

**2021**

**ANNUAL  
REPORT**

**Prepared by the ADL Initiative January 2022**

**Distribution Statement A:  
Approved for public release: distribution unlimited.**

**DAADL  
ACS**

**Defense Advanced Distributed Learning Advisory Committee**

**REPORT DOCUMENTATION PAGE**

*Form Approved  
OMB No. 0704-0188*

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<b>1. REPORT DATE (DD-MM-YYYY)</b> 01-02-2022		<b>2. REPORT TYPE</b> Annual Report		<b>3. DATES COVERED (From - To)</b> 01/01/2021 - 12/31/2021	
<b>4. TITLE AND SUBTITLE</b> DADLAC Annual Report 2021				<b>5a. CONTRACT NUMBER</b>	
				<b>5b. GRANT NUMBER</b>	
				<b>5c. PROGRAM ELEMENT NUMBER</b> 0603769D8Z	
<b>6. AUTHOR(S)</b> Dr. Sae Schatz and DADLAC Advisory Member Organizations				<b>5d. PROJECT NUMBER</b>	
				<b>5e. TASK NUMBER</b>	
				<b>5f. WORK UNIT NUMBER</b>	
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> OUSD Personnel & Readiness Advanced Distributed Learning Initiative 13501 Ingenuity Drive, Suite 248 Orlando, Florida 32826				<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>	
<b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> OUSD Personnel & Readiness Advanced Distributed Learning Initiative 13501 Ingenuity Drive, Suite 248 Orlando, Florida 32826				<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b> OUSD/P&R/FE&T/ADLI	
				<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b>	
<b>12. DISTRIBUTION/AVAILABILITY STATEMENT</b> Distribution A					
<b>13. SUPPLEMENTARY NOTES</b>					
<b>14. ABSTRACT</b> This report highlights the distributed learning community's activities in 2021, along with important policies and plans to build the future learning ecosystem.					
<b>15. SUBJECT TERMS</b>					
<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b> UU	<b>18. NUMBER OF PAGES</b> 30	<b>19a. NAME OF RESPONSIBLE PERSON</b> Sae Schatz
<b>a. REPORT</b> U	<b>b. ABSTRACT</b> U	<b>c. THIS PAGE</b> U			<b>19b. TELEPHONE NUMBER (Include area code)</b> 571-480-4640

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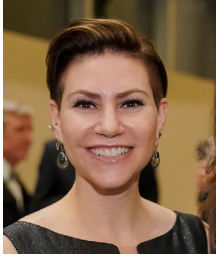
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**The DADLAC is a readiness enabler, keeping the United States on the cutting edge of distributed learning and ensuring our forces remain the best trained in the world.**

**Bill Mansell, SES**  
Director, Defense Support Services Center (DSSC)

# Message from the DADLAC Chair



2021 was filled with great progress and hope for the future as we continued to refine usage of technology for virtual learning and remote working, leveraging lessons learned for the new normal in the years to come. Although many of us maintained a healthy distance working from home in 2021, it was exciting to connect in-person during the Interservice/Industry Training, Simulation & Education Conference (I/ITSEC) to renew our relationships and share success stories from our programs. This report highlights our community's activities, along with important policies and plans to build the future learning ecosystem together.

## This year we...

- Continued to adapt and identify ways for the community to meet and share information effectively. For example, we launched a virtual series of “Water Cooler” meetings, which featured speakers providing first-hand experience on how their organizations are modernizing learning, and open forums to troubleshoot issues and identify solutions together.
- Collaborated on R&D projects that further advanced the Total Learning Architecture (TLA), which serves as the technical underpinning for the Enterprise Digital Learning Modernization (EDLM) reform. DADLAC community members evaluated technologies in the TLA sandbox and began to incorporate TLA tools, technologies, and standards into their learning architectures. Check out the Success Stories section of the report for more on this!
- Honed our approach to harnessing data as a key DoD asset by integrating Experience API (xAPI) with platforms to customize training at the point of need. We are using more effective ways to empower instructors with data to better understand the needs of each student, while providing military personnel with self-directed learning opportunities. DADLAC member organizations are continuing to modernize and mature their learning systems using instances of Moodle, video sharing tools, and cloud hosting. See the Member Highlights section on [page 7](#).
- Welcomed new member organizations to the DADLAC, including the Defense Human Resources Activity and the Submarine Learning Center. Today, over 340 individuals participate in the DADLAC, representing all DoD Services, other Defense Components such as the National Cryptologic School, as well as other Federal organizations like the Department of Veterans Affairs and the Peace Corps.

There is a growing excitement in the work we are undertaking, and as a community we are maintaining a steady pace to grow our respective programs by helping each other. From progress made in xAPI 2.0, which will enable a more efficient use of learning data, to developing competencies as a shared DoD capability, together we are pushing the boundaries of distributed learning. I am eager to see how the efforts and plans made during this past year come to fruition and bring about greater impact in how the DoD provides education and training.

A handwritten signature in black ink that reads "Sae L. Schatz".

Sae Schatz, Ph.D.  
Director, Advanced Distributed Learning (ADL) Initiative  
U.S. Department of Defense

# DADLAC History

For over twenty years, distributed learning leaders across the DoD have collaborated, learning from each other's efforts and continuously improving our collective use of distributed learning. Originally established in 1997, this community was called the Total Force Advanced Distributed Learning Action Team. In 2017, the policy governing this group, [Defense Instruction 1322.26](#), was updated, and we were renamed the Defense Advanced Distributed Learning Advisory Committee or DADLAC (pronounced *dad-lak*). This Defense Instruction also includes the DADLAC charter, which outlines the assignment of roles and responsibilities. It directs the DADLAC to advise on distributed learning policy, exchange information, and collaborate on emerging concepts relevant to the DoD community.

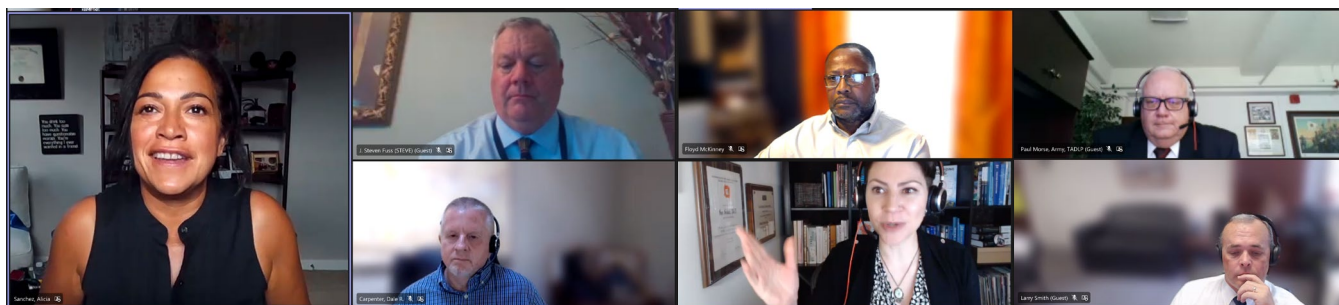
The DADLAC enables critical information and resource sharing among DoD Components. It helps maximize return on investments and identifies ways to improve distributed learning systems and their reuse. The DADLAC also identifies common areas of need and recommends priorities for R&D. In addition, the DADLAC provides updates to the [DoDI 1322.26 Fungible References](#), which defines the technical requirements and best practices for distributed learning systems.

## DADLAC Mission

The DADLAC provides advice to the DoD distributed learning community with respect to the policies and procedures included in Defense Instruction 1322.26, and it helps the DoD distributed learning community adapt to evolving learning science and technical changes in distributed learning environments.

## Member Organizations

The [ADL Initiative](#), part of the Office of the Secretary of Defense, serves as the DADLAC Chair and advises DoD leadership on current and proposed distributed learning activities. DADLAC members include designated military and civilian distributed learning leaders, as well as guests from across the greater DoD and U.S. Government distributed learning communities. The next page shows a cross section of organizations that participate with the DADLAC. This is not exclusive—all government organizations interested in participating or receiving updates on DADLAC efforts are encouraged to join our email list (see page 15).



*Above: DADLAC members met virtually throughout the country during 2021.*

*Right: Illustration represents a cross section of the DoD and U.S. Government organizations participating in the DADLAC activities supported by the ADL Initiative.*

# DADLAC Participating Organizations



## The Advanced Distributed Learning Initiative

DADLAC Chair

### Office of the Secretary of Defense

Office of the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict
Office of the Chief Information Officer
Office of the Under Secretary of Defense for Acquisition & Sustainment
Office of the Under Secretary of Defense (Comptroller)
Office of the Under Secretary of Defense for Intelligence & Security
Office of the Under Secretary of Defense for Personnel and Readiness
<ul style="list-style-type: none"> <li>Defense Human Resources Activity</li> <li> <ul style="list-style-type: none"> <li>Defense Activity for Non-Traditional Education Support (DANTES)</li> <li>Defense Civilian Personnel Advisory Service (DCPAS)</li> </ul> </li> </ul>
Office of the Under Secretary of Defense for Research and Engineering - Human Systems Directorate
Washington Headquarters Services

Army	Navy	Air Force	Marine Corps
Army Training and Doctrine Command (TRADOC), Army University / The Army Distributed Learning Program	Office of the Deputy Under Secretary of the Navy	Air Education and Training Command	Training and Education Command (TECOM)
Army Aviation and Missile Command	Office of the Deputy Chief of Naval Operations	Air Force Agency for Modeling and Simulation	Marine Corps Combat Development Command
Army Civilian Human Resources Agency	Naval Education and Training Command	Air Force Life Cycle Management Center	Marine Corps Education Command (EDCOM) – College of Distance Education and Training
Army Combat Capabilities Development Command	Naval Air Warfare Center (Training Systems Division)	Air Force Materiel Command	Marine Corps Systems Command
Army Combined Arms Support Command	Naval Community College	Air Force Research Laboratory	Marine Corps University
Army Command and General Staff College	Naval Information Warfare Center (Pacific)	Air University	
Army Futures Command	Naval Information Warfare Systems Command	U.S. Space Force	
Army Military Intelligence Corps	Naval Medical Forces Support Command		
Army Research Laboratory	Naval Medical Research Center		
Army Reserve	Naval Medical Training Support Center		
Army Training Information System	Naval Postgraduate School		
Army Training Support Center	Naval Sea System Command		
Army War College	Naval Surface Warfare Center		
Combined Arms Support Command (CASCOM)	Naval War College		
DEVCOM Army Research Laboratory	Navy Judge Advocate General's Corps		
Judge Advocate General's Legal Center and School	Office of the Naval Inspector General		
	Office of Naval Research		
	Submarine Learning Center		
	Surface Warfare Officers School Command		

