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E-Learning Standards and Operational Toolkit

Competence Center for Digital Societies

Competence Center for Education, TVET and Labour Market

in cooperation with Africa Cloud / atingi

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E-Learning Standards and Operational Toolkit in the Context of German Development Cooperation[1]

E-learning[2] is taking on an increasingly important role in our VUCA world[3]. By participating in e-learning, learners have the opportunity to build their competencies and knowledge in a flexible way, regardless of their geographical location. E-learning supports the process of lifelong learning and can reach target groups who have been underserved in the past. Thus, it contributes to the leave-no-one-behind (LNOB) approach. In doing so, it is an important tool in reducing inequalities and reaching the Sustainable Development Goals (SDGs).

Although the benefits are clear, it is often less clear how to plan, develop, and implement e-learning effectively. What are the standards and best practices for e-learning? Due to a lack of unified standards, projects have had to create standards for themselves from scratch. Resources are used that could have been saved, and no synergy effects are created.

This document, "E-Learning Standards and Operational Toolkit" (hereafter referred to as the "Operational Toolkit") outlines standards and best practices for e-learning for German development cooperation projects. It contains recommendations to help projects plan and implement e-learning offerings in the context of their capacity development strategy. It also provides guidance on integrating other digital learning formats for capacity development, such as blended learning.

Through these unified standards, projects will be able to ensure the quality of their e-learning offerings, save time in the planning process, and create synergy effects with other projects. The result is an overall boost in the quality, efficiency, reach, and impact of e-learning offerings in the context of German development cooperation.

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[1] Many thanks to the AIZ for providing feedback on this Operational Toolkit.

[2] Throughout this Operational Toolkit, the term "e-learning" is used as a synonym to web-based training (WBTs), meaning media-based learning content that learners work through independently. This content usually contains learning success controls in the form of quizzes and exercises, and the learning progress is visibly documented. E-learning / WBT can also be offered in a tutored format and/or combined with interactive techniques such as communities, forums, etc. The term "digital learning" refers to the wider concept of teaching and learning with digital media. Digital learning can include formats such as e-learning / web-based training (WBT) as well as other synchronous and asynchronous formats.

[3] VUCA is an acronym – drawing on the leadership theories of Warren Bennis and Burt Nanus – to describe or to reflect on the volatility, uncertainty, complexity and ambiguity of general conditions and situations.

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1 Introduction

When getting started with developing e-learning, many GIZ projects look for technical guidelines to follow. But the first step should actually be to take an internal look first, at your results model and results matrix. How can e-learning help to reach the project's goals, and at what points and for which target groups will e-learning have the biggest impact?

As a next step, examine your capacity development strategy (CD strategy) and operations plan for learning (strategic competence development / HCD). At what points does e-learning make sense strategically, within the project context and partner structure? The involvement of local / regional partner organisation from the beginning is important in order to anchor the new learning possibility in a partner structure and to make e-learning a success in the long run. How can e-learning be used to build capacities at all three levels: individual, organisational, and societal?

You may find it useful to approach this process iteratively. Your CD strategy / operations plan for learning will have an impact on your strategy for developing e-learning. At the same time, while developing your strategy for e-learning, you may notice parts of your CD strategy / operations plan for learning that need updating or modifying. It is important to keep your partners involved in these discussions.

Besides the project context, another important aspect to explore is that of the learning culture(s) within the partner structures. How has learning been managed until now? How much prior experience with e-learning at the workplace do your partners have? How can e-learning be used to help them develop the skills they need to do their jobs more effectively? How is learning integrated into their performance management system and organisational culture?

A key consideration is the format that the digital learning solution should have. Classic self-learning modules or web-based trainings can be combined with highly interactive and moderated learning modules with a focus on peer and social learning. Your choice of form or combination of e-learning should depend on your target group's needs and the given context. In this Operational Toolkit, we try to be as generic as possible, as there are different reasons for all forms of digital learning and e-learning.

The digital literacy and digital competencies of the target group are also key factors affecting how e-learning can be developed and implemented. Technical aspects should likewise be taken into consideration. What infrastructure, technology, and connectivity are available for the target group? Does the partner organisation have its own learning management system (LMS), on which e-learning modules can be hosted? Have you examined the use of atingi (see Factsheet in English), the platform for e-learning in German development cooperation?

This Operational Toolkit is designed to be used by GIZ project teams who plan on developing e-learning, or for those who have already started. The next part of Chapter 1 contains an overview of the four stages of planning and implementing e-learning and which templates and documents are needed at which stage. The framework and didactic standards for e-learning are presented in Chapters 2 and 3. Chapter 4 contains detailed information about authoring tools, and Chapter 5 features a case study for blended learning, based on a real GIZ project.

2 Framework for E-Learning

Digital technologies can be useful tools to widen the access to education and enhance the quality of education services. E-learning within GIZ is embedded in the framework of the Principles for Digital Development[4] and the BMZ's Digital Agenda. The Principles for Digital Development are nine living guidelines intended to help practitioners succeed in applying digital technologies to development programs. They have been endorsed by GIZ in 2018 and provide the framework for an efficient, effective and sustainable use of digital technologies in development cooperation. BMZ's Digital Agenda focus on five key areas to use the opportunities of digital technologies for development: employment, local innovation, equal opportunities, good government and human rights and data for development. Especially in the area of creating equal opportunities, e-learning can play a meaningful role and contribute to SDG 4 (Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all).

