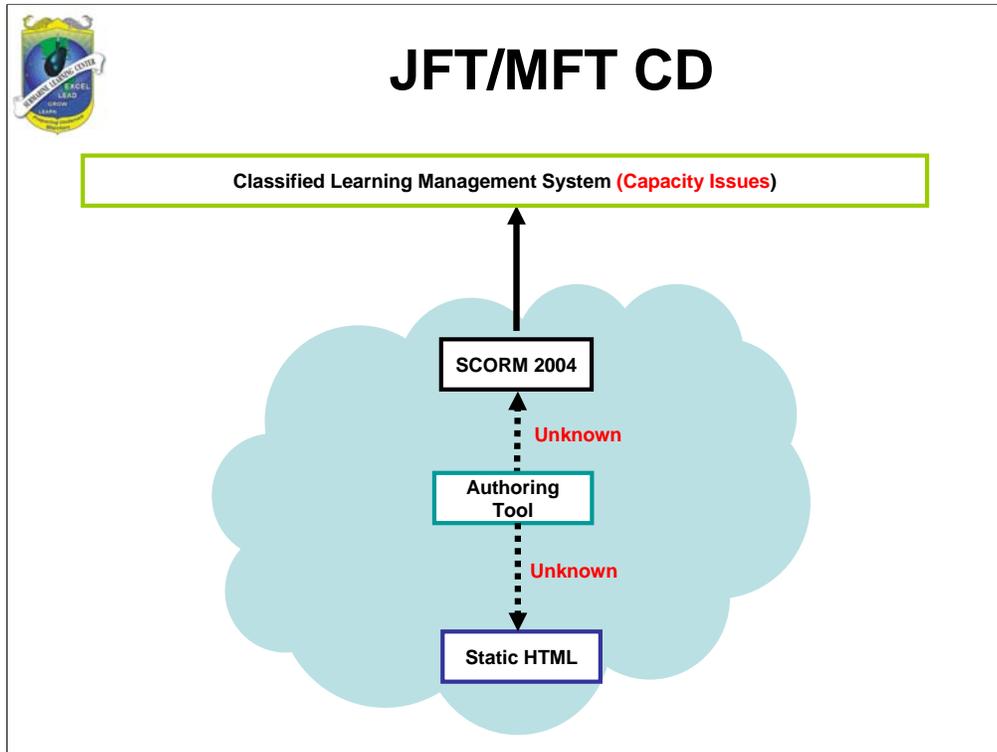
Bold-faced, italicized events are areas that could be improved.

We will review several of our current content development projects.



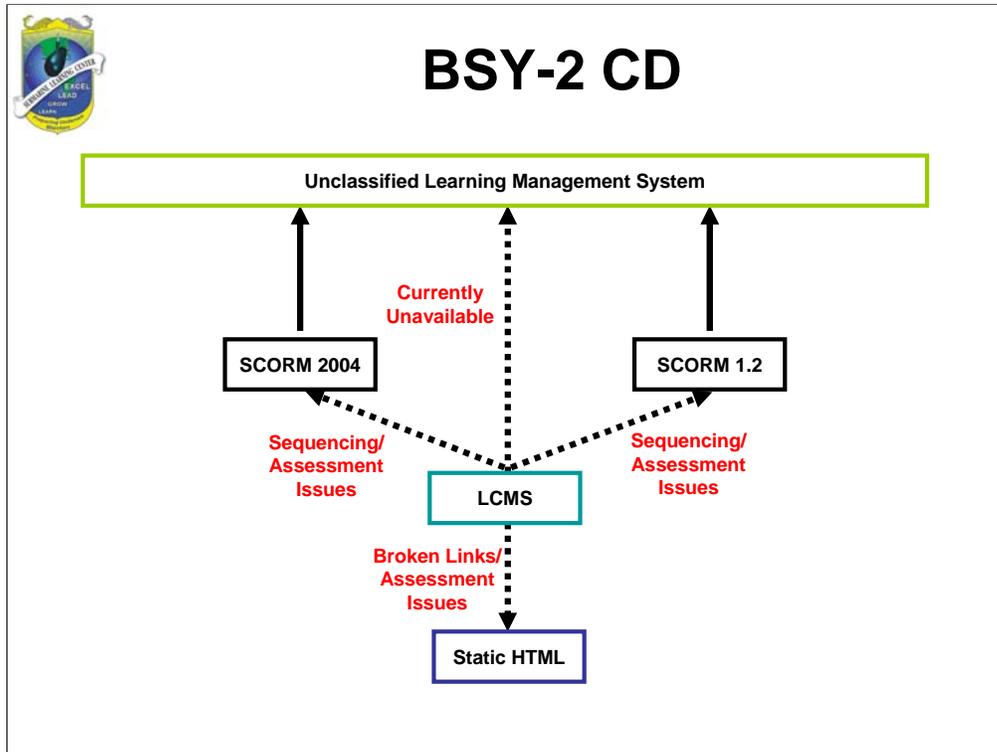
The first project is the Journeyman and Master Sonar Technician pipeline, currently being developed in a Learning Content Management System (or LCMS) for delivery via the classified Learning Management System (or LMS). This course will be delivered to ALL submarine Sonar Technicians, and represents 25 weeks of training.