DoD 4th Estate	
Defense Acquisition University	Joint Forces Staff College
Defense Civilian Personnel Advisory Service	Joint Staff J7, Joint Knowledge Online
Defense Counterintelligence and Security Agency	Missile Defense Agency
Defense Equal Opportunity Management Institute	National Defense University
Defense Health Agency	National Geospatial-Intelligence Agency
Defense Intelligence Agency	National Guard Bureau
Defense Information Systems Agency	National Security Agency
Defense Logistics Agency	National Reconnaissance Office
Defense Language Institute English Language Center	North American Aerospace Defense Command
Defense Language and National Security Education Office	Office of People Analytics
Defense Security Cooperation Agency	Uniformed Services University of the Health Sciences
Irregular Warfare Technical Support Directorate	United States Special Operations Command
J6 Command, Control, Communications, & Computers/Cyber	

### Government Agencies

Department of Education	Department of the Treasury	Pretrial Services Agency
Department of Energy	Department of Veterans Affairs	National Park Service
Department of Homeland Security	Federal Bureau of Investigation	Nuclear Regulatory Committee
Department of Housing and Urban Development	Federal Emergency Management Agency	Office of Personnel Management
Department of Justice	General Services Administration	U.S. Coast Guard
Department of Labor	Peace Corps	U.S. General Services Administration

# Year in Review

# 2021

## Virtual DADLAC Meeting Highlights

While we look forward to in-person meetings in 2022, we continue to connect online to reinforce our commitment to modernizing distributed learning. In 2021, we enhanced our virtual formal meetings with panel discussions, and we challenged each other to develop new ways to harness technology to train the DoD workforce.

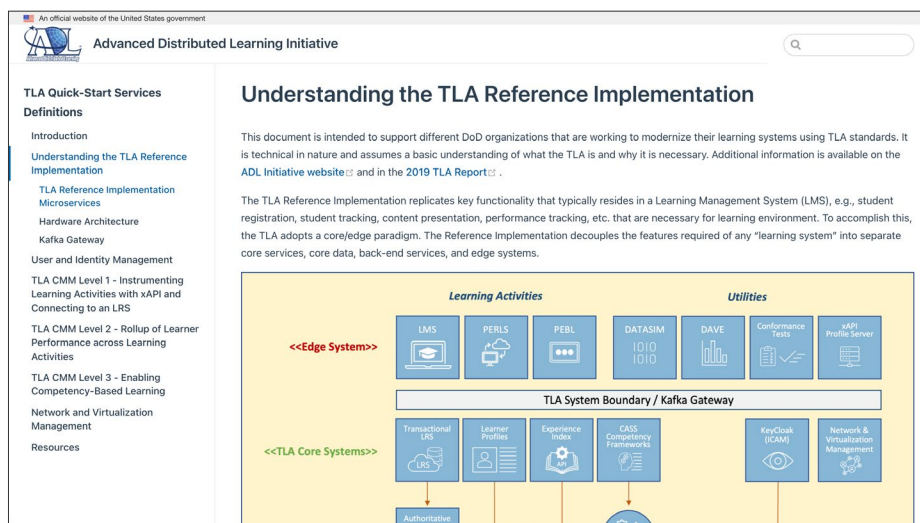
### ADL Initiative Total Learning Architecture Progress

During the Spring and Fall formal DADLAC meetings, the ADL Initiative gave updates on its research projects with a focus on the TLA and opportunities for DADLAC members to get involved. The TLA is a R&D effort to design an interoperable business enterprise architecture for learning (education/training) systems across the DoD in support of the future learning ecosystem. Specifically, progress was shared on the TLA Reference Implementation, which enables DoD stakeholders to test, evaluate, and stand up their own TLA sandbox implementations.

At the forefront of TLA development is the [Enterprise Course Catalog \(ECC\)](#), which will consolidate information federated from local DoD course catalog listings into a single enterprise capability that promotes search, discovery, and alignment of DoD courses, and the [Enterprise Learner Record Repository \(ELRR\)](#), which will ensure globally relevant data about individual learners and teams is available to any command, learning system, or activity across the DoD that needs it.

In 2021, requirements discovery was conducted for the ECC with four DoD stakeholders, including implementing components to automatically extract, transform, and load standardized course catalog data from their systems.

Also in 2021, requirements discovery for ELRR was conducted with five DoD stakeholders and development of initial deployable services was undertaken to support the flow of simulated DoD learner data across a data fabric for discoverability in a common platform.



Above: A screenshot of the TLA Quick Start Guide

See the “Success Stories” section to learn how DADLAC members are leveraging the TLA for their own programs.

# DADLAC Member Highlights

The following are briefings from the DADLAC Spring 2021 meeting.



**Michael Holt**  
Director, TADLP

## The Army Distributed Learning Program (TADLP)

The mission of TADLP is to improve Army readiness by providing rigorous, relevant and tailored distributed learning to Army soldiers, leaders and civilians anytime, anywhere from a responsive and accessible delivery capability. TADLP manages the Army's centralized contract for distributed learning product and courseware development, and provides technical/instructional design support and guidance on content. TADLP also provides virtual tools delivered in the classroom featuring immersive environments and virtual reality for hands-on practice.

TADLP has taken a targeted approach to assessing its transition to virtual learning by capitalizing on lessons learned during the COVID pandemic and exploring ways to leverage technology to offer new training methods while decreasing overall institutional costs. This analysis focuses on maintaining and increasing distributed learning in the post-COVID environment, with updated resourcing and manpower models.

Mobile learning has become more pervasive, which has required TADLP to put processes in place to manage mobile applications and content to ensure quality and safety. TADLP validates all applications loaded online for distributed learning purposes across the Army and ensures that mobile content downloaded by students and soldiers are compliant – this includes 156 applications over the course of our COVID response. TADLP has created and is now maintaining 35 mobile publications, which include 19 enhanced publications and 16 audiobooks. Total global users of developed/published apps are over 615K.

Technical capabilities are constantly changing, requiring guidance to monitor the Army's distributed learning activities. The Army's Distributed Learning Dashboard is used to track these activities including active

accounts and course registrations. This tool also gives operational commands the ability to virtually evaluate training readiness of its organizations by tracking progress of course completions. The dashboard effectively displays a snapshot of all distributed learning products in use, for example the number of active courses and most-used courses for a specific time period. The dashboard also tracks mobile learning applications usage, with 492 applications successfully fielded in 2021 that consisted of over 3 million downloads for individual users. The publishing of mobile learning materials (handbooks, instruction guides, etc.) attracted 589,000 downloads to date.

TADLP partners with Joint Staff distributed learning training and education through Joint Knowledge Online (JKO), which provides the Army with the opportunity to train soldiers and civilians using their courses. The most widely used JKO courses, including mandatory requirements, are for HIPPA and cybersecurity training. The total Army registrations for JKO courses in 2021 was over 1.1M students and total course completions for 2021 exceeded 3.3M courses.

**THE ARMY DISTRIBUTED LEARNING PROGRAM**  
**TADLP**  
THE ARMY'S GO-TO RESOURCE FOR DISTRIBUTED LEARNING, COURSEWARE DEVELOPMENT, MOBILE APPLICATIONS AND PUBLISHING

- ARMY TRAINING AND EDUCATION
- ARMY SOCIAL LEARNING
- ARMY GAMING
- ARMY MOBILE
- DEFENSE LANGUAGE
- JOINT TRAINING

The Army Distributed Learning Program leads the way in creating and utilizing emerging technologies to distribute learning across an array of portable devices worldwide, 24/7.

**TADLP**  
THE ARMY DISTRIBUTED LEARNING PROGRAM





**Michele Harrison**  
Strategic Planning,  
Metrics Management,  
and Research &  
Development Branch  
Head

## Naval Education and Training Command (NETC)

NETC reports to the Deputy Chief of Naval Operations for Manpower, Personnel, Training and Education, and is one of the largest Shore Commands in the Navy. There are three pillars under the Chief of Naval Operations, with NETC focused on the Force Development pillar (street to fleet integration). NETC is responsible for recruiting, initial technical skills training for both officers and enlisted personnel, sailor preparation to report to the first duty station, as well as training throughout the sailor's career. NETC has over 240 learning sites throughout the world that provides 4,305 courses delivered by instructor-led, interactive multi-media and blended learning solutions.

The Navy is changing the way training is undertaken so it is a “no fail mission” according to the Chief of Naval Operations. The Navy's Ready Relevant Learning initiative is spearheading this change, and NETC is working jointly with US Fleet

Forces Command as part of this effort to provide sailors the training they need at the time, place, and format required to accomplish the mission and ensure readiness. One of three pillars under the Sailor 2025 program, this initiative is creating a modernized, on-demand and responsive learning environment to deliver the right training for sailors to be best positioned to win the high-end fight.

NETC is developing and managing the MyNavy Learning (MNL) system to provide customized training for sailors. This system, designed for sailors, instructors, and supervisors, is structured to streamline and improve online learning, which includes a recommender system that personalizes activities. It is designed as a one-stop-shop for all career and learning resources, providing intuitive and intelligent applications for sailors to navigate throughout their career continuums. Learner data is collected using xAPI and aggregated to uniquely identify each user and describe how they learn when and where it happens. This learner data is automatically captured and assessed to measure individual and unit training performance throughout the entire Navy learning environment in support of an enterprise level training effectiveness program. Digital competency frameworks are used to map out in an authoritative competency management system (CaSS) to support career and learning management and assessment functions from hire to retire. MNL is consistent with the ADL Initiative's work on the TLA. NETC is working with the ADL Initiative to develop the ELRR, a key interoperability driver of the TLA, to enable sharing and standardization of Navy (and DoD-wide) learner data.