As an example, BMZs flagship project "Africa Cloud" focuses on equal opportunities and aims at effectively reaching people with different educational backgrounds in selected partner countries in Africa on a larger scale. The aim is for Africa Cloud's digital platform atingi.org to be used as a standard tool for digital learning by new development cooperation projects and target groups. atingi is starting in Africa and will gradually be expanded to other regions around the world.

Within this framework, special emphasis should be put on sustainability (Principle for Digital Development: Build for Sustainability) when planning and implementing e-learning. Sustainability aims at creating long-lasting impact and is at the core of GIZ's work. To make e-learning sustainable even beyond your project term, the following criteria should be considered:

- The needs and requirements of the target group are crucial to create a meaningful e-learning experience. An in-depth analysis of the target group, especially looking at their digital competencies and infrastructure, is needed.
- E-learning needs to be embedded in a learning strategy, including a pedagogical and didactic approach which builds the overall framework for all learning activities (operations plan for strategic competence development / HCD).
- Resources need to be considered in the long run. To make e-learning sustainable, financial resources as well as a long-term steering structure are needed.

[4] Principles for Digital Development

3 Didactic Standards for E-Learning

This Operational Toolkit presents standards and quality criteria in Chapter 3.1, learning design principles[5] in Chapter 3.2, and the four stages of the development process in Chapter 3.3. Furthermore, the four stages of the development process, Scoping, Design, Delivery and Review, are described.

3.1 Quality Criteria

Learner-centred design

Learner-centred design focuses on the needs, interests and skills of learners. It strives for designing a learning experience that can accommodate different styles and paces. A learner-centred design incorporates the following:

- Specification of the target group in terms of their goals, needs and level of knowledge and skills
- Access to learning content, activities and assessments for all learners in an inclusive manner
- Connection of the learning outcomes with the real-life context, allowing learners to apply their knowledge
- Collaboration and communication among learners by using different tools

Adaptability and reusability

Adaptability and reusability refer to the degree of suitability and readiness of e-learning elements to be used in a learning context other than the one it was originally designed for (Chiappe & Arias, 2015). In line with the design principles for digital development[6], criteria such as open access to education, adaptability and reusability of content should be taken into account, especially considering the partner context and preconditions. To ensure that the learning resources (e.g. script, image, animation, video, exercise, quiz, project, etc.) can be customized, repurposed or remixed with a minor amount of amendments, they should be:

- Self-contained and portable, so they can be used both as stand-alone resources and in combination with other resources
- Compatible with different delivery methods and formats, so they can be used in different learning contexts

All e-learning resources should also be described with a set of standardised and structured metadata about their learning context, content, activity and outcome (Piedra et al., 2016) to allow for reuse. This applies not only to e-learning but also to blended learning formats and content. To create a meaningful integration of online and offline modules as part of blended

[5] The criteria and principles are based on the Africa Cloud (atingi) Educational Guidelines.
[6] Open Standards, Open Data, Open Source, and Open Innovation | Principles for Digital Development
https://digitalprinciples.org/principle/use-open-standards-open-data-open-source-and-open-innovation

learning, it is of utmost importance to create adaptable formats and objects and ensure transferability.

Gender and diversity inclusion

The learning experience should be inclusive for all learners regardless of their specific demographic characteristics, such as ethnicity, gender, disability, religion or belief, sexual orientation and age. An inclusive learning environment for all can be established by:

- Ensuring equal access to learning offerings
- Reflecting a broad diversity in learning contents, activities and assessments
- Avoiding the use of stereotypes
- Offering activities that encourage learners to connect the learning contents to their own and others' sociocultural backgrounds
- Demonstrating that different ideas and perspectives are valued
- Developing a clear diversity and inclusion statement and establishing policies for decorum, behaviour, and netiquette jointly with the partner, taking into account the respective context

Learning flexibility

Learning flexibility refers to the convenience and personalization of e-learning offers to suit the particular needs of learners i.e., where and when (Pearson Education Inc., 2016). While there is the option to create synchronous learning at the same time, e-learning brings the flexibility to be time-independent, e.g. through self-paced courses. This allows programmes to enrich face-to-face learning settings with asynchronous modules to enable the learner to deepen the skills and knowledge in a user-centred e-learning environment.

To allow for flexible learning, e-learning offers should be designed in the light of the following criteria:

- Learning offerings are consistently modularised in self-contained chunks (e.g. course, module, chapter, lecture)
- Learning offerings provide clear instructions that deconstruct their syllabus in terms of learning outcomes, content units, assignments and assessments, external resources, technology, and commitment requirements.
- Learning offers include multiple types and instances of formative and summative assessments to enable demonstration of learning outcomes in diverse ways

Interactivity and visualization

Interactivity refers to social activities (e.g. learner-instructor and peer interactions), constructive activities (e.g. writing or creating an artefact) and reactive or responsive activities (e.g. clicking to manipulate or advance media, multiple choice questions, or surveys). It is important to sustain attention of the learners. Visualisation refers to engagements where the learning contents are provided by visuals (e.g. animations, images, videos).