Solid lines reflect fully functioning processes, while dashed lines reflect processes with limited functionality. As you can see, any path from development to delivery requires a workaround of some sort, or results in sub-optimal delivery.



The next project is the Journeyman and Master Fire Control Technician pipeline, currently being developed in an authoring tool not previously used by SLC, for delivery via the classified LMS. This course will be delivered to ALL submarine Fire Control Technicians, and represents 15 weeks of training.

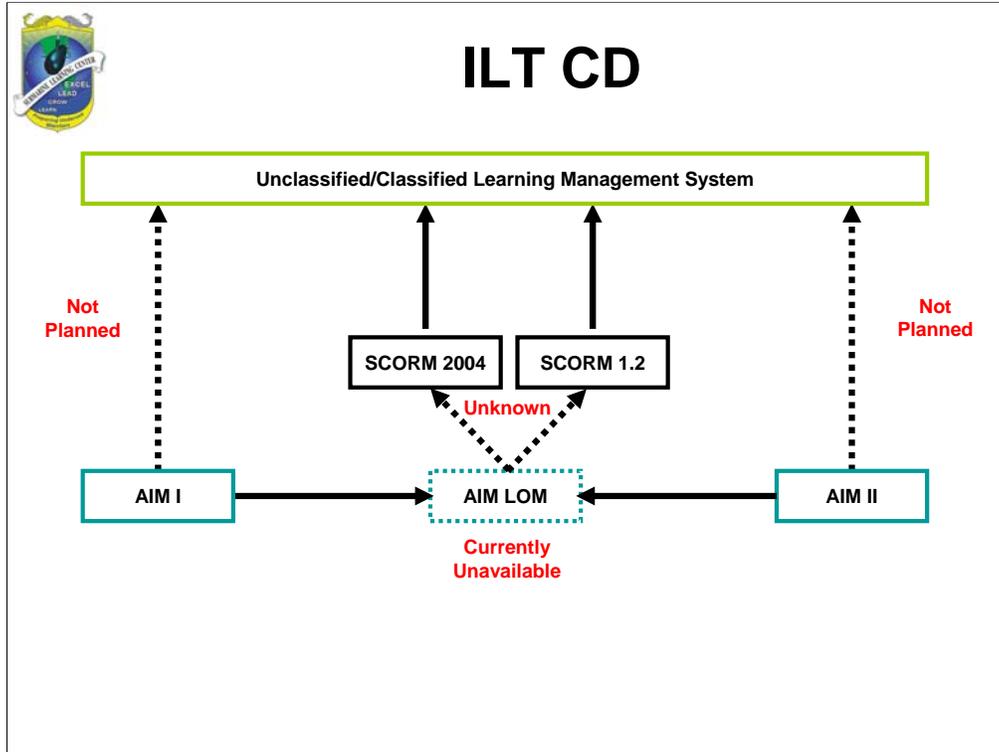
As before, solid lines reflect known fully functioning processes, while dashed lines here reflect processes of unknown functionality.