**Floyd McKinney**  
Chief, Learning  
Services Operations

## Air Education and Training Command (AETC)

The Air Force is modernizing its advanced distributed learning services which most recently did not have the capability to enable learning anywhere, anytime, and on any device. To address this challenge, the Air Force decommissioned its legacy system starting in March 2021 in favor of the “myLearning operating platform” which was launched that same month. The myLearning operating platform is shifting training within the Service from a “learn at work” approach to a dynamic “learn from anywhere” model with three main goals—accessibility, interoperability (tools and data), and modernization. This new operating platform will include an enhanced user experience for learners, instructors, and managers;

integration of talent management and force development; and scalable, secure learning system innovations. This effort encompasses both the Air Force (Total Force Airmen) and Space Force (Guardians), and aims to lift restrictions on when, where, and how Airmen and Guardians learn.

Among the capabilities provided by the myLearning system is a Moodle Workplace Learning Management System (LMS), which delivers a modern mobile platform with digital badges and gamification, an eCatalog with a searchable inventory of validated learning courses, and ability for integrated competency frameworks tied to individual courses or grouped courses. These capabilities position the Air Force to sunset other legacy systems and continue to build out capabilities. This new system architecture is anticipated to help reduce cost and modernize how learning is provided while ensuring cybersecurity compliance, all in support of providing the optimum training environment for Air Force personnel.

In less than six months, the Air Force successfully delivered the AETC-managed learning system in an IL-4 (Impact Level) cloud environment using Cloud One in coordination with Air Force Special Operations Command and the Defense Information Systems Agency for enhanced delivery of learning services. The Cloud One environment supports a learning data warehouse, learner record store (LRS), analytics and dashboarding capabilities, and management of learning services, content delivery, and content development. This new myLearning operating platform leverages an open-source software stack with the aim to reduce vendor lock-in and accelerate opportunities for technology change. The system currently enables 11 interfaces to partner organizations' systems and applications, providing them with access to course completion data. Learning data is accumulated in a "Learning Locker" LRS, using xAPI to collect data on the learner experiences.



**Larry Smith**  
Marine Corps  
University Director  
of Ed Tech/College of  
Distance Education  
and Training  
Technical Director

### **Marine Corps Training and Education Command (TECOM)**

The United States Marine Corps (USMC) is addressing the need for a modernized digitally-based system to provide training and education content for formal schools, professional military education, and communities of interest. As the Service advocates for digital content creation and delivery, the USMC College of Distance Education and Training is tasked with expanding the capabilities of MarineNet to provide a learning environment that supports the creation, distribution, and tracking of digital content and student performance. MarineNet is the USMC distributed learning network which serves as a one-stop shop for online Marine Corps training and education products, providing 24/7 access to thousands of online courses.

In an effort to modernize MarineNet capabilities that typically focused on asynchronous learning, an initial operational capability was established in February 2020 as a cloud-based system with a single sign-on portal (accessed via .mil, .edu, and .com). This upgraded system includes Moodle, which serves as an instructor-led learning LMS, and a virtual learning environment. The MarineNet Video Services (MVS) system was also enhanced to host video and audio learning content, and now leverages xAPI to gather content usage data, for example what is being watched and for how long.

In 2021, MarineNet capabilities were further expanded to include podcasts and community software to support social networking for training. The MarineNet ecosystem was reskinned to provide a more modern look, and new integration with TK20 was implemented to help degree granting school registrars with visibility into student activities and meeting accreditation goals. The learning system will incorporate two-factor authentication for users to log in with enhanced security and leverages a DevSecOps approach to foster development and maintenance efficiencies. TECOM is currently integrating a new LRS tool, xAPI profiles, and a web-based content creation tool, and providing access to a gaming portal to further develop the system capabilities.



**Howard “Tank” Thorp**  
Chief, JKO Division

## Joint Staff J7, Joint Knowledge Online (JKO)

During the past several years, JKO has evolved its tools in response to the requirements of the training audience coupled with recent developments in learning science. One timely and relevant tool that has seen increased utilization, especially in the new normal due to class and conference travel restrictions in response to COVID, is the virtual classroom (VCLASS). JKO offers DoD branches a range of comprehensive tools and content including an LMS, a JKO virtual classroom, Sharable Content Object Reference Model (SCORM®)-compliant computer-based courses, videos, a Small Group Scenario Trainer (SGST) with topical exercises, a report builder, dashboards, and 24/7 help desk support.

JKO has had great success with delivering training content on Non-Secure Internet Protocol Router Network (NIPRNET) and Secret Internet Protocol Router Network (SIPRNET). JKO is working with DoD’s allies (like the “Five Eyes” militaries) and DoD Component training partners who are exploring the capability to consolidate training content from the Joint Worldwide Intelligence Communication System to SIPRNET. JKO is currently focused on extending access for Five Eyes partners to DoD Combatant Commands.



JKO is piloting the development of adaptive learning methodologies, that includes annual training requirements for force recertifications. The first phase of this development was a proof of concept using the Defense Manpower Data Center (DMDC) annual recertification course to demonstrate benefits of the technique. Over the next year, JKO is working with DMDC to fully prototype the adaptive learning technique and assess its merit for follow-on courses. By the end of 2022, the entire program will be available in an adaptive learning environment.

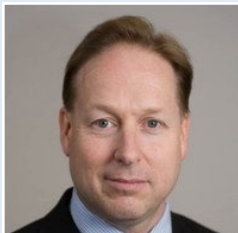


**Alicia Sanchez**  
Director of  
Innovation, DAUx  
User Experience  
Directorate

## Defense Acquisition University (DAU)

During the past five years, DAU has undertaken a comprehensive effort to modernize its distributed learning systems, with the objective to position DAU as the definitive source for career progression training and education as well as acquisition outcome enhancing trainings. This modernization effort includes examining opportunities to leverage the ADL Initiative’s TLA framework model and customize this model to represent its unique systems and architecture in order to provide an interwoven learner experience. One big milestone for DAU was obtaining formal approval to acquire its own LRS this year in coordination with USAeLearning, in addition to using a sandbox LRS to extract xAPI data from its current LMS. DAU has been experimenting with TLA-compliant tools including the ADL Initiative’s PeBL project, an open-source eBook platform that merges key aspects of eLearning, mobile device technologies, and eBook technologies. DAU adapted an existing course workbook as part of a PeBL pilot, which was favorably received by both students and faculty.

DAU is currently looking at design constructs to get the data needed to provide personalized and tailored learning with relevant content from the user lens. This is focused on proactive design instead of responsive design, where data is both leveraged to understand gaps in knowledge and identify areas for refinement. DAU seeks to utilize data for student empowerment, for example to enable increased understanding of the student's own learning paths, prompt emergence of their own learning trends, and foster the ability to pursue further training and education on related topics via DAU. This new approach is expected to enhance student interaction through feedback and allow instructors to be proactive and responsive to student needs. For faculty and staff, this effort will enable adaptive insights that drive proactive learning activity designs, increase ability to create hyper-relevant content, provide for better insight into student behaviors, and enable a stronger focus on experiential or performance-based learning using real-time data.

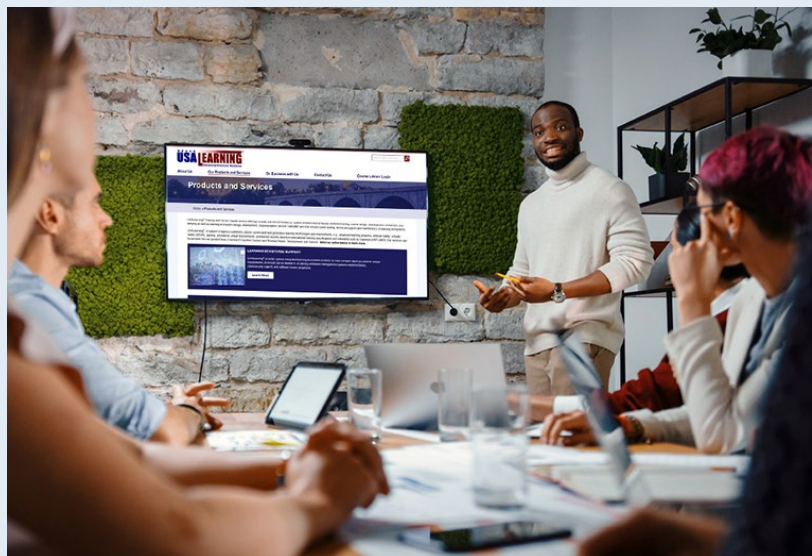


**Paul Jesukiewicz**  
Director,  
USA Learning

### **Office of Personnel Management (OPM)**

USA Learning was established by OPM in 2003 as an E-gov initiative (formerly called GoLearn) to support the development of the Federal workforce and advance agency missions through simplified and one-stop access to high quality e-Learning products, information, and services. OPM's USA Learning Assisted Acquisition services are part of the EDLM reform effort, intended to provide improved buying power and streamlined acquisitions to DoD education and training organizations. OPM supports FedRAMP Moderate and is planning IL-2 and IL-4 online environments established under the Defense Learning Enclave (authorized by Defense Information Systems Agency) with system ownership being undertaken by the

EDLM Program Management Office. The OPM contract was awarded to cover OPM's existing activities including USA Learning plus next generation learning technology such as artificial intelligence, machine learning, augmented reality (AR)/ virtual reality (VR), and learning analytics. OPM continues to support DoD organizations, with recent success working with the Defense Counterintelligence and Security Agency on their surge requirements for mandatory education and training using USA Learning's Moodle-based LMS, content server, and online courses. This effort supported between 120K to 250K course completions per day, demonstrating OPM's capacity and ability to scale.





**Orlando Simelton**  
Management Program  
Analyst

### Defense Civilian Personnel Advisory Service (DCPAS)

The **DCPAS** has made great progress in undertaking the Fourth Estate LMS Consolidation effort in alignment with the EDLM reform initiative, specifically the “Assisted Acquisition” line of effort for acquiring digital learning systems and services. The purpose of the Assisted Acquisition line of effort is to optimize cost savings and shared services through a collaboration with USALearning. DCPAS is working with the Defense Chief Learning Officer Council, in collaboration with the EDLM effort, to consolidate the number of LMSs within the Fourth Estate. The current DCPAS plan focuses on ensuring that all Fourth Estate LMS contract renewals and acquisitions are reviewed for potential transition to the shared services model. DCPAS is proactively engaging with the Fourth Estate organizations to guide them through the USALearning Assisted Acquisition process. DCPAS is tracking the contract period of performance of Fourth Estate LMSs that were not obtained via USALearning to determine who to target and when about implementing new systems through assisted acquisition. DCPAS is also both evaluating and socializing Fourth Estate LMSs (and their capabilities) that have been obtained via USALearning to determine if new requirements can be met by an existing USALearning-obtained system. The process to-date has reduced the number of different Fourth Estate LMS systems from 37 to 17.



