Sharing Digital Learning Content Among Allies and Partners

This info paper was developed by the PfPC ADL Working Group with the support of the Moldova Military Academy to inform next-generation Education, Training, Exercises, and Evaluation among security partners.

> This info paper is intended to give military leaders involved with training and education (e.g., commandants, deans, department directors, faculty, and staff) a quick and pragmatic overview of **sharing digital learning content**. It is a 10-minute read.

Importance of Sharing Digital Learning Content

Distributed learning is a central element of modern defense training and education. Institutions can deliver e-learning courses to an almost unlimited number of learners at nearly zero marginal cost per person, despite the expense of producing high-quality, expert-driven digital content. This makes digital courseware an ideal joint investment for military organizations, allies, and partners. Sharing a single e-learning course between multiple nations can yield millions of dollars/euros in savings[1] and greatly expand individual countries' access to global Subject Matter Experts (SMEs).

E-learning interoperability standards[2] have matured and spread in recent years; yet allies and partners are not adequately leveraging this interoperability with a systematic approach to sharing, collaborating, or capitalizing on economies of scale. Individual nations continue to expend finite resources inefficiently, creating similar digital learning content rather than devising the capability for effective joint use of common e-learning material. Putting shareability at the core of digital content production will help allies and partners maximize distributed learning's cost and quality advantages.

Sharing digital content increases training and education return on investment, and access to existing courses prepared by allies or international SMEs yields operational benefits. One significant advantage of content sharing is mitigating the risk of using outdated or incorrect information due to ineffective version control or configuration management. Failure to utilize updated content can undermine credibility and trust, miss opportunities for growth and development, and put forces at a competitive disadvantage. Digital content sharing can provide a framework to streamline processes and ensure up-to-date information, enhancing the efficiency and effectiveness of education and training.

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[1] Defelice, R. (2021, January 13). *How Long Does It Take to Develop Training? New Question, New Answers*. ATD. https://www.td.org/content/atd-blog/how-long-does-it-take-to-develop-training-new-question-new-answers

[2] Such as the Sharable Content Object Reference Model (SCORM), Experience Application Programming Interface (xAPI), and Learning Tools Interoperability (LTI).

Current Challenges in Sharing Learning Content

Process and policy barriers currently increase the difficulty of sharing digital learning content, presenting three notable challenges: the lack of clarity and markings for classification; the lack of clarity and markings for copyright details and version control; and the lack of systematic national and multilateral mechanisms to support discovery and sharing of available materials.[3] You can help overcome these issues by addressing the following questions when you create or acquire e-learning courseware and other digital learning assets:

1. Is it RIGHT to share this?
- Is it appropriate to share this content, and can sharing it cause reputational damage?
- Are its language and terminology easily understood?
- Is it in a standardized format (content and design)?
- Is it complete, coherent, and fit for purpose?
- Is the course up to date?

2. Do I have the RIGHT to share this?
- Does the material contain any commercial or governmental IPR and copyright[4] that limits sharing?
- Is the material unclassified (or at a suitable classification for the host network)?
- If the material is classified, is it possible to downgrade it to unclassified?
- Do I have permission from the content owner to share and/or modify this?
- Is there a national 'release mechanism' to approve content sharing?

3. What is the RIGHT method to share this?
- Is the content built using widely accepted standards (e.g., SCORM, xAPI, CMI5)?
- Do we have access to an appropriately classified, accessible place to share the content?
- Does my content support standard metadata to enable easy searching, and can we provide a catalogue of our content to aid and promote sharing among stakeholders?[5]
- Is my content accessible where internet availability and bandwidth are low or intermittent?
- How do we maintain configuration control to ensure the courseware is relevant and safe?

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[3] Presnall, A. (2020, March). *ADL Content Sharing: Report and Recommendations*. Jefferson Institute, Washington, DC.

[4] Nested copyright involves ensuring permissions for each component within a piece of content (e.g., text, images, videos) to respect intellectual property rights and avoid infringement.

[5] ISO/IEC 19788 specifies metadata elements and their attributes for describing learning resources, ensuring compatibility, and supporting multilingual and cultural adaptability.