The previously discussed projects were all developed for delivery via the classified LMS. Challenges also exist in the unclassified environment.

One example is the BSY-2 Combat Control System Retained Equipment Maintenance course, currently being developed in a LCMS for delivery via the unclassified LMS. This course will be delivered to all submarine Sonar Technicians and Fire Control Technicians prior to reporting to a platform with this Combat Control System, and represents approximately 1 week of training.

As before, solid lines reflect fully functioning processes, while dashed lines reflect processes with limited functionality. As you can see again, any path from development to delivery requires a workaround of some sort, or results in sub-optimal delivery.



Just as for IMI development, challenges exist in the development of ILT.

Authoring Instructional Materials (or AIM) is the prevalent ILT authoring application used by Learning Centers.

AIM I and AIM II (which support Personnel Performance Profile-table and Task based ILT development) do not currently support the ILE standards and specifications for LMS delivery.

AIM Learning Object Model (or AIM LOM) is in development, and will support LMS delivery. However, it is unclear as to how the LMS will manage AIM-developed ILT.



Content Creation Way Ahead

- ***Policy, Policy, Policy!!!***
 - *Drives Standards*
 - *Drives Process*
 - *Drives Infrastructure*
 - *Drives Functional Requirements*

Enables Maximum Sharing!!!!

The root cause of the symptoms is a lack of conformance to required standards and specifications.



Phase 4 – Content Publishing

- Government Content Acceptance Testing (GCAT)
- ***Pilot Course***
 - Verify Delivery Facilities
 - Identify Audience
 - ***Train the Trainer on Facilitation of e-Learning***
- Conduct Post-Pilot Corrections
 - Finalize Training Course Control Document (TCCD)
- Promulgate Course

The next phase of content development is Content Publishing.

Bold-faced, italicized events are areas that could be improved.



Content Publishing

- Skills Required to Effectively Facilitate IMI Differ from those for ILT
- Many Knowledge Portals Across Agencies
- Delivery Afloat Differs from Ashore

Skills Required to Effectively Facilitate IMI Differ from those for ILT

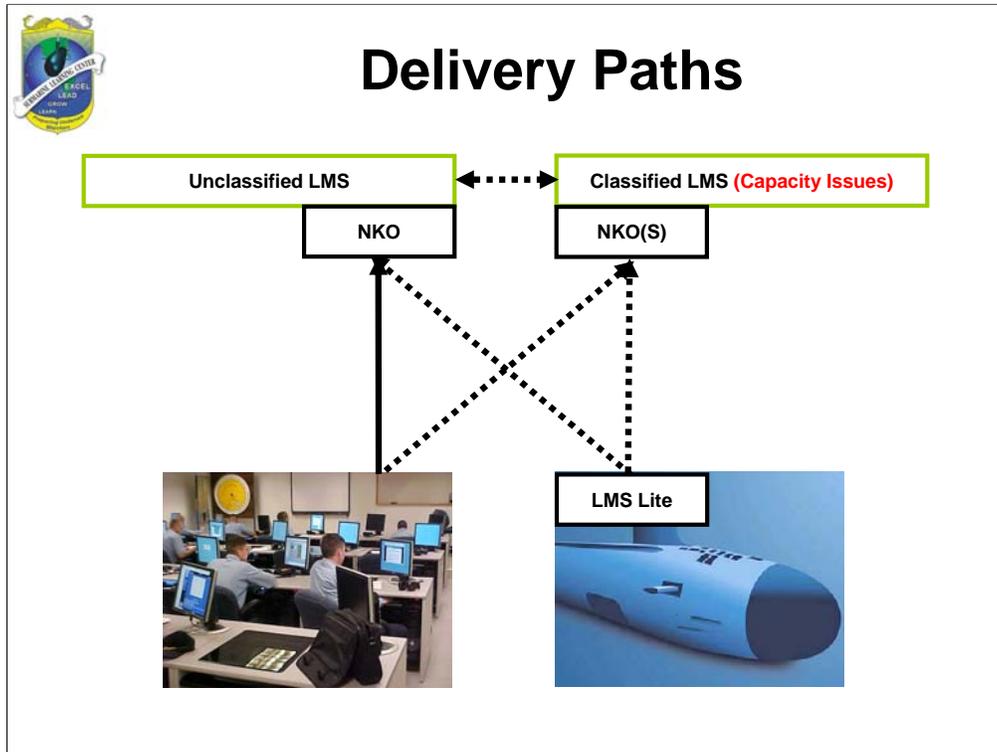
The transition from ILT to IMI, or even a blended delivery, represents a significant change in the manner in which the instructor interacts with the learner.