It is so great to attend the DADLAC meetings. Every time I attend and see the presentations, I am always so impressed. I feel like we are doing so much and when I see what the partners are doing, I think of how everyone is so advanced. It is amazing to learn from what other folks are doing in the distributed learning community.

**Alicia Sanchez**

Director of Innovation, DAUx User Experience Directorate Defense Acquisition University

## DoD Instruction 1322.26 References Update

DoD Instruction (DoDI) 1322.26 governs the implementation and oversight of distributed learning for the Department. The Instruction also includes fungible references, i.e., appendices that can be regularly updated by the DADLAC without requiring revisions to the DoDI. These references outline the most current technical information for DoD learning, such as guidance on software specifications and file types.

DoD Components should refer to the DoDI and its references when acquiring or implementing distributed learning systems. The ADL Initiative and the DADLAC update these references as needed, which is typically one to three times annually.

### Updates in 2021



**Identity, Credential, Access Management (ICAM):** Transitioning of DoD’s Common Access Card to new Personal Identity Verification (PIV), use of DoD ID Number which is now 16 digits, Personal Identifiable Information consideration, and changes to xAPI Statements (Actor) resulting from ICAM.



**xAPI Profile Guidance:** xAPI Profile Specification (technical specification) defined, xAPI Profile and specific xAPI Statement (Data) best practices, and use of practices in the xAPI Profile Authoring Guide.



**cmi5 Courses and LMS Best Practices:** Migration to cmi5 in an effort to enable xAPI; cmi5 LMS as a distributed learning solution option with xAPI, LMS configured using the cmi5 launch protocol, and use of cmi5 in an effort to limit or prevent fraudulent learner data.



**Metadata for Semantic Web/Schema.mil/Learning Resources Metadata Model:** Tagging of all resources and infrastructure to share across the DoD, use of Uniform Resource Identifier (URIs) and other methods to prepare for a schema.mil / linked data environment, ways to design for maximum re-use including constraining data effectively and not falling into “old habits.”



**Competency-Based Education Guidance and Best Practices:** Enacting a strategy that allows for sharing of competencies across DoD—unique IDs, metadata, accessibility; expressing relationships between competencies, performance, and progress levels within competencies; and versioning history.

The Fall update to the DoDI references garnered over 40 comments and suggestions from DADLAC members—this was the most input we have experienced in years. This type of participation helps ensure the guidance is meeting the needs of the community. Please note: Not all of the community feedback could be addressed in 2021 and will be considered for follow-on update efforts in Spring 2022.

### The following are topics under consideration for 2022...

- IL2/IL4 Acquisition Recommendations
- Tighter coupling of xAPI and cmi5, particularly in products
- Continuing Education Units (CEU)
- LRS/LMS Authentication/Data Integrity/Data Evaluation
- Source File Requirement for Acquisition
- Zero-Trust Network – Guidance Past Cutoff
- TLA (formerly MOM) xAPI Profile
- Learning Resource Metadata Model
- Competency-based Education Standards
- Enterprise Course Catalog
- Federated Data Catalog

# Communications with the Community

## DADLAC Water Cooler Meetings

This series of open forum meetings provided members of the distributed learning community the opportunity to discuss top-of-mind topics throughout the year. At these meetings, DADLAC members received updates on the latest Pentagon initiatives, policies, and activities, and shared updates on products, projects, and programs from their organizations, as well as raised issues to address as a community.

These meetings also featured updates from the ADL Initiative on its R&D portfolio, as well as presentations from DADLAC members. Contact Anne Marie DiNardo at [anne.m.dinardo.ctr@mail.mil](mailto:anne.m.dinardo.ctr@mail.mil) to request copies of the briefings or to suggest discussion topics for 2022.

## Water Cooler Featured Presentations

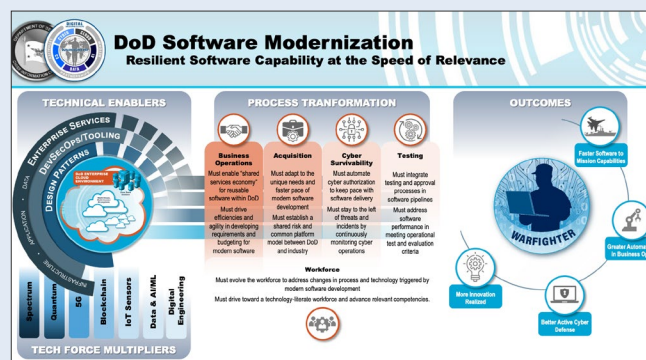
### July 2021

#### DevSecOps and Software Management, with George Lamb, OCIO

Mr. George Lamb from the DoD CIO Cloud and Software Modernization Directorate provided an update on the DoD CIO DevSecOps strategy along with a renewed focus on software modernization. The Office of the CIO (OCIO) strategy serves as a roadmap for the DoD DevSecOps journey. DevSecOps (short for Development, Security, Operations) applies industry proven methodologies for developing software, with the DoD focused on applying cybersecurity protocols early and throughout the process.

There are three sections of the OCIO strategy: 1) technical enablers (DoD cloud environments, design patterns, and DevSecOps software platforms and factories); 2) software process transformation (driven by business operations, acquisition, cyber survivability, testing, and workforce); and 3) outcomes with associated metrics.

The OCIO manages a Community of Practice (CoP) that meets monthly and welcomes DADLAC members to share their DevSecOps experience—for example, how has your organization reduced the time it takes to deliver software products to users? The DevSecOps CoP is open to anyone, including industry, with 2,000 recipients currently on the distribution list. Please contact [osd.mc-alex.dod-cio.mbx.devsecops@mail.mil](mailto:osd.mc-alex.dod-cio.mbx.devsecops@mail.mil) for more information.



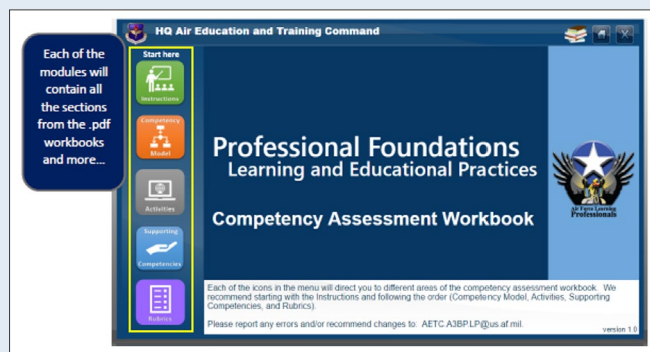
Large scale cloud environments are changing the way we develop, run, and secure software. DevSecOps is both the continuously running factory as well as the production environment. Software is never done, rather it is continuously produced, protected, and improved, typically running on the same cluster of computers where it is developed.

George Lamb  
DoD CIO, Enterprise Capabilities Directorate

## October 2021

### 1750 Career Field Education and Training with Angela Canada, Ph.D., AETC

Dr. Angela Canada provided an informative update on the 1750 Career Field Education and Training Plan (CFETP) for upskilling the DoD instructional design workforce. This “1750 CFETP” has been internally approved with plans for official publication in January 2022. This plan provides competency-based leadership to Air Force members and their supervisors to support progress, from development of basic skills to being able to perform at the highest level in their job roles. The CFETP is designed to enhance the competencies that an individual needs for a particular job. It complements position descriptions rather than replaces them and is not an appraisal instrument. The Air Force has had a CFETP for military personnel but not many for civilians—this addresses that gap.



Within 17 major organizations across the Air Force, the new 1750 CFETP will support development of 650 civilians and will also help guide the development of the estimated 530 military personnel who perform similar duties of training managers, writers, content developers, and evaluators. The plan outlines tools that provide specific guidance on behavior outcomes and work products for a role, and also outlines evidence to be evaluated to demonstrate the competencies attained. As part of the briefing, there was a demonstration of the eLearning platform where these tools can be accessed, and information was provided on CFETP support services including communities of practice.



**With the accelerating rate of change in educational requirements, learning technologies, and stakeholder expectations, participation in communities of expertise such as the DADLAC is becoming even more important for exchange of ideas and knowledge that can be used to make smarter decisions. The “Water Cooler” meetings established this year have provided a more informal (and thoroughly enjoyable) venue for sharing information, building the ADL team, and thinking creatively to provide the best environments and experiences in teaching and learning.**

**Dennis “Denny” Lester**  
Naval Postgraduate School, Associate Provost Graduate Education

## DADLAC Digest Emails

The ADL Initiative sends digest emails regularly, summarizing new policies and sharing both resources and member updates for the DADLAC community. These emails are one of the primary ways the community shares information. Members are encouraged to review and forward relevant materials to their teams and colleagues as well as provide information to share. Contact Anne Marie DiNardo at [anne.m.dinardo.ctr@mail.mil](mailto:anne.m.dinardo.ctr@mail.mil) to be added to the distribution list.

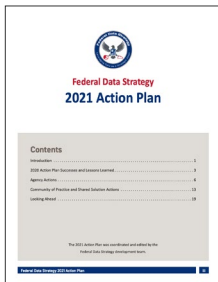




# Policies in Review

# 2021

DADLAC members help their respective distributed learning organizations implement and ensure compliance with policies. In 2021, DoD and Federal guidance continued to emphasize data and IT modernization. See below for snapshots of some of the latest policies and other guidance impacting DoD distributed learning programs.