Below are the design suggestions for interactive and visual learning (Online Learning Consortium, 2016; California Virtual Campus-Online Education Initiative, 2018):

- Facilitate regular instructor-learner and learner-learner communication and ensure openness to diverse styles and cultures.
- Provide opportunities, tools and guidance for constructive collaboration and to take into account soft skills such as teamwork, cooperation and consensus-building.
- Provide formats and tasks for learner-initiated communication and interaction
- Present key learning contents using a variety of media, enabling multiple visual, auditory and/or kinaesthetic activities.
- Reduce the labour-intensity of learning by integrating digital tools for interactions with the learning contents (e.g. pdf viewer, video/audio player, note-taking widget, scientific calculator).
- While more interactive sessions can lead to greater motivation of learners, it is to be considered that the higher the interactivity of an e-learning course, the more complex is the development process which can affect your cost structure.

	Level 1: Very Low Interactivity	***Level 2: Low Interactivity***	***Level 3: Medium Interactivity***	***Level 4: High Interactivity***
Descriptions of levels of interactivity	*Simple page turner or sequential electronic reference. Heavily focused on information delivery. May include audio.*	*Enhanced page turner that might include animated illustrations and synchronized presentation elements. May also add some limited student control over presentation elements.*	*Cohesive presentation with branched elements, adaptive feedback, and remediation.*	*Single player role playing game with success and failure paths, scoring mechanisms, and feedback with replay or after-action review features.*

3.2 Learning Design Principles

Four learning design principles which are based on the educational theory of constructivism are presented. The central idea of constructivism is that learning is an active process of constructing knowledge rather than passively acquiring information. The four learning design principles are as follows:

Focusing on the outcomes for learners

- Competency-Based Learning: Competency-based learning refers to systems of instruction, assessment, grading and academic reporting that are based on the demonstration and application of learning (Great Schools Partnership, 2019), rather than on time-based measures.
- Mastery Learning: Mastery learning refers to the ability of a learner to demonstrate knowledge and skills in a domain. It is reflected in the development of the learning environment through the process of scaffolding and incorporating progression and feedback mechanisms.
- Authentic Learning: Authentic learning involves using real-world challenges, contexts and activities to promote reflection, transfer, articulation and collaborative construction of knowledge.

Getting learners to own the learning process

- Self-Regulated Learning: Self-regulated learning refers to the opportunity provided to the learners to understand and control their own learning process. Self-regulation is incorporated through instructions and tools that enable the learners to analyse tasks, set goals, apply strategies and monitor their progress to achieve their goals.
- Personalised Learning: Personalised learning is established through adaptive learning elements (e.g. information, instructions, scaffolds, feedback) in a particular situation where the learner can adjust the learning environment according to individual needs and preferences.
- Mobile Learning: Mobile learning is defined as the learning design to accommodate the needs of learning on the move in personal learning settings and regardless of time and location. This covers technical aspects such as the technology and devices used for learning, but also the physical environment settings of learning activities that may take place in (e.g. public office, social event, farm).

Maintaining motivation and engagement

- Motivation Design: Motivation design is a set of features that stir intrinsic motivation in the learner through offering an interactive, interesting and user-controlled learning environment. In addition, the positive acknowledgement and feedback on the learning process is part of the motivation design (Ryan & Deci, 2000).
- Game-based Learning: Game-based learning is a teaching approach that combines the entertaining side of gaming with the objective to acquire knowledge and skills. In addition to the educational intent, the gameplay embodies motivational intent to establish intrinsic motivation through fun, excitement, and entertainment (Growth Engineering, 2019).
- Goal Setting: Goal setting is a motivational method that increases the engagement and success levels in various learning, training, habit building or other personal and professional development settings (Pearson Education Inc., 2016). While competency-based goals are automatically set through the learning outcomes, goal setting itself is a separate practice that is tackled by each individual learner for their own learning settings and preferences. Exemplary elements of goal setting methods include among others prompts for formulating and sharing personal goals or visualising goals with personal and cultural artefacts.

Encouraging collaboration and social learning

- Collaborative Learning: Collaborative learning is defined as learning activities that involve social interactions among learners (e.g. in form of teamwork, brainstorming, consensus building). It can be synchronous and/or asynchronous, as well as face-to-face, fully online, or in a blended model (Stahl, Koschmann, & Suthers, 2014).
- Peer Tutoring: Peer tutoring refers to the peer-assisted learning activities that are facilitated by the learners themselves (Salkind, 2008). It can be incorporated in the learning design by providing the appropriate training, structured protocols to support tutors, and the tools or communication channels to facilitate asynchronous and/or synchronous interactions between peers.