Many Knowledge Portals Across Agencies

The Sailor's primary access point to Navy e-Learning is Navy Knowledge Online (or NKO). Other departments and agencies have similar access portals. These access portals, for the most part, perform the same function, with duplicate web services.

Delivery Afloat Differs from Ashore

Not only does access differ across departments and agencies, but can also differ between classroom and afloat platforms.



Is the content delivered via the ILE ashore? ILE afloat? Stand alone? Or Standalone with periodic reporting to the ashore LMS? Today, the answers to these questions matter since it may result in different content development standards being applied. In the submarine training community, for example, much of our afloat content is developed following different requirements to ensure platform compatibility.

There exists no single set of standards that lead to uniform functionality ashore and afloat, which limits reusability.



Content Publishing Way Ahead

- Instructor Preparation
 - Provide Training to Prepare Instructors to Facilitate IMI
- Access
 - Consolidate Knowledge Access Portals Across Agencies
- Afloat vs Ashore
 - Standardize and Align Requirements for Delivery Afloat and Ashore

Instructor Preparation

Establish standards for the preparation of instructors to facilitate IMI. SLC provides additional training to supplement that provided by the Journeyman Instructor Training course, which is required of all instructors. This additional training provides guidance on facilitation skills and the administration associated with the management of online delivery.

Access

Transition to a consolidated learner access portal (The Defense Knowledge Online initiative is a key step in this direction).

Afloat vs Ashore

Establish enterprise standards and processes that include consideration of the intended delivery platforms, and align these standards and processes to maintain uniformity among platform specific delivery methods.



Phase 5 – Content Management

- ***Periodic Review of Course Content***
- Identify Required Content Changes
- ***Revise Content***
- Promulgate Revised Course

The next phase of content development is Content Management, which consists of these events.

Bold-faced, italicized events are areas that could be improved.



Content Management

- Enterprise Version Control System For Both IMI and ILT
- Learning Centers Content Review Periodicity Variance
- Course Revisions are Subject to Same Challenges as Create Content Phase

Version Control

ILT is version controlled using AIM, and IMI is version controlled by the cognizant Learning Center using locally generated processes or through CMAD. These two systems should be compatible, if not the same.

Review Cycle

Learning Centers have different numbers of learning sites, course loads, and staff manning. As a result, content review periodicity varies from Learning Center to Learning Center, and from learning site to learning site.

Content Revision

Any revisions to content required as a result of these periodic or event-triggered reviews are vulnerable to the same challenges discussed in the Content Creation phase.



Content Management Way Ahead

- Content Version Control System
 - Develop a Common System for Version Control That Addresses both ILT and IMI
- Content Review Periodicity Variance
 - Provide an Environment that Enables and Facilitates Different Review Cycles and Collaborative Review

Version Control

Establish an all-encompassing enterprise policy for the version control of ALL content.

Review Cycle

Accommodate the varying content review periodicities required by the Learning Centers and Sites.