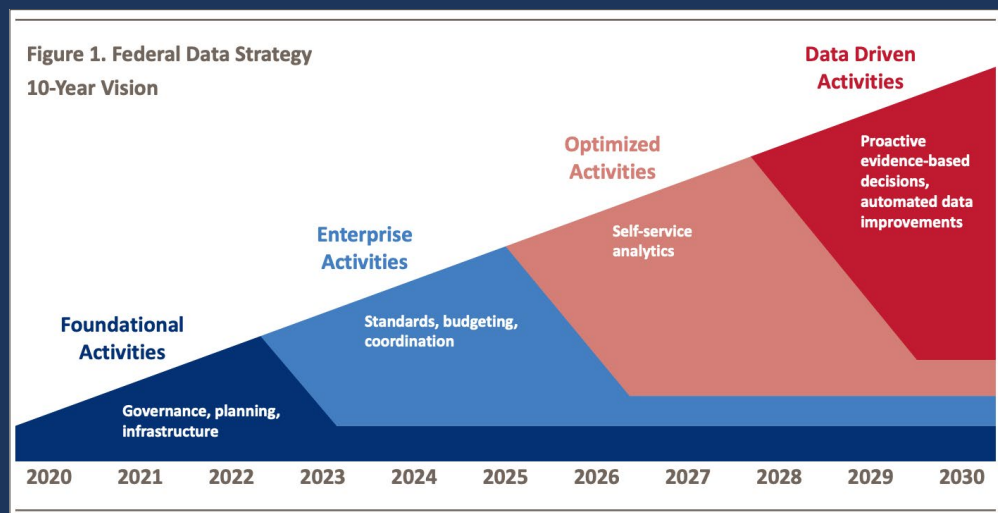


## Federal Data Strategy 2021 Action Plan

This [document](#) showcases lessons learned during the implementation of the first Federal Data Strategy (FDS) Action Plan of 2020 (which informed the 2021 Action Plan) and identifies specific actions to be taken in support of the FDS, while also recognizing that 2021 is a transition year for the Executive Branch. The plan encourages agencies to tackle areas that best serve their mission (for example data governance vs. data management and interoperability) and to learn from each other throughout the process.

## Federal Data Strategy 10-Year Vision

Figure 1. FDS 10-year vision from the FDS 2021 Action Plan (pg 2) outlining activities through 2030



## DoD Cloud Strategy Memorandum

Originally published in 2020, [this memo](#) continues to provide interim guidance for implementation of DoD's Cloud Strategy, which focuses on cloud computing investments to reduce inefficiencies and accelerate the Department's digital modernization efforts. The Department is moving toward a unified DoD Enterprise Cloud Environment which serves as a multi-cloud, multi-vendor ecosystem of cloud services. This memorandum provides guidance to ensure continued cloud adoption in alignment with the DoD Cloud Strategy.

## DoD Instruction 5000.83 Technology and Program Protection to Maintain Technological Advantage

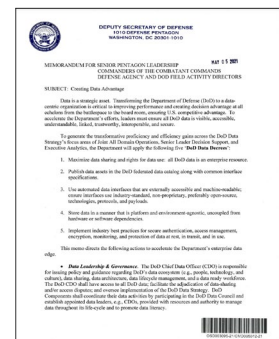
This [directive](#) establishes policy, assigns responsibilities, and provides procedures for science and technology (S&T) managers and engineers to manage system security and cybersecurity technical risks from foreign intelligence collection; hardware, software, cyber, and cyberspace vulnerabilities; supply chain exploitation; and reverse engineering to DoD-sponsored research and technology that is in the interest of national security and DoD warfighting capabilities. It assigns responsibilities and provides procedures for S&T managers and lead systems engineers for technology area protection plans, S&T protection, program protection plans (PPPs), and engineering cybersecurity activities.

## DoD Credentialing Programs DODI 1322.33

This [directive](#) establishes policy, assigns responsibilities, and prescribes procedures related to the implementation and management of DoD credentialing programs. These programs will enable eligible and authorized Service members to obtain and maintain professional credentials that will enhance their DoD career opportunities and increase their competitiveness in post-military civilian careers. Participation in these programs aims to improve force readiness while providing the Service members with enhanced professional skills and competencies. This policy also fosters collaboration among the Office of the Secretary of Defense and the Military Departments, as well as partnerships with the Department of Labor, Department of Veterans Affairs, and other agencies to coordinate military credentialing policies, including standardization of processes, access, and accountability.

## DoD Creating Data Advantage Memorandum

This [memo](#) on creating a data advantage puts forth five data decrees, which include maximizing data sharing and publishing data assets in the DoD federated data catalog, along with common interface specifications. The memo also reinforces the role of the DoD Chief Data Officer (CDO) to have access to all DoD data, facilitate the adjudication of data-sharing and/or access disputes, and oversee implementation of the DoD Data Strategy. The DoD CDO will work with the Joint Staff, relevant Cross Functional Teams (e.g., Joint All Domain Command and Control, Algorithmic Warfare, etc.), and the Joint Artificial Intelligence Center to close interoperability gaps and create joint warfighting advantage through data-driven mission command across the competition continuum.



## DoD-0005, Defense Training Records

The DoD issued a [final rule in October 2021](#) to exempt portions of the [DoD-0005, Defense Training Records system](#) from certain provisions of the Privacy Act of 1974. The system covers DoD's collection, use, and maintenance of records about training delivered to DoD Service members, civilian personnel, and other DoD-affiliated individuals. The training data includes enrollment and participation information; information pertaining to class schedules, programs, and instructors; training trends and needs; testing and examination materials; and assessments of training efficacy. The rule seeks to preserve the objectivity and fairness of testing and examination material.



Visit <https://adlnet.gov/policy/> for additional information on policy impacting distributed learning.

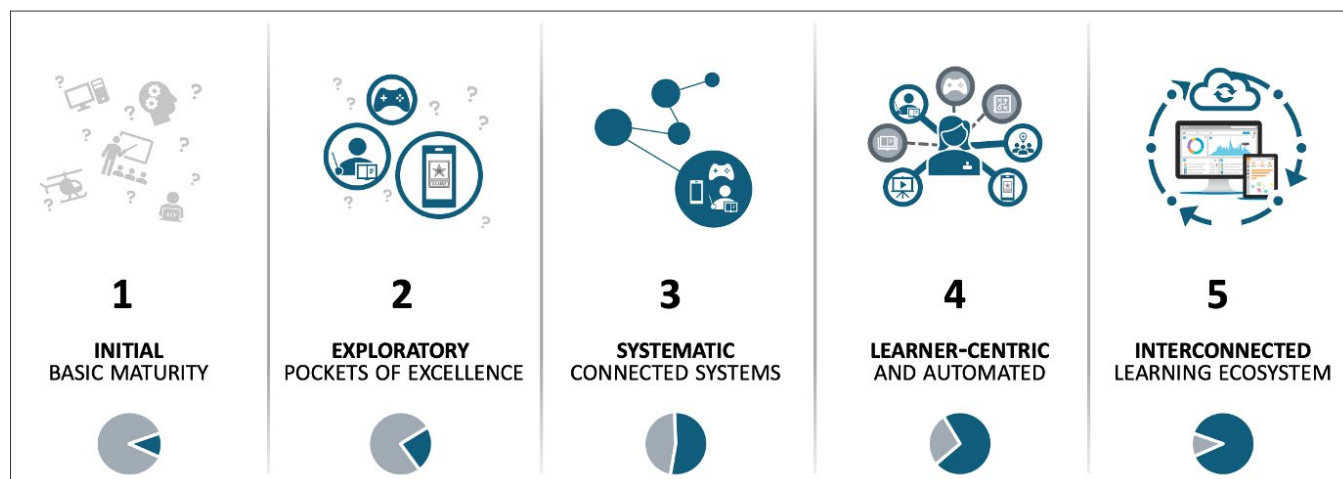
# DADLAC Insights

# 2021

The future learning ecosystem—a holistic, lifelong, personalized learning paradigm—represents a contrast to the Industrial Age model of time-focused, one-size-fits-all learning. It promises to substantively change the way we learn, moving away from old models of disconnected experiences to a connected continuum of lifelong learning—personalized, driven by data, and delivered across diverse locations, media, and periods of time.

This Modernizing Learning Maturity Model developed by the ADL Initiative demonstrates a path to the future learning ecosystem by outlining major phases of maturity of an organization’s distributed learning environment. The progress made across the five phases focus on data and interoperability to support personalized education and training capabilities delivered at the point of need.

At the DADLAC Fall Meeting, DoD organization representatives participated on panel discussions and shared insight on how their respective organizations are progressing along the path to modernization.



Above: Modernizing Learning Maturity Model from the ADL Initiative.

## The Army Distributed Learning Program

Paul Morse, Joint Individual Training Analyst, The Army University

The Army is currently operating between phases 1 and 2 on the maturity model. TADLP is looking to provide training 24/7 at the point of need by maximizing flexibility and assisting training when soldiers are not able to attend the brick and mortar classrooms. Mindful of unexpected hazards, including pandemics, other challenges and conflicts, the capability to offload training into a distributed format on an on-going basis is essential. This flexibility supports the DoD expectations for mission success and remains the focus of TADLP. Often planning staff go through preparations for various training events and exercises, and always experience similar findings—technology and our reliance on capabilities are constantly expanding our requirements for bandwidth, computers, and phones, often

doubling or tripling the need from the previous year. If you look at distributed learning over the last decade, there are tremendous technological advances and upgrades. We are witnessing changes in applications, equipment, and software, so we need to stay current with or actually get ahead of the curve. We must keep in mind that the success of distributed learning depends on both course content and delivery. There remains technical developments that we must embrace and utilize in order for the Services to advance learning education for our soldiers.

## Naval Education and Training Command

### Benjamin Ervin, Program Analyst

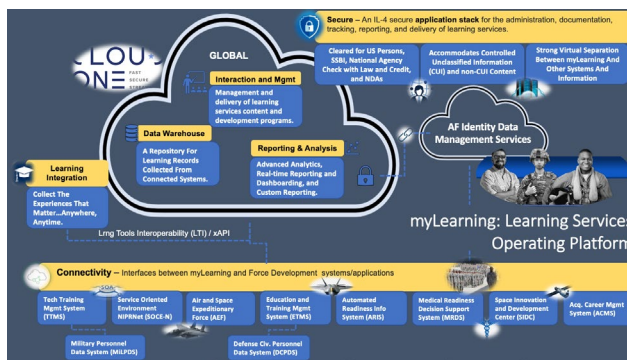
The Navy is working to transition from phase 2 to phase 3 on the maturity model. The vision for Navy usage of distributed learning is a seamless user interface and user experience, with MyNavy Learning serving as the single point of entry through the MyNavy portal. NETC focuses on strategy, training, and effectiveness, and is overseeing the MyNavy Learning system. This learning platform dates back to 2016 and is the Navy’s instantiation of a TLA. The Navy is continuing to develop and modernize its applications, and is currently working toward the deployment of a new LMS (IL4 Moodle solution) and initiating systems into an agile framework in the upcoming year. The infrastructure is in place that can support all of these advancements in learning technology. We understand the technology as well as the science of learning principles. Now we need to take all of these different components, like the TLA Lego blocks metaphor, and put them together—that’s the first step towards optimizing learning systems and supporting technologies.