- Problem-based Learning: Problem-based learning is an approach where learners collaborate in understanding and solving relevant and complex problems (Savery, 2006). In connection with authentic learning, it requires learners to investigate and analyse complexities, interconnections and ambiguities while there may be no “right” or “wrong” solutions (Great Schools Partnership, 2019).

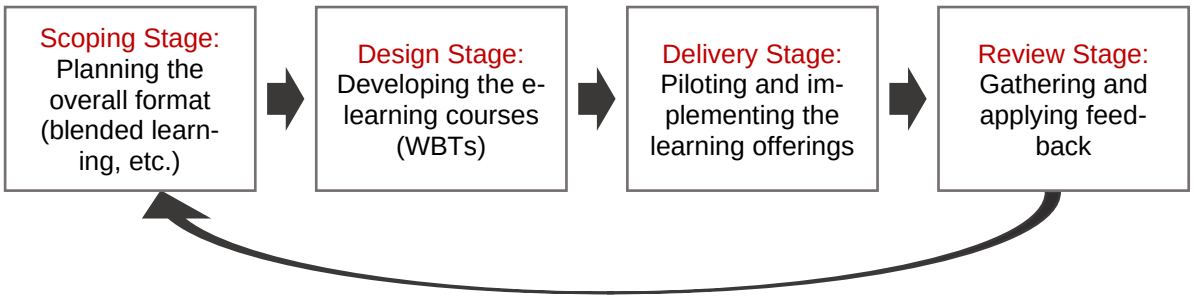
Blended learning describes the integration of different learning methods and delivery modes. It is often described as the combination of online and offline (face-to-face) learning activities. However, blended learning can bring together many more aspects of learning. It also takes into account informal, formal, synchronous, and asynchronous learning aspects and can combine self-learning and group work, etc. Whatever combination of learning format is chosen, it is important that the individual elements of a blended learning approach are didactically matched and interlinked. See the **case study** in Section 5, which is based on a real GIZ project, Climate Adaptation and Finance in Rural India (CAFRI), for more details.

Bersin (2004) identifies two main models of blended learning:

- Programme flow model: Learning activities are organized in a linear, sequential order and learners have deadlines to accomplish the various assignments. This is similar to traditional training, but some of the activities are conducted online.

Core-and-spoke model: A major course (e-learning or face-to-face) is provided and a set of supplemental materials are available to reinforce the main course. These materials are optional and not scheduled.

Developing e-learning courses is an iterative process that includes four stages:



Scoping

Scoping is the first phase when developing an e-learning course. At the end of this phase, you will have found out whether an e-learning element is a meaningful option in the context and structure of your project.

The following categories need to be considered during the scoping stage:

- **Context for e-learning**

  As a first step, it is important to check whether e-learning is a suitable and feasible option to your and your partner's context. You need to consider the overall strategy and steering structure in which your project is operating. The results matrix can be helpful as well as the strategies of your partner to see how an e-learning element would fit. It is important to take into consideration the following factors:

  - Local stakeholders: Planning, implementation, and steering of e-learning needs to be done jointly with your partners. A stakeholder map can provide a helpful overview.
  - Financial and human resources: It is important to clarify the financial and human resources needed to plan and implement e-learning from the beginning. Furthermore, human resources need to be considered. While short-term experts can support you to develop an e-learning element, it is important to clarify who will take care of the implementation in the long-run.
  - Local languages and local content: Many e-learning courses are only available in English. To ensure that you create content that meets the needs of your target group, make sure to take local languages and the cultural context into consideration.
  - Pedagogical and didactic approach: Is there an overall pedagogical and didactic approach that your partner is pursuing? How does an e-learning element will fit into that? E-learning offers need to be matched and integrated in an overall strategy to ensure a sustainable and meaningful impact.
  - Infrastructure: You need to examine whether your technological approach is feasible in your local context. Is internet available and do the learners have access? What are the devices your target group is using? Sometimes the latest technology is not the appropriate solution for your context.
  - Data policies: Local data policy framework need to be analyzed as part of a framework analysis.

- **Target group**

  It is crucial to define the motivation of the target group. The definition can be formulated in three components (Ulwick, 2016), specifying how the e-learning product empowers the learners to do the following: 1) to do what (their jobs), 2) to achieve which benefits (the gain), and to resolve which challenges (the pain). Furthermore, it is important to define the characteristics of the learner group. The following criteria should be taken into consideration:

- Prior education
- Digital literacy (proficiency in using computers and devices, and navigating in the digital space)
- Device and internet access
- Time availability
- Learning needs and motivation
- Age
- Location

- **Overall goal, learning objectives, and topics**

  The overall goal and learning objectives need to be integrated in the context and adjusted to the needs and motivation of the target group. To enhance sustainability and efficacy of the e-learning, it is important to embedded it into an overall learning strategy and a pedagogical concept. This step needs to be done jointly with the partners and technical as well as pedagogical experts

- **Course parameters (content, duration, etc.)**

  The course parameters should be defined together with your partners and according to the overall context of the e-learning element. Are you developing a course or only a module? How many modules should there be, and what is the expected workload?