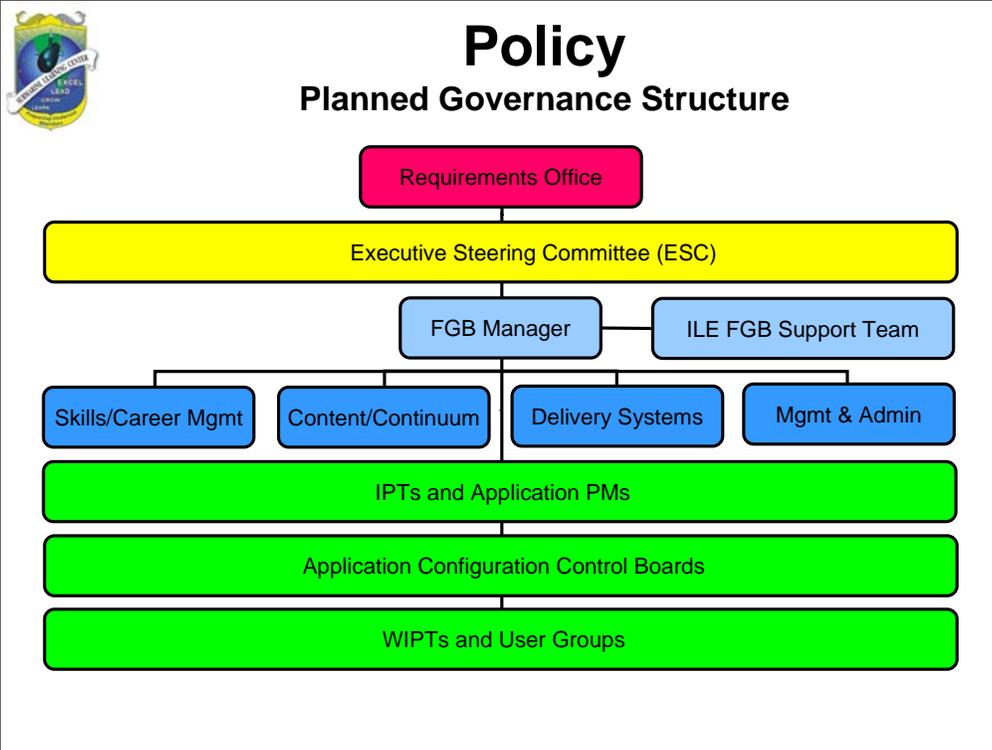


Summary

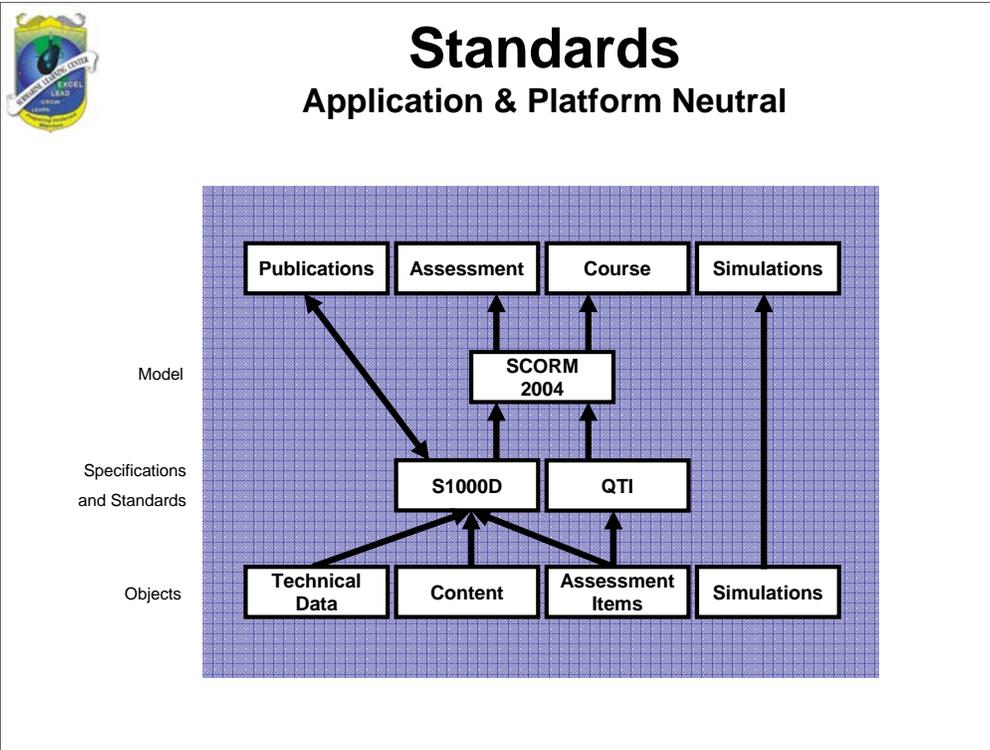
- Policy
- Standards
- Procedures
- Tools

In summary, the challenges and potential ways ahead just discussed in the 5 phases of Curriculum Development fall into these broad categories.