Strategies for Sharing Digital Learning Content

Digital learning content should be developed from the outset with a 'designed to share' mindset, so the ability to maximize reuse and collaboration is at its core from the start. Attention to the underlying technologies is a foundational element of this approach, with all new content utilizing the open standards, common formats, and shared taxonomies recommended in the *NATO ADL Handbook.*[6] Creating a NATO rubric for a 'design to share' approach to content development would help ensure learning content is built for interoperability.

> ## 'Design to Share'
> We should develop content with sharing in mind from the outset.

The initial stages of assessing e-learning requirements and developing digital content also should foster and facilitate communication between allies and partners over both reusing existing content and accessing SMEs. For example, content regarding cold weather operations has significantly more credibility when it is developed by a Nordic country than by a country with a temperate climate. Furthermore, countries with similar requirements would most efficiently create content collaboratively, partnering with SMEs and centres of excellence for joint production, which will reduce resource burden and costs for all involved.

Classification and ownership are additional considerations when developing online learning materials for sharing. Shared content must not contain classified material, nor can it include material that may have commercial intellectual property (IP) copyright protections. These issues can cause significant barriers to joint use if not addressed in the design stages.

Creating sharable content is only half the battle: allies and partners need a clear and easy way to know what materials are available and how to access them. Content owners and managers should compile catalogues of their sharable content using effective tagging, collation, and curation; and they should adhere to a standard format for naming conventions and metadata schema detailed in a document like the *NATO ADL Handbook*. Adhering to these standards would make the separate repositories accessible to search by allied and partner nations, and it would facilitate the creation of a 'catalogue of catalogues' to be held by a suitable central coordinating body. One such essential metadata item is some form of version number, so the user knows they are using the most recent iteration of a course. This is particularly important for courseware addressing topics that represent a risk to the life or safety of the learner.

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[6]NATO Training Group Task Group for Individual Training & Education Developments (IT&ED). (2023, January). *The NATO Advanced Distributed Learning Handbook.* https://adlnet.gov/assets/uploads/ADL%20Handbook%20-%20JAN%202023%20total.pdf

A comprehensive and successful sharing system also must include a feedback mechanism to facilitate e-learning content corrections, amendments, and suggestions for improvement. This could take various forms, from a simple email response, to annotation forms built into the courseware, to an element of a common platform curating content catalogues. Shared content also could be scored or graded by recipients—similar to an online 'starred' product review—highlighting the e-learning catalogues' most relevant and useful content. This user feedback would reassure potential customers while motivating the creators of e-learning materials to maintain high standards. A more formal accolade to incentivize content producers would be establishing a system to award bronze, silver, and gold badges or 'seals of interoperability' recognizing content that meets NATO standards and best practices for sharing.

Specific Action Recommendations for the Next Six Months

Allies and Partners:

1. Support participation in groups dedicated to ally and partner training technologies, standards, and policy critical for content sharing.[7]
2. Encourage sharing of learning resources. Examine how you currently catalogue and administer your e-learning content and consider how this could be used to advertise your online learning materials to ally and partner nations.
3. Develop a digital learning content release process and policy that mitigates uncertainty on intellectual property rights protection and ensures your shared content is appropriately classified and credible.

NATO Institutions:

1. The NATO School Oberammergau and HQ SACT should lead the creation of a digital clearinghouse platform to facilitate search and discovery of existing learning content.
2. The NATO Learning Technology and Interoperability Group should amend the *NATO ADL Handbook* to include best practices for sharing digital learning content, including a rubric for a 'design to share' approach to content development.
3. The NATO Learning Technology and Interoperability Group should update STANAG 2591 (ADL) to require that learning content metadata include clarity on classification and copyright details.

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[7]For example, PfPC ADL Working Group, NATO Learning Technology and Interoperability Group (NLTIG), and US Training Technology Global Partnership
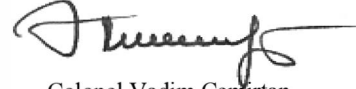
4. The NATO Learning Technology and Interoperability Group should develop standards for a system to award bronze, silver, and gold badges or 'seals of interoperability' recognizing content producer quality of sharing achievement.

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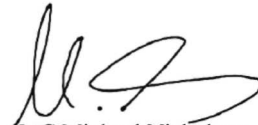Multi-Domain Force Development Directorate
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