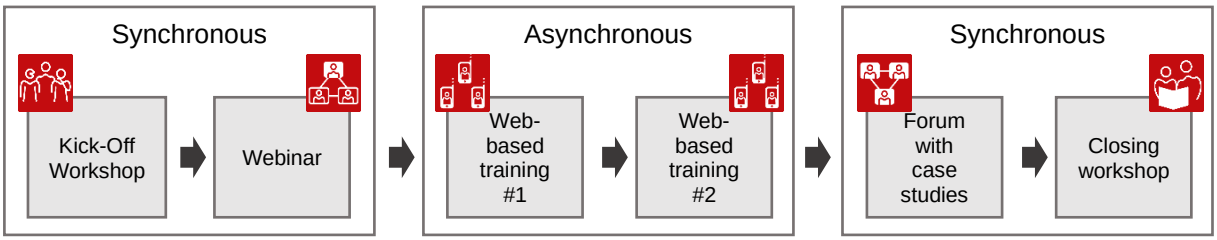
- **Course format and modes of delivery**

  The delivery method of an educational offer is connected to the learning strategy and needs to be defined according to the needs of your target group. Four types of delivery are possible:

Self-paced and unfacilitated Full temporal flexibility to access the learning and make progress. Self-regulated training.	• A large number of learners can be addressed • Learners are free to learn at their own pace and define their own learning paths • Content is delivered by using different elements (video, text, graphics, etc.) • Little or no interaction • Requires many different ways of motivating the participant (and checking for learning success) • Support is provided through explanations, examples, feedback, etc.
Self-paced and facilitated Full temporal flexibility to access the learning and make progress. Includes the support of a tutor or trainer.	• A large number of learners can be addressed • Learners are free to learn at their own pace and define their own learning paths

	• Content is delivered by using different elements (video, text, graphics, etc.) • Level of interaction depends on involvement of tutor • Support is provided through tutor
Session-based and unfacilitated Provides a specific time period to access the e-learning. Learners self-regulate their own learning.	• Sessions are integrated in a curriculum and take part chronologically • The course is scheduled and facilitated through an online learning platform. • E-learning content for individual study can be integrated • Support is provided through an online learning platform.
Session-based and facilitated Provides a specific time period to access the e-learning offer and the support of a tutor or trainer	• Sessions are integrated in a curriculum and take part chronologically • The course is scheduled and led by a tutor through an online learning platform. • E-learning content for individual study can be integrated with instructor's lectures, individual assignments and collaborative activities among learners • Learners, facilitators, and instructors can use communication tools such as e-mails, discussion forums, etc. • At the end, a final step typically includes an exercise or learning assessment.

Here is an example of a how synchronous and asynchronous elements can be combined into a tutor-supported e-learning course:



- **Institutional and organisational factors**

  The success of e-learning depends not only on the motivation of the target group but also on the institutional and organizational factors in which it is implemented. It is important to identify the stakeholders from the beginning and support the integration in an institutional or organizational structure.

- **Technological factors**

  Devices and connection resources of your target group need to be analyzed and shall be planned in accordance with the possible modes of delivery. Technology resources can be categorized into three levels:

  - High-end:
    - Device: Computer (desktop or laptop)
    - Connection: Broadband Internet
  - Medium-end:
    - Device: Tablet, e-reader, smartphone
    - Connection: Wi-Fi internet network, 4G mobile network
  - Low-end:
    - Device: Feature phone, radio, media player and screen
    - Connection: 2g/3g mobile network, radio network

  One of the most important question is where the e-learning modules will be hosted. Does your partner have a learning management system (LMS)? If not, what alternatives do you have? Have you examined the use of atingi, the platform for e-learning in German development cooperation?

- **Timeline**

  You need to calculate enough time for the communication and feedback loops with the internal and external stakeholders, (review) meetings, and the support of other internal GIZ services (e.g. the Data Protection Department, Contracts Department). A thorough process of developing sustainable and efficient e-learning elements takes time.

Design

Design is the second stage of development where you tackle the instructional design and production of e-learning products (i.e. courses and modules). The output of this development stage is the blueprint of a course or module that collects all content components, instructional design variables and further notes together for final production—and most importantly, the resulting e-learning courses themselves.

These are important elements to include during the design stage:

- **Learning outcomes**

  Learning outcomes are the knowledge and skills that a learner is expected to have acquired by completing a learning offer. There is a difference between learning outcomes and learning objectives. Learning outcomes are formulated as abilities from the learners' perspective; learning objectives are derived from the educators' plans and perspectives

(Vai & Sosulski, 2015). While a learning outcome is a promise, a learning objective is rather a wish. Clear, explicit, and measurable learning outcomes need to be crafted rather than focusing on learning objectives.

- **Content**

  Content is defined as all written, visual, and interactive resources that function as the means to establish the learning outcomes defined in a curriculum. Accordingly, the content needs to explore, discuss and meaningfully construct facts, concepts, and procedures in contexts that involve real-world problems and practices that are relevant to the learner.

  In addition to its relevance, content should be narrated, displayed and mediated appropriately according to the specified learner needs. Content and activities should be tailored according to the local and regional contexts.