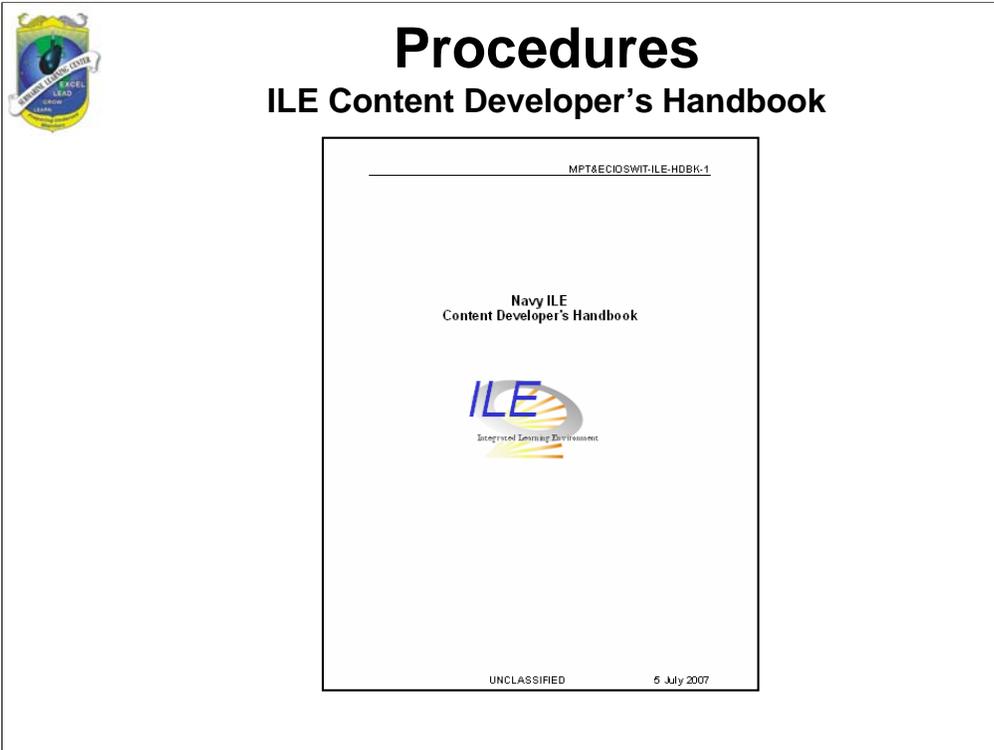
The improvements necessary to overcome the challenges previously discussed, in some cases, represent a significant change in the way we think about training.



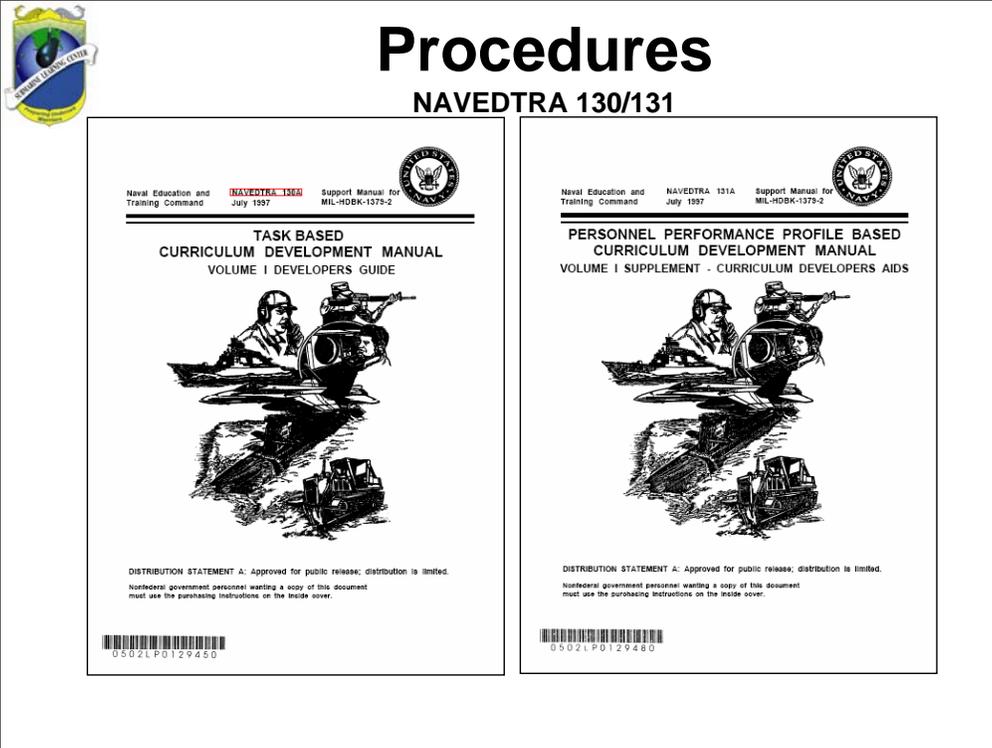
To address the policy concerns we have discussed, it is imperative to establish a governing structure empowered to set and enforce policy. Shown is a conceptual organizational structure that could provide such policy-setting direction.