Above: The MyNavyLearning lines of effort.

## Air Education and Training Command

### Floyd McKinney, Chief, Learning Services Operations



Above: AETC cloud-based infrastructure.

The Air Force has a desired end-state for a cloud-based myLearning digital learning system for both Airmen and Space Force Guardian personnel to be undertaken over the next 5-10 years. AETC is moving from phase 1 to phase 2 on the maturity model. The Air Force needs to succeed in a complex and multi-domain operational environment of the future and its approach provides the guardrails to transition and transform AETC’s legacy learning services ecosystems from a really outdated stovepipe legacy environment to one that is Airmen-centric. AETC is developing a cloud-based digital architecture that delivers

learning services anytime, anywhere, and on any device. The desired state is in alignment with the maturity model to accelerate change in the provisioning and delivery of learning services to support our force development requirements. To accomplish this, we need a digital architecture that provides enhanced user experiences, seamless integration with force talent management, and relevant functions while providing a scalable and tailored multi-instance environment. This new learning operating environment will have the agile tools and services that are needed to meet the ever-changing mission requirements, support on demand content, and proactively control cost drivers for the Air Force.

## Marine Corps Training and Education Command

Larry Smith, Marine Corps University Director of Ed Tech/College of Distance Education and Training Technical Director

The USMC is on the cusp of going from phase 1 to phase 2 of the maturity model with small pockets of excellence. The USMC has a training information management system that serves as its implementation of the TLA and is exploring how to best provide web-based content creation tools to design, produce, and publish vs. procure learning content. The USMC launched an initial capability for MarineNet Video Services (MVS) in February of 2020, right before being sent home due to COVID, and usage has increased significantly during the past two years. This service was met at first with a lot of wide eyes and concerns regarding providing functionality for users to upload training and education content to share across the USMC. The content moderation process for the MVS proved successful and provided the reassurance needed to demonstrate this was a tool that had value and would not cause risk to the system or the users. Now that it is launched, there is a great deal of interest in its capabilities and it's growing very quickly. A file structure was set up within the ecosystem so that organizations can upload their training content and indicate designation—whether it's open or controlled unclassified information.

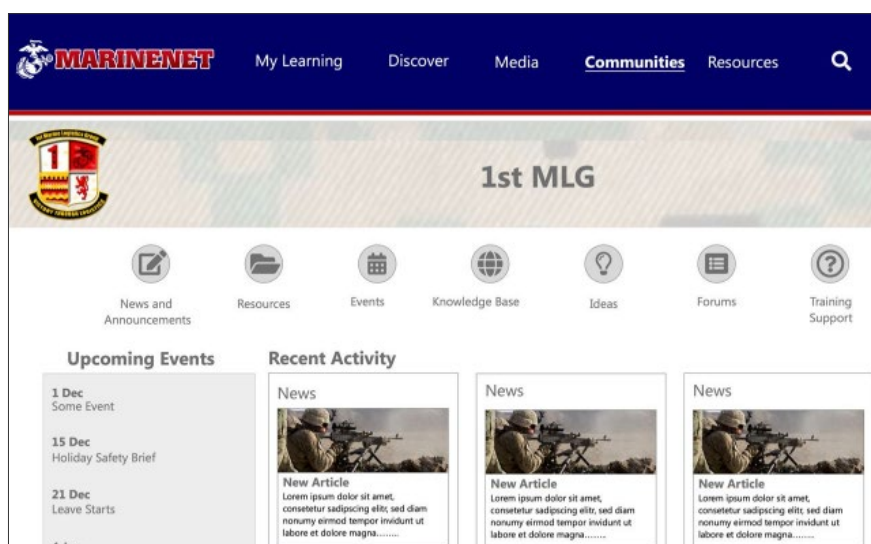


## Defense Acquisition University

Alicia Sanchez, Director of Innovation, DAUx User Experience Directorate

DAU is very close to establishing a fully-functional “frictionless learning” digital ecosystem and is between phases 2 and 3 of the maturity model. DAU is changing the way the DoD sees defense acquisition and the measure of its success is the ability to innovate learning. One example is PeBL, the ADL Initiative’s open-source eBook platform that merges key aspects of eLearning, mobile device technologies, and eBook technologies. This tool and some of the other ebook reader technologies have really done a lot to help DAU change the way it thinks about learning and design constructs. DAU started making strides in micro-learning and thinking through how it becomes part of the ecosystem, the courses accessed through the ecosystem, and the acquisition of the right tools.

For DAU, the next generation of modernization is going to be a new way of seeing actual assets that don’t necessarily look like what we are used to seeing. Learning doesn’t have to occur as a result of just registering for a course. Online recommender systems can be incorporated to help facilitate learning, for example suggesting activities that can lead to a certification that may not have been on the learner’s radar, to share student-recommended courses that are similar to a course just completed, or to enable the student to rate a course.



Above: An example of MarineNet offerings.

## The Defense Civilian Personnel Advisory Service

**John Fuss, Program Manager, DoD Leader Development Programs, Innovation & Transformation**

DCPAS—established ~ 28 years ago—is responsible for developing, implementing, and monitoring DoD civilian HR policies and programs. It contains five Directorates or Lines of Business (LOBs) and four Special Offices. DCPAS deals with everything from cradle to grave for the duration of DoD employee service to the Federal Government.

DCPAS Talent Development, LOB 4, is located between phases 1 and 2 of the maturity model. DCPAS is resourcing innovative pilots/studies that demonstrate support for tech-enabled learning and is looking at leveraging one-off examples of successful innovation—while keeping an eye toward the future of civilian leader development. Team members are looking at military and civilian development activities across the enterprise to enhance competency development for the civilian workforce.

One example of such an activity that LOB 4 encountered involved a VR solution developed by the Air University (AU)/Squadron Officer School technology lab at Maxwell Air Force Base to prepare instructors for in-residence teaching assignments. The rationale behind this VR tool was to quickly get instructors trained and up to speed in a condensed timeframe to start delivering curriculum, since instructors are only available for short stints. This capability is being made available to individuals, at their current assignment, to help prepare instructors before they report to AU for classroom duty. The VR tool generates common scenarios that exist between the faculty and students; it enables instructors to participate in an interactive role play context with dialogue to understand various perspectives in order to help individuals prepare for live classroom settings. DCPAS is looking at the potential application of similar tools that could focus on ~ 25 specific DoD civilian competencies that are reviewed and validated approximately every five years.

## United States Office of Personnel Management

**Dale Carpenter, USA Learning Business Operations Manager**

USALearning provides centralized access for acquisition of education and training ecosystems, LMSs, applications, and also provides training, development, and technical support for a range of learning programs for the Department of Homeland Security’s Federal Virtual Training Environment (FedVTE). OPM is doing a lot with data and xAPI, which has been around for awhile but its use and application in government is still fairly new, and more can be done to optimize the power of this standard.

OPM is utilizing a LRS and xAPI, which is integrated with USALearning’s LMS, to provide the government with access to data that can be customized all the way down to the most basic level of granularity. The application of xAPI is so exciting to see because we can show you what is happening at the very moment that the data is captured. There is also high interest in xAPI, LRS, and LMS technologies, with dashboard systems to provide data insights. These open-source capabilities can also be applied to competency models by integrating with data captured using xAPI to more effectively map data to credentials in addition to getting more meaning out of the activities that we have been tracking all these years overall. This is an example of the exciting services that we are providing our external and internal customers.





## Medical-focused Modernization Distributed Learning Systems

Defense Medical Modeling and Simulation Office (DMMSO) at the Defense Health Agency (DHA)

Ruben Garza, Director, DMMSO

The DMMSO is the lead organization for the centralized management of Medical Modeling and Simulation (MM&S) capabilities and solutions shared services to support medical education and training across the DoD. The oversight of MM&S by DMMSO supports the development, management, and integration of requirements, capabilities, and systems for health care operations. This office promotes the use of MM&S to improve readiness, survivability, quality of care, patient safety and efficiency, and strives to provide the best training for all medical professionals including doctors, nurses, and technicians so they can be ready at a moment's notice. DMMSO reaches out to 400 plus facilities around the world to determine what support is needed, to identify gaps, and to help develop capabilities. In addition to coordinating medical simulation training, DMMSO collaborates with academia including the University of Pittsburgh, University of Maryland, and Howard University, as well as the civilian sector, such as the Mayo Clinic and the Cleveland Clinic. DMMSO has undertaken a major effort to consolidate offices and systems across the branches to provide a more efficient delivery of simulation-based medical training and is half-way along the maturity model. The next area of distributed learning modernization that DMSSO is looking to explore is VR, gaming software and artificial intelligence, and to provide these technologies in internet-challenged settings, for example on a ship out at sea.

US Army Medical Simulation Research Branch (MSRB), Combat Capabilities Development Command Soldier Center

Matthew Hackett, Ph.D., S&T Manager, MSRB

The US Army is leveraging technology solutions to improve combat casualty care across the entire trauma spectrum including Tactical Combat Casualty Care (TCCC/TC3), Prolonged Casualty Care, En-route Casualty Care, and Surgical Combat Casualty Care. This training employs didactic instruction, hands-on skills using medical mannequins, and group training exercises; however, the training enterprise had been largely disconnected in terms of data interoperability and operates at level 2 on the capability maturity model.

