



DLS

ISO DIGITAL LEARNING SOLUTIONS

Toolkit

LEVEL 1

INQUIRERS

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1. The context

Any organization's knowledge transfer efforts are enhanced by blending traditional on-site or classroom models with virtual digital learning. The ISO Central Secretariat developed the DLS Toolkit to support ISO members in developing and implementing their own specific digital learning solution (DLS) strategy that should be tailored to meet their specific needs.

An DLS strategy should set out the vision, goals and plan for an organization to proceed with developing its digital learning solutions to meet the needs of the business and end users. It should focus on getting the right content to the right user at the right time through strategic planning of content creation, delivery and resources management.

The expected benefits an ISO member can achieve from implementing a digital learning strategy are: **enhanced learning agility, improved population proficiency, a more comfortable learning experience, greater accessibility of skills and knowledge, and reduced cost**. Furthermore, a 2021 study concluded that countries that invest in the replacement of their traditional teaching and learning processes with digital learning attain a greater vision of national competitiveness.

The ISO DLS Toolkit can become the starting point for the ISO member's DLS strategy or support implementation of their strategy if one already exists.

The **ISO DLS Toolkit Level 1** is intended for ISO members that are new to digital learning. These members require a high-level summary of the implementation of digital learning programmes because they have never implemented such programmes.

Refer to **Annex A** for a glossary of terms, abbreviations and definitions.



2. Objectives and outcomes

The ISO DLS Toolkit aims to achieve the following two objectives:

1. Guide ISO members in **implementing their own DLS strategy** to support them in acquiring and applying the tailored knowledge they require.
2. Provide ISO members with suggestions on mapping instructor content to a shareable, living **digital content library**.

To accomplish these objectives, the toolkit will require particular attention to the following outcomes in terms of:

- **Learning agility**
To enhance the resilience of learning capabilities and improve the achievement of learning outcomes by providing a blend of digitally enhanced delivery formats and time flexibility.
- **Learning proficiency**
To improve the effectiveness and efficiency of knowledge transfer and application through better use of digital technology, microlearning and content curation.
- **Learning accessibility**
To maximize the number of learners who have access to knowledge acquisition by optimizing the delivery method for the availability of digital technology, level of targeted skills and complexity of content.



Successful achievement of these outcomes relies on a five-step process of design, development and delivery of digital learning solutions. As illustrated in **Figure 1**, this process consists of the following steps:

- **STEP 1:** Determine digital accessibility – The target audience will be surveyed to determine their level of access to digital devices, Internet bandwidth and proficiency with digital tools (e.g. video conferencing, digital learning platform, mobile applications).
- **STEP 2:** Find the right delivery blend – Next, the results from the surveys in Step 1 become inputs into a high-level formula to find the right blend of self-paced, virtual classroom and face-to-face (F2F) delivery methodologies.
- **STEP 3:** Develop/curate the learning content – With the right delivery blend in mind, the duration, scope and complexity of the learning activity (workshop, course or journey) will inform the development and curation of the required learning content and courseware. This step is subdivided into five sub-tasks.
- **STEP 4:** Deliver the knowledge – The learning activity will be marketed, learners registered and preparation materials sent, and the workshop, course or journey will be delivered. This is the key step for **knowledge transfer**.
- **STEP 5:** Measure the results – Finally, a follow-up will occur with learners after the activity to ensure that they perform their role as change agents and realize the desired outcomes and results from the learning activity. This is the key step for **knowledge application**.

This ISO DLS Toolkit is a roadmap to achieve the objectives, outcomes and implementation process outlined above.