In the area of Standards, we need to implement common specifications and standards across all content types, including technical data, and manage content using a common registry and repository.



In the area of procedures, a first step already taken is the promulgation of the ILE Content Developer's Handbook, which details the phases of content development.



Naval Education and Training Command Curriculum Development manuals (NAVEDTRA 130 and 131) provide guidance for the development of ILT materials. The effort to update these manuals to reflect ILE standards and procedures for LMS delivery is currently in the planning phase.



Procedures

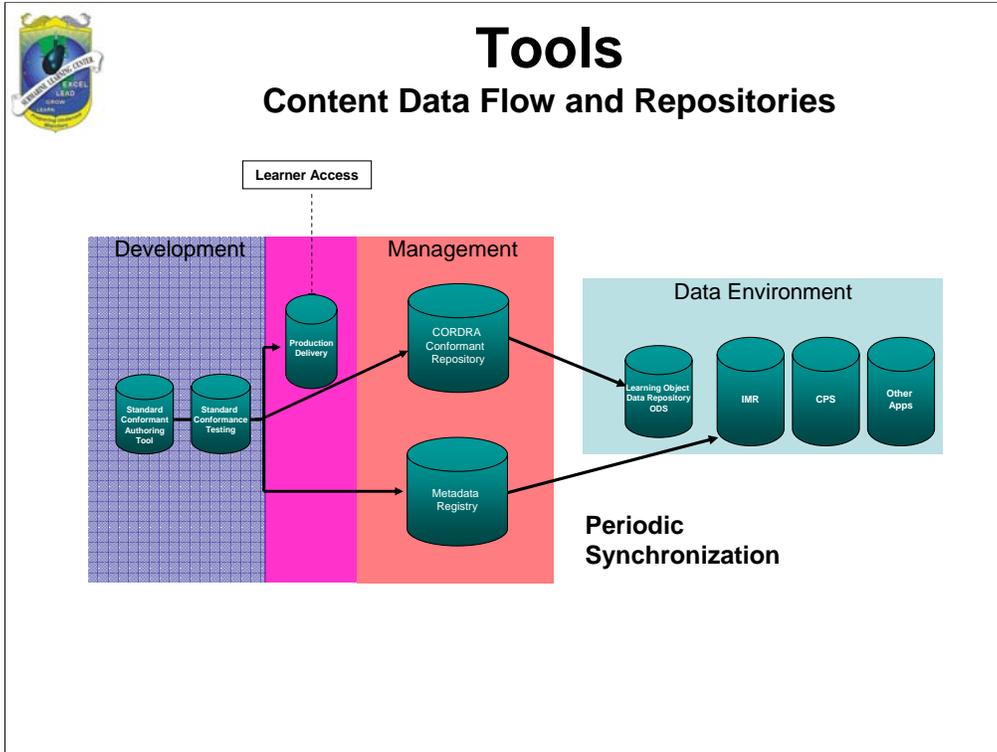
SLC Curriculum Development Notice

	A	C	D	E	F
	PV	Rating	Lead	Project Title	Project Description
44	07	ET-Com	N7	SCSS operator Curriculum development	SCERF Pilot completed/red line corrections IP
45	07	ET-Com	N7	VRR	VLF/AFHF mod IP/ UHF mod IP/GES IP gearing up
46	07	ET-Com	N7	CSRR Standardized scenarios	basic and intermediate delivered/advanced IP
47	07	ET-Com	N7	CSRR Operator COI	Pilot IP
48	07	ET-Com	N7	CSRR Maintenance COI	to be piloted Jan08
49	07	ET-Com	N7	SCSS Team training Curriculum development	TPP as NSS for approval
50	07	ET-Com	N7	ES "C" School ICW build (ANWLRB)	Curriculum development/Pilot 17 Sept
51	07	ET-Com	N7	ANBLQ-10 Phase 1 w/ ICADF (LMC) ICW build	Operation and Maintenance training for BLQ-10 w/ICADF
52	07	ET-Com	N7	ANBEVS-1 Pilot Mar/April 07	Curriculum development/Pilot 27 August
53	07	ET-Com	N7	ISIS curriculum development Phase 1 (Contractor unknown)	Operation and Maintenance training for ISIS system
54	07	ET-Com	N7	ANADP-11B	Curriculum development/Pilot June 07
55	07	ET-Com	N7	ES MRTS	Develop Team Training functionality and standardized signal scenarios
56	07	ET-Com	N7	ANBLQ-10 MRTS	Develop simulations for the MRTS trainer
57	07	ET-Com	N7	SCERF	Pilot in progress, class graduation in July 07
58	07	ET-Com	N7	SSN Radio Supervisor	Develop curriculum (ILT, IMI, or Blended)
59	07	ET-Com	N7	ES Supervisor	Develop ICW
60	07	ET-Com	N7	ADNS Maintenance (VRR - not a part of SCSS VRR effort)	development completed/to be piloted EST Oct
61	07	ET-Com	N7	GES IP Op and Maintenance (ILT curriculum project)	development completed/to be piloted EST Oct