- **Activities**

  Learning activities are instrumental to the learning experience as they help transform the contents into learning outcomes. Activities can take place on an individual and social level and need to be defined according to the overall curriculum.

- **Assessment and feedback**

  To help learners reach the learning outcomes, assessment of progress (e.g., in the form of quizzes) and feedback to learners should be included in the learning process. Assessments and feedback are a learning validation mechanism. They measure learners' skills and knowledge and provide them with opportunities to demonstrate the achievement of specific learning outcomes.

- **Structure and navigation**

  The way content is structured online has an effect on the learners' level of engagement. The presentation of the content encompasses both narrative and structural elements. While the narrative elements can be determined by the design and development team, the structural elements depend to a large degree on the technical prerequisites of the LMS on which the course will be hosted.

- **Accessibility**

  Accessibility will depend on the infrastructure and the following criteria should be taken into account:

  - Large files should be optimised for bandwidth; alternative, smaller files should also available
  - Downloadable resources should be shared without restrictions based on specific software or platforms
  - Graphics should be optimised for platform and display responsive delivery

- **Storyboarding**

  An e-learning storyboard pre-visualises the content by mapping and sequencing its texts, images, audio and video elements and other interactive components. To enable collaborative development and ensure a consistent instructional design, a storyboarding process should take place, during which all design and development stakeholders should contribute. The curriculum serves as the reference point for the storyboarding process by providing the expected learning outcomes.

Delivery

Delivery is the learner-facing stage of development, where stakeholders implement the plans for the course launch and during the course session. The following sections summarise the key aspects that the stakeholders should consider in this stage.

- **Onboarding**

  Onboarding includes the introductory instructions and interactions that help learners start learning digitally. Instructional resources (e.g. demo course, trial module) and design elements (e.g. iconography, pop-up info boxes) play an important role. Live events can also be used for onboarding after the e-learning is launched (or re-launched). Live events can be online (e.g., welcome session, webinars) or offline (e.g., launch event, get together).

- **Support**

  There are three essential questions to clarify the support for e-learning:

  - Who provides the learning support?
  - How is the learning support provided?
  - When or how often is the learning support available?

  These questions are tightly connected with the delivery mode planning and feedback design. Therefore, they have to be addressed by the development team before the delivery stage. The role of the tutor covers pedagogical, social, organizational, subject matter and technical responsibilities (McPherson & Nunes, 2004). In the case of unfacilitated delivery, active tutor support can only be considered irregularly or not considered at all. This raises the challenge of tracking and responding to learner needs and feedback. In addition to incorporating more guidance elements in the learning design, unfacilitated e-learning offers should have a learner-friendly, self-for-self-help support system through tools and resources e.g. comprehensive glossary of subject-matter terms and concepts or a help desk and ticketing system for collecting and tracking learner requests.

- **Terms of use**

  Terms of use have to be clarified for the provided learning experience. This involves policies, licenses, and agreements regarding personal, academic, and commercial use of content.

Review

Review is the last stage in the development cycle, where the stakeholders evaluate the e-learning based on the parameters for learning success that they have previously defined.

- **Evaluation Model**

  A carefully tailored evaluation is the trigger and enabler of continuous improvement. Four levels of Learning Evaluation (Kirkpatrick & Kirkpatrick, 2006) is a reference model that is often used while evaluating training programmes that are designed to develop practical competencies. These levels are as follows:

  - **Level 1. Reaction:** The degree to which learners find the learning offer favourable, engaging and relevant to their vocational needs and expectations
  - **Level 2. Learning:** The degree to which learners acquire the intended knowledge, skills, attitude, confidence, and commitment based on their participation
  - **Level 3. Behaviour:** The degree to which learners apply what they learned at their job or for work
  - **Level 4. Results:** The degree to which targeted outcomes occur as a result of the learning and the support and accountability package.

- **Engagement review**

  Engagement review deals with the deduction of evidence-based insights from learner activity data. This is accomplished through setting up a learning analytics scheme by making connections between the content, design, and user activity. It can help to shape the understanding of the strengths and shortcomings of the e-learning product by mapping the engagement trends through continuous monitoring and periodic reporting.

- **Learner review**

  Learner review deals with mapping meaningful insights by collecting qualitative inputs directly from the learners through pre-learning and post-learning surveys. It portrays the preferences and reasons behind learner engagement in a systematic way, which may even provide actionable inputs for further development of the learning offer. While posing a strong reference for quality and impact evaluation, it may also function as a motivating element for learners by involving them in the further development.

- **Scope review**

  Scope review deals with the validation of the e-learning in terms of its context, target group, and objectives. It requires knowledge and perspectives over the up-to-date local and vocational contexts and insights from the enrolled learner group. It should be carried out annually by an internal coordinator (content coordinator or curriculum coordinator) together with an external subject-matter expert(s) with local and regional insights.

- **Periodic maintenance**

  Periodic maintenance process involves content updates such as:

  - **Fact updates** – maintaining the data, statistics, or information about the facts
  - **Resource updates** – maintaining the links and references to external resources

4 Authoring Tools[7]

This Chapter provides guidance on authoring tools to produce interactive online learning content in the form of Web Based Trainings (WBT).