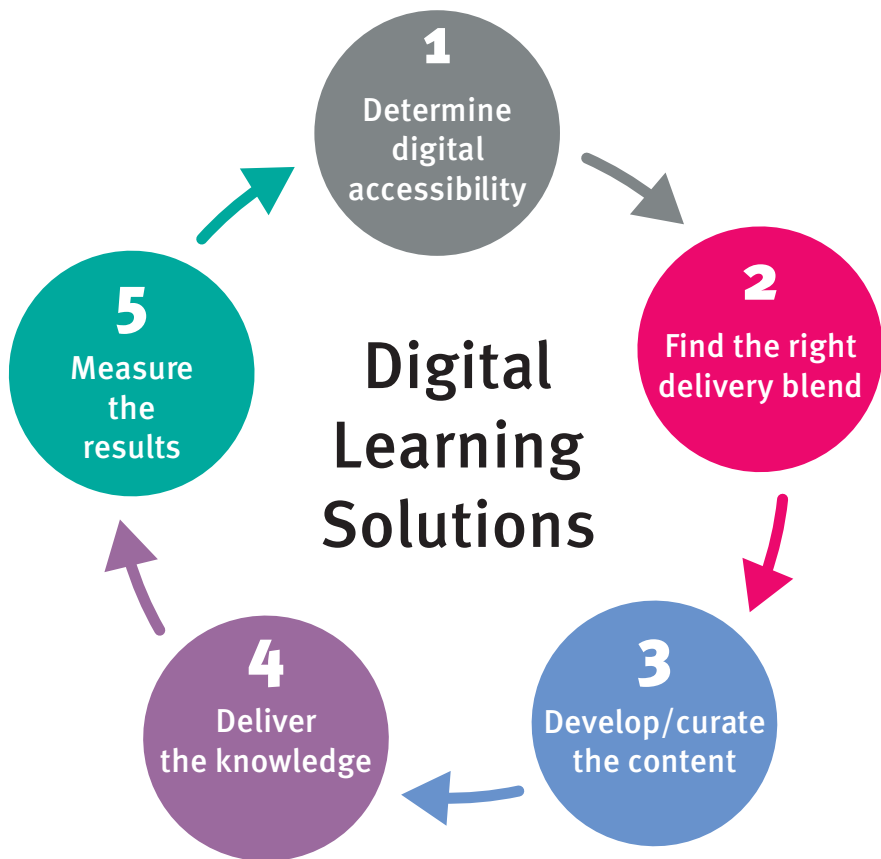
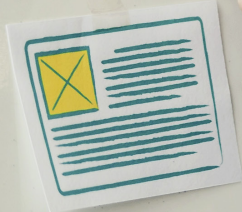
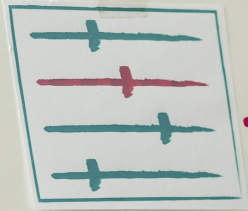
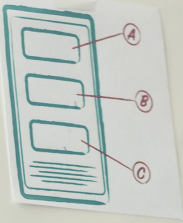


Figure 1 – Five-step process of design, development and delivery of digital learning solutions

Coding
+
Programming



Design

App

UX

Visual

Usability

Web

UI

Project

Resource
Emotional and Behavioral
Learnability

3. Design, develop and deliver digital learning solutions



3.1 **STEP 1** Determine digital accessibility



Digital access is defined as the amount of Internet bandwidth and quality of digital devices available to access virtual content. It is critical to know the digital access levels of learners in the different regions to correctly blend the delivery of virtual and non-virtual content.



3.2 STEP 2 Find the right delivery blend

▶▶▶ Digital learning is a knowledge transfer approach that combines different modes of learning in an optimal delivery blend. Three primary content delivery methods can be blended to build the best digital learning solution:

- **Asynchronous** – Online, self-paced access to digital content and exercises. Asynchronous delivery requires remote access to a digital learning platform over a medium-grade broadband Internet connection from a smartphone, tablet or computer. In this DLS modality, instructors and mentors interact with learners in an ad hoc manner (i.e. eLearning).
- **Synchronous** – Online, instructor-led virtual classroom experience. Synchronous delivery requires remote access to a virtual classroom platform over a high-fidelity broadband Internet connection from a smartphone, tablet or computer. In this DLS modality, instructors interact with learners in real time as part of a scheduled learning activity (i.e. class, webinar, just-in-time coaching).
- **Face-to-face (F2F)** – In-person, instructor-led physical classroom experience. F2F delivery does not require any broadband Internet or digital devices. In this DLS model, instructors blend F2F classroom activities with asynchronous and synchronous modalities to achieve content mastery in a high-touch, interactive learning experience.

Blended learning is defined as a mix of any two or three of these modalities. For example, Virtual Instructor Led Training (VILT) hybrid courses consist of a 50/50 blend of asynchronous and synchronous

modalities, while Instructor Led Training (ILT) journeys lean heavily on F2F contact with an instructor (90%).

3.2.1 Understanding blend variables

▶▶▶ The first step in developing a DLS solution is defining the dimensions (i.e. scope) of the learning activity. Two key factors that determine this scope are content proficiency and content complexity.



Content proficiency is defined as how much knowledge is transferred to the learner and their desired level of competency once the learning activity is completed. Content proficiency correlates with content hours (seat time).

A desired proficiency level will guide the content curator / subject matter expert (SME) to estimate the number of resources that need to be moved from previous learning programmes/activities or developed from scratch. Further, the duration of seat time can be used to justify credit hours awarded towards a certification or digital credential.

Content complexity is defined as how many learning objectives (outcomes) are transferred to the learner during the learning activity.