The MSRB piloted an effort to help modernize TCCC in partnership with the Joint Trauma System at the Defense Health Agency. This program developed a mobile platform to support training provided to the TCCC learner community with varying expertise from self-aid / buddy-aid to advanced providers. An issue of concern for MSRB was uneven levels of medical readiness due to non-standardized training implementation across the Services for TCCC. In addition, students encountered challenges in finding the correct learning material due to availability via multiple online locations with some information being outdated. Non-standardized implementation across the Services led to varying levels of medical readiness and non-uniform assessment. To address this, a platform called [Deployed Medicine](#) was developed to deliver high quality and useful content for job support and just-in-time training starting in FY16. Curriculum standardization was a critical component of this platform, and its deployment was enabled by DoD Instruction (1322.24). The approach focused on leveraging modern learning science best practices with technical state-of-the-art methods to generate high quality content available on iOS, Android and online. This platform hosts videos, podcasts and didactic mate-

rials, and puts authoring capabilities in the hands of the content creators. For example, the Committee on TC3 can easily publish their own content including updated guidelines on the platform which serves as the definitive source for the material sought by students. The platform now serves over 60K active monthly users with 100K app downloads.



## Uniformed Services University of the Health Sciences

**Eric Hanson, Deputy CIO & CKO, Uniformed Services University of the Health Sciences (USU), and Medical Simulation & Training (PM MST)**

USU educates approximately 2,500 students who in most cases receive postgraduate degrees. The institution's mission is to support the readiness of America's warfighter as well as the health and well-being of the military community by educating and developing uniformed health professionals, scientists, and leaders, by conducting cutting-edge, military-relevant research, and by providing operational support to units around the world.

USU includes the F. Edward Hebert School of Medicine, the Daniel K. Inouye Graduate School of Nursing, a Postgraduate Dental College, the College of Allied Health Sciences, and the Armed Forces Radiobiology Research Institute. Twenty-five percent of all active duty military doctors are USU graduates and sixty-five percent of USU graduates remain on duty after graduation, which is higher than the typical health professional scholarship program graduate. On the learning ecosystem maturity model, USU is in the third phase. USU has experienced infrastructure growth with the integration of cloud platforms into its architecture over the past eleven years. USU has been improving its dig-

ital learning tools and capabilities with lecture capture and asynchronous learning in 2006, online workspace since 2010, and real-time collaboration applications in 2010. USU is embarking on its third LMS transition since 2005.

The Education and Technology Innovation (ETI) Support Office, established in 2006, partners with USU faculty and staff to plan and implement the use of innovative technologies and educational techniques in ways that advance the educational mission of USU. The ETI team designs instructional strategies and develops educational technology for use in classroom-based and distributed learning courses, and partners with faculty and staff members to design or redesign courses and course materials for use in online environments. ETI also aids in developing strategies and tools for assessment and evaluation, and provides professional development opportunities for faculty and staff. The team assists other USU support organizations that are trying to integrate technology systems in order to support and enhance the student, faculty and staff experience at USU, and conducts and disseminates research, as well as partners with other institutions to enable USU to apply and advance best practices in education.

USU was able to leverage its robust learning ecosystem during the pandemic to continue operations with limited disruptions, which included virtual orientation for all students as well as help desk and anatomy lab support with reduced in-person staffing that was supplemented by virtual support rooms. LCME exam proctoring requirements were met physically and virtually, and there was a rapid deployment of some additional laptops and accessories (cameras, microphones, etc.) to support an increasingly mobile workforce. One big challenge is managing the data generated and captured from various applications, and using data to track the learner's performance. USU is following the ADL Initiative's TLA data strategy to determine the best way to harness data for better analytics to provide improved learning experiences for its students.



**What an exciting time for the digital learning community! Strong foundations have been laid. There is a renewed sense of urgency supported by an excited and motivated DADLAC.**

**Lora H. Muchmore, SES**  
Chief Innovation Officer, Information Enterprise, Office of the DoD Chief Information Officer



# Success Stories

# 2021

## 2021 Showcases Specifications and Standards

### A New Age for xAPI

#### *xAPI 2.0 on the Horizon*

This past year, the xAPI specification moved a big step closer to becoming the definitive method for generating, capturing, and interpreting learning data. xAPI is a data and interface specification that enables software applications to capture and share (big) data on human performance, along with associated context information (i.e., “experience” data). The greatly anticipated xAPI 2.0 is being standardized by the Institute of Electrical and Electronics Engineers (IEEE), an international standards body, and its membership will vote on the new standard shortly with the aim to finalize in 2022. The forthcoming IEEE standard—designated P92741.1—advances the current xAPI specification from v1.0.3 (released October 2016) to v2.0.



The new xAPI v2.0 standard was developed as IEEE’s first open-source standard. The new open-source process is designed to expand opportunities for dynamic collaborations and accelerate the development of new and updated technical standards. Version 2.0 holds great promise for improving the way education and training is conducted, managed, and measured.

What makes xAPI a game changer is that it is applicable to all training and education activities—it can be used in simulation and AR, on mobile devices, with traditional desktop e-learning courses, or virtually any other digital learning environment or activity. This new version harmonizes learning data and mitigates potential inconsistencies with the LRS, like time stamp responsibilities. The LRSs will not be able to accept extra data fields unless they are extensions, this change and other improvements allow querying functions to return the same xAPI statement results across DoD learning systems.

#### *Making xAPI Profiles More Accessible*

In 2021, the ADL Initiative launched a prototype xAPI Profile Server designed to provide a streamlined approach for creating, validating, managing, and modifying xAPI Profiles in support of widespread xAPI adoption. xAPI Profiles enable the semantic and syntactic distinction that humans and machines use to differentiate concepts for xAPI statements—the main data structure used by xAPI to describe tracked experiences. The xAPI Profile Standard (IEEE 9274.2.1) provides the “blueprints” of how to create application profiles with xAPI data. Each xAPI Profile is designed for a specific interaction type (e.g., video) or subject matter (e.g., diagnostic medicine).

The xAPI Profile Server acts as a hub for the communication and organization of working groups that create xAPI

Profiles. In 2021, the ADL Initiative released the xAPI Profile Server User Guide which provides instruction on how to construct an xAPI Profile and how Working Groups manage the profiles. The xAPI Profile Server Authoring Guide, also released in 2021, provides context for the use of the xAPI Profile Server as an authoring support for developing xAPI Profiles. Both guides were developed to help organizations maximize their usage of xAPI Profiles for their specific education and training programs. Several existing xAPI Profiles are available on the Profile Server, including profiles for online courses, videos, and the TLA Master Object Model (MOM).

Access the [xAPI Profile Server User Guide](#) and the [xAPI Profile Server Authoring Guide](#) on the Resources section of [ADLnet.gov](http://ADLnet.gov).

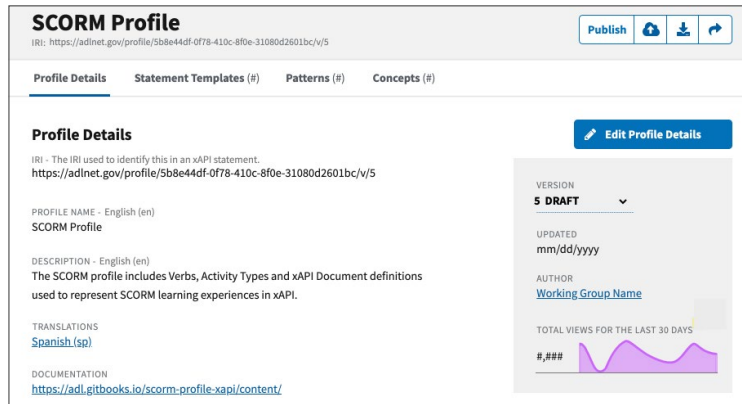
**Looking Ahead for xAPI**

The ADL Initiative and other DoD stakeholders are participating in multiple xAPI-related technical working groups, focused on xAPI Profiles in JSON-LD Standard, creating human-readable xAPI Profiles, and xAPI-recommended practices including cybersecurity for accreditation. These working groups will share ideas and engage instructional designers to determine how to undertake these ideas. Input from the working groups will be used to design profiles with verbs, actors, and activity types in both narrative and technical formats. One major anticipated outcome of the working group efforts is the creation of a pipeline so there is a plethora of profiles available on the xAPI Profile Server.

In addition, the ADL Initiative is establishing numerous communities of practice to develop actual xAPI Profiles. The ADL Initiative is looking for people of all roles to support this effort – you don’t necessarily need to be a technologist to participate! Contact Andy Johnson at [andy.johnson.ctr@adlnet.gov](mailto:andy.johnson.ctr@adlnet.gov) for more information.

**cmi5 Specification Matures to Support Online Learning Beyond SCORM**

Facilitating the adoption of cmi5 is critical for modernizing learning content. This specification will play an important role in transitioning DoD’s e-learning from SCORM-based LMS-centric courseware to an interoperable learning ecosystem that delivers diverse learning opportunities across a range of federated platforms. The cmi5 specification provides stability for LMSs to implement xAPI, and the structure to easily transition e-learning into emerging xAPI practices (e.g. capturing video or simulation events).



Above: A screenshot of a SCORM profile.

We thank the following stakeholders for being instrumental in supporting their organizations’ transition to cmi5 (and xAPI), and identifying use cases to be factored into the software design for the cmi5 player and test suite:

- Army Reserve Readiness Training Command (ARRTC)
- Army University
- Naval Air Warfare Center Training Systems Division
- Naval Information Warfare Systems Command
- Defense Acquisition University



The cmi5 specification replicates SCORM functionality, with the intention of replacing SCORM as the de facto format for online courses and traditional computer-based training. The ADL Initiative is spearheading efforts to increase adoption of the cmi5 specification, and ease DoD's transition to xAPI. This is accomplished by making tools available to test content and software systems that implement the cmi5 data specification. Requirements provided by stakeholders in 2021 led to the development of an online course player prototype for cmi5-enabled e-learning content, reusable course templates to facilitate content development, and a cmi5 conformance test suite to ensure the content and associated software meet functionality and interoperability specifications. Currently efforts are underway to gather data and improve documentation. Visit <https://adlnet.github.io/CATAPULT/> for more info on these tools.