Course Production

Course production is one of the technical processes required to implement ICT-supported learning (e-learning, mobile learning, blended learning, etc.). In many cases, the terms course development, course production, authoring tool or assessment tool are not clearly differentiated and thus the technical processes are mixed up in descriptions and the specification of requirements for course production. In addition, the term "tool" can also refer to a wide variety of technical processes and functional requirements. A distinction must also be made between authoring tools and platforms.

For e-learning one needs a learning platform, technically speaking a so-called Learning Management System.

> A learning platform or **Learning Management System (LMS**) serves the digital support of teaching and learning processes. These systems enable the provision of learning content, the organisation of learning processes and the communication between learners and tutors as well as the implementation of learning processes. It also enables communication between learners and tutors and amongst learners themselves.

The open-source LMS Moodle, for example, has integrated tools for communication (forum, chat, messaging, file exchange; wiki), which must be considered and used during course production. In addition, it contains an integrated assessment tool and tools for course production with pdf files, which can be uploaded to the server (or to a cloud) in the Moodle system for this purpose. Proprietary LMS, such as Canvas, or the LMS SAP Litmos also have such functionalities, which are called "built-in LMS authoring tools".
In most cases, however, these tools are not sufficient to include interactive, multimedia Web Based Training (WBT) and this is therefore usually done using an external specific authoring tool.

> In this respect, an **authoring tool** is software that can be used to create digital, interactive learning offerings and content.

There are currently a large number of different authoring tools on the market that are used via licenses and with which different types of content can be produced - for example, classic Web Based

[7] This document is based on “Authoring Tools for atingi," created by the Africa Cloud team.

Training (WBT) or content for mobile devices. Common authoring tools allow not only the development of content based on text and images, but also animations, interactions, exercises, integration of videos or audios, which can be combined as desired within a WBT. In this context, interactivity refers to an interrelation between objects and persons. The term is used to define the extent to which a learner interacts with the learning content - that is, the extent to which he or she is involved in the processing of the learning content. Learning formats with a low degree of interaction are, for example, information that is conveyed using pure text information or image and is only passively absorbed by the learner. Such learning content can be created with the built-in tools of common LMSs.

WBTs, on the other hand, have, for example, multi-level interactions (or "queries") in which the learner must actually become active or actively acquire knowledge and skills. Learning activity is an important factor for the success of e-learning and distance learning formats and promotes motivation. After (external) production of the Web Based Trainings (WBT) or interactive learning material with the authoring tool, these contents are integrated or "uploaded" into a course which has been set up in the LMS.

Interfaces and standards

For the technical integration of a WBT into a course on an LMS, the SCORM standard has become generally accepted. The abbreviation SCORM stands for Sharable Content Object Reference Model. This is a framework that enables the development of reusable eLearning content or WBTs. The aim is to produce the interactive learning content (WBT) described above, which - in contrast to online lectures or webinars - can be accessed at any time and from any place, and to ensure the executability of the content (WBT) via various LMS (interoperability). This is achieved by SCORM defining a uniform framework for the creation of content packages, the "communication" (data processing) with the LMS and the navigation and running sequences of a course unit.

The SCORM standard is particularly important if Web Based Trainings (WBT) are to be integrated into an LMS and the learning status of the users is to be tracked.

Most of the current authoring tools take this into account and enable eLearning production according to SCORM. Since 2015, the Experience API (xAPI) project has been trying to enhance the SCORM standard with new functions, such as editing eLearning modules outside a browser or within mobile applications. Generally accepted industry standards are as follows:

SCORM 2004 V1, V2, V3 and V4, SCORM 1.2, AICC, xAPI, tin can.
However, it is recommended to additionally output developed learning content as a stand-alone version (html+JavaScript) for offline use and in xAPI format for the archive. All these standard output formats must be supported by the authoring tool used.

Selection of authoring tool

As already explained in chapter 1, interactive high-quality content is an important success factor for the success of e-learning measures and the selection of the authoring tool should therefore be made with care. In general, the selected authoring tool should cover the following functions:

Interactivity and navigation - menu-controlled content and the possibility of moving through the entire content:

- ✓ **Editing** - publishing content for easier changes/updates;
- ✓ **Visual programming** - use of buttons, icons, drag and drop graphics;
- ✓ **Preview/Playback** - ability to view or test a running project;
- ✓ **Cross-platform interoperability** - can run on all platforms;
- ✓ **Cross-browser interoperability** - can run on different browsers;
- ✓ **Integration** - output of the created content in the SCORM standard (cf. chapter 3).

For the selection of the authoring tool, the degree of interactivity and multimedia (see chapter 2) are the most important criteria, which generally also determine the required budget.