In most cases, content is not delivered all at once. Even a three-hour training session is likely to involve a break. As the curator builds the digital learning solutions strategy, it is helpful to categorize each learning activity in terms of scale – that is, combination of content proficiency and complexity. Following are examples of learning activity scopes categorized by content proficiency and complexity:

- **Module:** tiny learning activity (1-6 hours of content; 1-8 learning objectives can be achieved in a day)
- **Workshop:** small learning activity (7-18 hours of content; 8-24 learning objectives can be achieved in less than a week)
- **Course:** medium learning activity (19-24 hours of content; 24-30 learning objectives can be achieved in 2-4 weeks)
- **Journey:** large learning activity (24+ hours of content; 30+ learning objectives can be achieved in 2-4 months)



ISO members should test-drive Module and Workshop activities initially. A task force could define priority high-impact use case workshops that are already delivered F2F and port them to the DLS. This content can be seeded into the shareable DLS digital content library.

In addition to content proficiency and content complexity, there are two interactive learning variables that must be considered: digital access and instructor contact. The assumption is that better digital access and more contact time with a human will facilitate the delivery of the learning content.

Digital access is defined as the amount of Internet bandwidth and quality of digital devices available to deliver virtual content.

Instructor contact is defined as the number of hours an instructor or mentor is involved in the delivery and support of content.

The process of finding the right delivery blend is performed by a task force that includes relevant stakeholders such as the programme manager, DLS experts and instructional designers, who collaborate to prioritize all learning activities.



3.3 STEP 3 Develop/curate the content



Before developing or curating content for digital delivery, one must take a step back and look at the opportunities of teaching in a new light. It is important to consider how modern digital technology can improve learning and not simply map F2F instruction to a digital platform. A good DLS can make the current learning activity better than before.

Once the learning activity type and activity scope are understood and the desired delivery blend (synchronous to asynchronous) is optimized, one can begin to build the learning activity content. Building an effective online course requires more than just transferring existing classroom-based content into a digital format. One must decide how to transform that content in a way that will engage learners in the online environment.

As a guide for the construction of a DLS, the ISO member should implement an instructional design process built from the ADDIE (Analysis, Design, Develop, Implement, and Evaluate) model. In the model described in this section, existing content and learning objectives are first analysed and placed into a specific synchronous/asynchronous/F2F blended course design. Next, digital content resources, activities and assessments are developed or curated and implemented in the DLS platform. Finally, the DLS is tested, refined and evaluated for the intended blended delivery mode.

Step 3 is broken into **five sub-tasks** involved in developing and curating content for digital delivery (see **Figure 2**). The next sections discuss these five sub-tasks in detail.

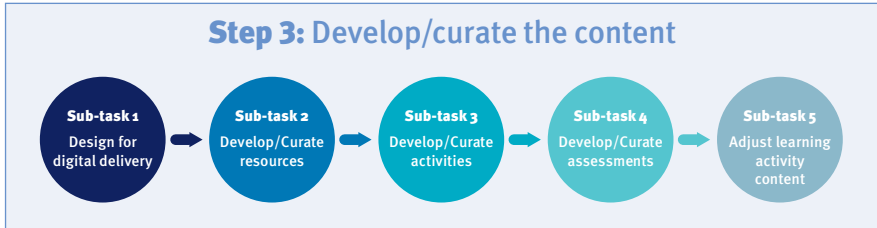


Figure 2 – Five sub-tasks of Step 3 for developing and curating content for digital delivery

3.3.1 Sub-task 1: Design for digital delivery

▶▶▶ The first sub-task in preparing a learning activity for digital delivery is design. There is no need to begin from square one. Use the learning objectives and content from a current activity as a foundation for the online experience.

3.3.2 Sub-task 2: Develop/curate resources

▶▶▶ Before building new learning resources, the content developer should perform inventory on what content exists that can easily be moved to a DLS and what needs to be created. For example, one may have recorded videos that can be imported into the DLS immediately.

At this point, the learning activity is defined and the content developer knows how many remaining seat time hours need to be filled with content while maintaining the desired asynchronous/synchronous delivery blend. These hours can be assigned to learning objectives and balanced properly.

A content development plan can be created with all remaining resource slots and allocated seat time for each resource. As one plans how the new specific resources will be developed, it is critical to keep two concepts in mind: **Multi-sensory delivery** (mix content delivery types to activate

specific learning styles of the audience) and **Microlearning** (break up the content into bite-size chunks).

3.3.3 Sub-task 3: Develop/curate activities

▶▶▶ Now that the content is organized and the learning resources are in the DLS platform, it is time to focus on making the learning activities as engaging as possible. This is especially important online because the instructor cannot see – and thus engage – with learners in person.

That is why it is vital to find ways to make learning resources as personal, meaningful and interactive as possible. Fortunately, many digital platforms support interactive activities (known as “interactivities”) to enhance engagement.

3.3.4 Sub-task 4: Develop/curate assessments

▶▶▶ A final consideration is how the instructor will provide an assessment of learning.