## New Data Standard for Learning Records

Learner records play a critical role in tracking the development and success of an individual's learning journey. To maximize the use of learner records, the ADL Initiative has developed an [ELRR prototype](#) which is modernizing the way DoD captures, stores, and uses data about individuals' education and training experiences. The ELRR Prototype development resulted in a minimum viable product (MVP) that was integrated into the ADL Initiative's TLA Sandbox environment, comprised of microservices and front-end capabilities for extracting, streaming, aggregating, and rendering interoperable and discoverable learner record data.

The underlying data model developed for the ELRR is being proposed as a new data standard for—[IEEE P2997 Standard for Enterprise Learner Records](#). An IEEE study group was formed that consisted of Army, Navy, Air Force, and other DoD representatives to evaluate whether the data model was appropriate as a standard. The IEEE Product Approval Request was approved and the P2997 draft is now being refined by the IEEE P2997 Working Group, which includes representatives from multiple DoD stakeholders.

This standard provides a life-long ledger of learning experiences for individuals, and encompasses all training and education, but also pulls learning experiences from the operational environment. It will facilitate the creation of portable learner records that can be shared across DoD organizations to improve education/training efficiency and increase military readiness. The records will also benefit learners themselves as they navigate their career paths within and outside of the DoD.

Data standards like P2997 are essential for the development of DoD's future learning ecosystem. They enable interoperability among education and training systems operating across different DoD domains. Such interoperability will, for example, allow a Navy training credential to be understood and used by a Space Force training program.

The ELRR prototype has been informed by stakeholders from the Army University, Naval Education and Training Command, Air Education and Training Command, DAU, and Defense Civilian Personnel Advisory Service.

**Learner records are a strategic asset to any organization, with the Department of the Navy notwithstanding. Through the ELRR capability and its enabling Enterprise Learner Record standard, the MyNavy Learning platform will be able to generate and leverage learner data that is discoverable across connected systems, allowing real-time analytics to enable a data-driven approach to delivering personalized and adaptive learning to individual Sailors and teams.**

**Benjamin Ervin**  
NETC N517 Program Analyst



## Sharable Competency Definitions (SCD) Standard

Another emerging IEEE (1484.20.3) standard is the Sharable Competency Definitions (SCD) that defines a data model for describing, referencing, and sharing competencies, primarily in the context of online and distributed learning. This standard provides a way to formally represent the key characteristics of a competency, whether it is highly contextualized as part of a competency framework or decontextualized and independent of a framework, but referenceable such that people can make assertions/associations about it. It enables interoperability among learning systems that use competency information by providing common definitions. This standard, once coupled with the Credential Transparency Description Language (CTDL), allows a standards-based mapping to credentials and their relationships to jobs, roles, other credentials, etc. CTDL enables rich descriptions of credential-related resources including credentialing organizations and specific subclasses of credentials such as degrees, certificates, certifications, and digital badges, which can then be applied to or leveraged by learning ecosystems to manage human capital and provide recommendations along their learning paths.

The CTDL is a schema developed as a part of the **Credential Engine** effort, which is trying to map and provide the entire credential landscape to people to empower them to find the greatest opportunities for learning, advancement, and meaningful careers.

## Deeper Understanding with the New Meta Data Standard

Once fully implemented, the **Enterprise Course Catalog** will federate local course catalogs to make their contents accessible across the DoD via a single portal. This will enable a broader, faster, and simplified capability making search and discovery of courses easier, and will improve how instructors and learners can identify and access digital learning resources and opportunities across the DoD. To do this effectively, a new standard is required to harmonize the metadata associated with learning activities, allowing interoperability across the catalog systems that host them. This need is being addressed in the creation of the **P2881 Standard for Learning Metadata**, which is now being designed by an IEEE working group that includes the ADL Initiative and other DoD stakeholders.

In developing the ECC prototype, the ADL Initiative established a draft data model that could be used to inform the new P2881 standard. The model, which seeks to capture attributes and relationships across a wide array of education and training assets, borrows from many existing metadata standards. The creation of a P2881 core standard and P2881 profiles will enable all learning experiences to be described using core elements as well as additional data needed based on the type of learning experience it is, for example describing a conference or a webinar. These descriptions of learning experiences are especially critical to optimize recommenders and related tools in providing tailored and targeted courses to learners based on their specific needs.

The P2881 standard is being developed with enterprise automated systems in mind, establishing a richer vocabulary that adds granularity and context to each learning activity. With P2881, organizations and educators will be able to share the abundance of non-traditional learning materials and content now available. The standard is currently being written and validated by metadata experts, with a draft expected in early 2022.





## The Total Learning Architecture Progress in 2021

The current DoD landscape of education and training is composed of different networks and data stores, and numerous data systems where learner data is stored from various learning applications and LMSs. The TLA will enable an enterprise-wide system with centralized data streams and decentralized data products, allowing data to be shared so multiple DoD education and training programs can employ adaptive and instructional learning.

The TLA is driving a DoD distributed learning data strategy that leverages interoperability standards, including P2881. A TLA reference implementation is publicly available in an open sandbox for DADLAC members to evaluate, or for standing up their own TLA sandbox implementations in ways that expose TLA data for sharing across Components and organizations. DADLAC members are encouraged to review the TLA Quick-Start Guide released in 2021 to get started. This document, available on ADLnet.gov, covers the specific implementation details of the TLA Reference Implementation and its various components, connections, data consumers, and data producers.

### 2021 TLA development included:

- **Mature TLA Standards:** Worked with the IEEE Learning Technology Standards Committee (LTSC) to mature and promulgate the TLA's draft standards.
- **2021 TLA Reference Implementation:** Components and associated TLA documentation were made available in an IL2 / IL4 environment through the DoD Learning Enclave on Platform One.
- **GitHub Organization:** Ensured all TLA components are open source and available from the ADL Initiative's [GitHub site](#).
- **Dashboards and Analytics:** Integrated different types of TLA data into dashboard solutions. Extended beyond xAPI dashboards to pull in data about the learning activity, aligned competencies, or learner attributes.
- **TLA Quick Start Guide for System Administrators:** Outlined specific implementation details of the ADL Initiative's TLA Reference Implementation and its various components, connections, data consumers, and data producers.

This past year the ADL Initiative assisted multiple DADLAC members to start their TLA journey, learn more on the next page.

## Defense Acquisition University / USALearning

A commercially available, open-source solution is being implemented by DAU to demonstrate the value of adopting the TLA to improve tracking and management of competency-based learning.



### 2020

In May of 2020, the ADL Initiative and DAU partnered with USALearning to create a practical application of the ADL Initiative's 2019 TLA Reference Implementation. The purpose of this project was to recreate key components of the Reference Implementation with commercially-available, open source, and customized solutions to demonstrate the value of organizations choosing to adopt the TLA architecture to improve their ability to track competency-based learning.

### 2021

The resulting DAU Innovation Sandbox was completed in 2021 and provided an environment for DAU staff to evaluate new learning technologies, to evaluate xAPI Profiles to develop an xAPI data strategy, and to prototype new workflows, instructional strategies, and capabilities prior to integrating them into an operational environment. This collaboration includes the technical interchange between staff, the development and deployment of the sandbox, developing pilots and prototypes, and other projects that support DAU's implementation of TLA standards. This work also intends to provide transition opportunities for many different products within the ADL Initiative's research portfolio (including PeBL, PERLS, CaSS, and others).



## My Navy Learning (MNL)

The Navy is using TLA tools, technologies, and standards to integrate Navy manpower, personnel, training, and education systems together into a cohesive ecosystem for both learners and decision-makers. MNL has integrated with the development of a Surface Training and Readiness Management System (STRMS) capability to demonstrate in an afloat environment, which will serve as a use case for generalization across other warfare communities. STRMS provides the Navy with a comprehensive deck plate training management tool that supports event scheduling and performance assessment, including tracking individual watch stander and watch team qualifications, experience, currency, proficiency and competency.



**Meaningful data and data management are key for decision makers in defining a true problem. DADLAC and its team members are dedicated to innovating at the speed of modernization through collaboration, communication, and coordination of key stakeholders within public and private industries. Together, positive change can occur and science fiction can become science fact.**

**Paul O. Kwon, COL, MC**

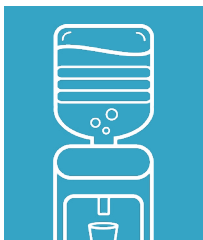
Clinical Advisor, Program Executive Office for Simulation, Training and Instrumentation (PEOSTRI), US Army

# Mark Your Calendars! This Year's Plans

# 2022

## DADLAC Water Cooler Events (Optional)

In 2021, the DADLAC launched a series of virtual meetings dubbed “water cooler events.” DADLAC members are invited to attend these open forums to discuss distributed learning topics and receive updates on the latest DoD initiatives and policies. These meetings are held throughout the year on select Wednesdays, 1300–1430 ET, and representatives from each DADLAC organization are encouraged to attend. These meetings are open to military and civilian personnel, and DADLAC representatives may invite their direct, on-site support contractors, with permission. Outside vendors are not invited.



### Water Cooler Events: Save the Date!

16 March      19 October  
13 July        7 December

## 2022 Formal DADLAC Meetings (Required)

Pending guidance from the Pentagon, we look forward to meeting again in-person for the Spring meeting in May and Fall meeting in August, to coincide with the Federal e-Learning Science and Technology Conference (iFEST) to be held in-person in the Washington D.C. area on August 18 and 19.

## Desk-side Meetings with DADLAC Members

The “desk-side” meetings—informal conversations between DADLAC member organizations and the ADL Initiative—are a useful way for DADLAC members to offer feedback and make requests to the ADL Initiative and the larger DADLAC community. The ADL Initiative will reach out to members to schedule these meetings throughout the year, or members can request a meeting directly by contacting Anne Marie DiNardo at [anne.m.dinardo.ctr@mail.mil](mailto:anne.m.dinardo.ctr@mail.mil).

## iFEST

**Tuesday, 16 August – Thursday, 18 August,  
Hilton Alexandria Mark Center**

In collaboration with the National Training and Simulation Association (NTSA), the ADL Initiative encourages DADLAC members to participate in iFEST 2022. This event provides unique opportunities for military, government, industry, and academia professionals to share the latest in distributed learning innovations. This is currently being planned as an in-person event.



### Join us at TLA PlugFest 2022

PlugFest will be a hands-on workshop to promote TLA adoption, dialogue, and collaboration among potential TLA stakeholders. More information to follow.