62	07	ET-Com	N7	CSRR Op and Maintenance MRTS	in development
63	07	ET-Com	N7	ANWLR-B Team training revision	V2, V5 MRTS software upgrade
64	07	ET-Nav	N7	SECF	Approve IG's, Correct Outstart problems in IMI, Update SOBT products
65	07	ET-Nav	N7	Senior Navigation Modules 1	Integrate Senior Navigation Module 1 with GMOW SOBT product Developing Senior Nav Mod 1: Advanced RLGN Operator Course
66	07	FT	N7	Journeyman Fire Control Technician	Convert Course To IMI With Instructor Lead Topics And Performance Labs
67	07	FT	N7	Master Fire Control Technician	Convert to group paced seminars and performance labs
68	07	FT	N7	F1 Legacy Systems Maintenance	Combine retained equipment topics from CCS Mk-1, BSY-1 and CCS Mk-1/2 VLS
69	07	FT	N7	Electronic Plots	Update all plots courses to electronic plots with APB-T as a baseline
70	07	STS	N7	Lounevman ST / Master ST	Re-Engineer from ILT to IMI complete project and maintain yearly

In support of submarine community training, many organizations are actively involved in the development of learning content. These organizations include Program Managers, Type Commanders, and, of course, the Submarine Learning Center.

To reduce the duplication of effort, SLC has developed a list of all content development projects including those that are planned for the future and when development is anticipated to begin.

This list will be promulgated to all stakeholders and available on NKO. Such information will foster communication.



Establish an infrastructure that supports application and platform neutral development and delivery while supporting the requirements of the Learning Centers.



Take Aways

Content Development Must Be:

- *Policy Driven*
- *Enterprise Focused*
- *Standards Based*
- *Integration Enabled*

Only by developing content that is conformant to a universally accepted standard, delivering it via paths designed to be compatible with these standards, and managing it through established uniform enterprise processes, will we position ourselves to make the optimum use of existing resources, while delivering the right training, in an instructionally sound manner, to the right sailor at the right time in his career.