There are several types of assessments including **knowledge checks and quizzes, video-based assessments and virtual lab assessments.**

3.3.5 Sub-task 5: Adjust learning activity content

▶▶▶ There is just one last step before releasing the learning activity to learners (or peer review). One must first test and refine the resources, activities and assessments before delivery of the online activity.

Testing is especially important for online courses since the instructor will not always be available in person, in real time, to address any issues learners have in accessing and interacting with the learning content.

A diligent, focused testing effort is vital to ensure a positive, engaging experience for each learner. Finally, it is necessary to obtain learner feedback on activities so that content refinement can be a continual process.



3.4 STEP 4 Deliver the knowledge

Once the optimal delivery blend has been determined and the content has been developed/curated, knowledge transfer can begin. This is where the rubber meets the road. It is imperative to match the digital learning platform capabilities to the optimal delivery blend and learning activity type(s).

Ideally, the delivery blend, level of content interactivity and learning outcomes should drive the digital learning platform selection – not the other way around.

The digital learning platform is only the beginning of the knowledge delivery step. In addition, one must onboard the digital learning solution with learners, instructors and champions.

3.4.1 Digital learning platforms

New modes of digital learning delivery are emerging, with Netflix-style on-demand digital content allowing for “anytime, anywhere self-learning” and interactive, synchronous virtual classrooms. The ISO DLS requires a digital learning platform that provides learning agility, proficiency and accessibility that match the needs of the ISO member stakeholders.

The digital learning platform must leverage the strengths of experiential, informal and formal learning methodologies:

- **Experiential:** Virtual labs, simulations and video practice engage learners and validate their skills at scale.
- **Informal:** AI-powered interactive tools increase learner engagement and empower learners to take control of their own learning experience.
- **Formal:** Structured programmes align learning with objectives and outcomes to provide insights into individual and enterprise-wide skills.



3.5 STEP 5 Measure the results



In the final step, a task force will complete the continual improvement process by checking the effectiveness of the digital learning activities and adjusting the specific DLS processes, content and platform to achieve the relevant training outcomes and objectives.

It is worth mentioning that an ISO member should turn its full attention to the change management activities and approaches required for wide-scale adoption of the DLS strategy and the implementation of the ISO DLS Toolkit.





4. Conclusion

This **Level 1** version of the DLS Toolkit outlined the five-step process of design, development and delivery of a digital learning solution. For a deeper dive, the reader is referred to the **Level 2** and **Level 3** versions of the DLS Toolkit that cover advanced topics: DLS change management, DLS implementation, digital learning case studies, digital learning platform features and an onboarding training plan for the DLS Toolkit. The successful implementation of a well-designed digital learning strategy in the 21st century will enhance learning agility, improve population proficiency, provide a more comfortable learning experience, elevate accessibility of skills and knowledge, and reduce costs.

List of annexes

- **Annex A:** Glossary of terms

Annex A – Glossary of terms

Terms and abbreviations

Abbreviated term	Description
3G/4G/5G	Mobile network communications standards used for access to DLS
ADDIE	Analysis, Design, Development, Implementation, and Evaluation (instructional design model)
AI	Artificial intelligence
APDC	ISO Action Plan for developing countries
DLS	Digital learning solution
DLSE	Digital learning solution expert
DLSM	Digital learning solution manager
DPS	Digital platform specialist
FERPA	Family Education Rights and Privacy Act
F2F	Face-to-face instruction
GSP	Good standardization practices
ID	Instructional designer
ILT	Instructor-led training
INST	Instructor
IP	Intellectual property
IT	Information technology

Abbreviated term	Description
IT/S	Information technology support specialist
ISO	International Organization for Standardization
ISO/CS	ISO Central Secretariat
JSON	JavaScript Object Notation (data sharing file format)
LMS	Learning management system
LTI	Learning tools interoperability
LXP	Learning experience platform
MCS	Marketing communications specialist
MEDIA	Media specialist (videographer/graphic designer)
PDCA	Plan-Do-Check-Act
PDF	Portable Document Format (file format)
PM	Programme manager
SCORM	Sharable Content Object Reference Model
SAML	Security Assertion Markup Language
SME	Subject matter expert
UI	User interface
VILT	Virtual-instructor-led training
WI-FI	A family of wireless network protocols used for access to DLS
XAPI	Experience Application Programming Interface (also “Tin Can”)

About **ISO**

ISO (International Organization for Standardization) is an independent, non-governmental international organization with a membership of 165* national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market-relevant International Standards that support innovation and provide solutions to global challenges.

ISO has published more than 24 000* International Standards and related documents covering almost every industry, from technology to food safety, to agriculture and healthcare.

For more information, please visit www.iso.org

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