The production of WBT with a low level of interactivity and multimedia (output in SCORM format) is possible with open source tools. There are 3 recommended license-free available authoring tools, which can be downloaded or used online for WBT authoring in non-commercial projects:

- **eXeLearning** (https://exelearning.net/en/) can be installed on a PC and then used offline. It is characterized by very good descriptions and supplementary information on didactics and is easy to learn even for beginners. No programming knowledge is required to use it. The tool is also suitable for the creation of WBTs on scientific topics due to the simple integration of formulas. Due to a fixed design and the format templates, an individual adaptation, e.g. position of the navigation menu, integration of logos in the background or similar is not possible. Images, texts and various test formats can be used. Multimedia learning content cannot be created, and the interface is not particularly user-friendly.

- **Xerte** (https://xerte.org.uk/index.php/en/) from the University of Nottingham enables the creation of complex interactive learning units. Text, images, videos, animations (in html 5) and other multimedia content can be easily added using Xerte. In addition, the tool offers many interaction possibilities. It is the most powerful open source authoring tool available. However, complex interactions, which include learning success tracking, can only be realised using the existing JavaScript library. To this purpose, it is possible to create script objects in which the author can program freely. This offers a wide range of possibilities but requires programming skills. Own design adaptations are possible. The tool can be used online or must be installed on a separate server (or localhost on your own PC). Learning how to use the tool requires some time.

- **Hot Potatoes** (https://hotpot.uvic.ca/) was designed to create exercises and learning success assessments. It consists of six separate modules: JQuiz for the creation of simple exercises (single choice, multiple choice). JCloze for cloze texts. JMatch for pairing exercises. JCross for the generation of crossword puzzles. JMix for generating so-called shaking sentences. With the Masher the generated exercises can be sequenced. Hot Potatoes is particularly suitable for WBT for foreign language acquisition. It is very easy to learn and can be installed and used offline.

Interactive scenarios and branching (different decision paths with different results, i.e. non-linear) are not supported by the Open Source tools listed above and to produce higher quality WBT, which is usually carried out by a specialized company, the use of a professional - and licenced - authoring tool is strongly recommended. When selecting the most suitable tool for the learning scenario to be realised, the output device of the learners - PC/notebook, tablet or mobile phone - plays an important role in addition to the desired forms of interaction. Although some LMS can recognise browser and device settings and display the WBT responsively, some display and interaction forms are not or only partially functioning on mobile devices and some are not recommendable form a didactic perspective in mobile learning or simulations.

The following professional authoring tools can be used with subscription licenses (Software as a Service):

- **Articulate Storyline 360** (https://articulate.com/) is a software package for creating sophisticated and varied e-learning content, including complex learning programmes. It starts on a blank white page. If you fill it with images, shapes, media, interactive elements, etc., a customized WBT gradually emerges, but it is difficult for autodidacts to use, despite the available templates. Articulate Storyline is a very good tool.

- **Adobe Captivate** (https://www.adobe.com/de/products/captivate.html) is an e-learning tool for quickly creating and managing demos, interactive simulations, branching scenarios, and testing. The strength of this tool lies in this respect in the creation of software training and simulations. It is relatively easy to use and facilitates the integration of other Adobe software, such as Photoshop for image processing.

When creating interactive learning content that is to be used exclusively on mobile devices, a product variant or web app from the Articulate software package, which can also be purchased separately is recommended:

- **Articulate 360 Rise** (https://articulate.com/360/rise) is a web-based tool with templates or readymade blocks for the creation of interactive, mobile-optimized learning programs. Forms of interaction created with Storyline or complex designs do not work on a mobile phone or tablet, or only to a limited extent. Rise omits these possibilities and is therefore limited in its functional range in comparison. Languages that require character sets from right to left, such as Arabic, are also not supported by this tool.

- **Articulate Storyline** and especially Adobe Captivate offer the possibility of screen recording (via a screen recorder) and the integration of the recordings into a WBT. This functionality is especially important for interactive software simulations or software training. However, if the WBT to be created is limited to screen recordings and video editing, the following tool is also recommended:

Camtasia 2020 (https://www.techsmith.de/camtasia.html) is a real-time screen grabbing program that records every action on the screen as video. The screen can be recorded in a whole or in part. Parallel to the screen recording, you can choose to record audio commentary, the output system sound and/or webcam/camera recordings. The tool can also be used without programming knowledge.

5 Case Study: Sample Blended Learning Curriculum

Note: This sample curriculum is based on an actual GIZ India project, ***Climate Adaptation and Finance in Rural India (CAFRI).*** *Individual needs will vary, so you should adapt this example to fit your requirements.*

"Building Competencies in Accessing and Implementing Climate Financing"

The overall goal of this blended learning curriculum is to help various stakeholders improve their competencies in accessing and implementing climate financing. After completing the appropriate courses, the stakeholders should be able to do the following:

1. **Government officials** should be able to prepare and submit climate proposals more effectively, tapping into such sources as rural development funds.

2. **Bankers** should be able to assess proposals more effectively, including applying appraisal skills for proposals, choosing what kinds of financial products are the most appropriate, and mobilizing the financial products to implement that proposal.

3. **Stakeholders from other executing agencies** (NGOs and community-based organizations) should be able to implement funding more effectively, including monitoring climate risk.

Course to be developed for the pilot:

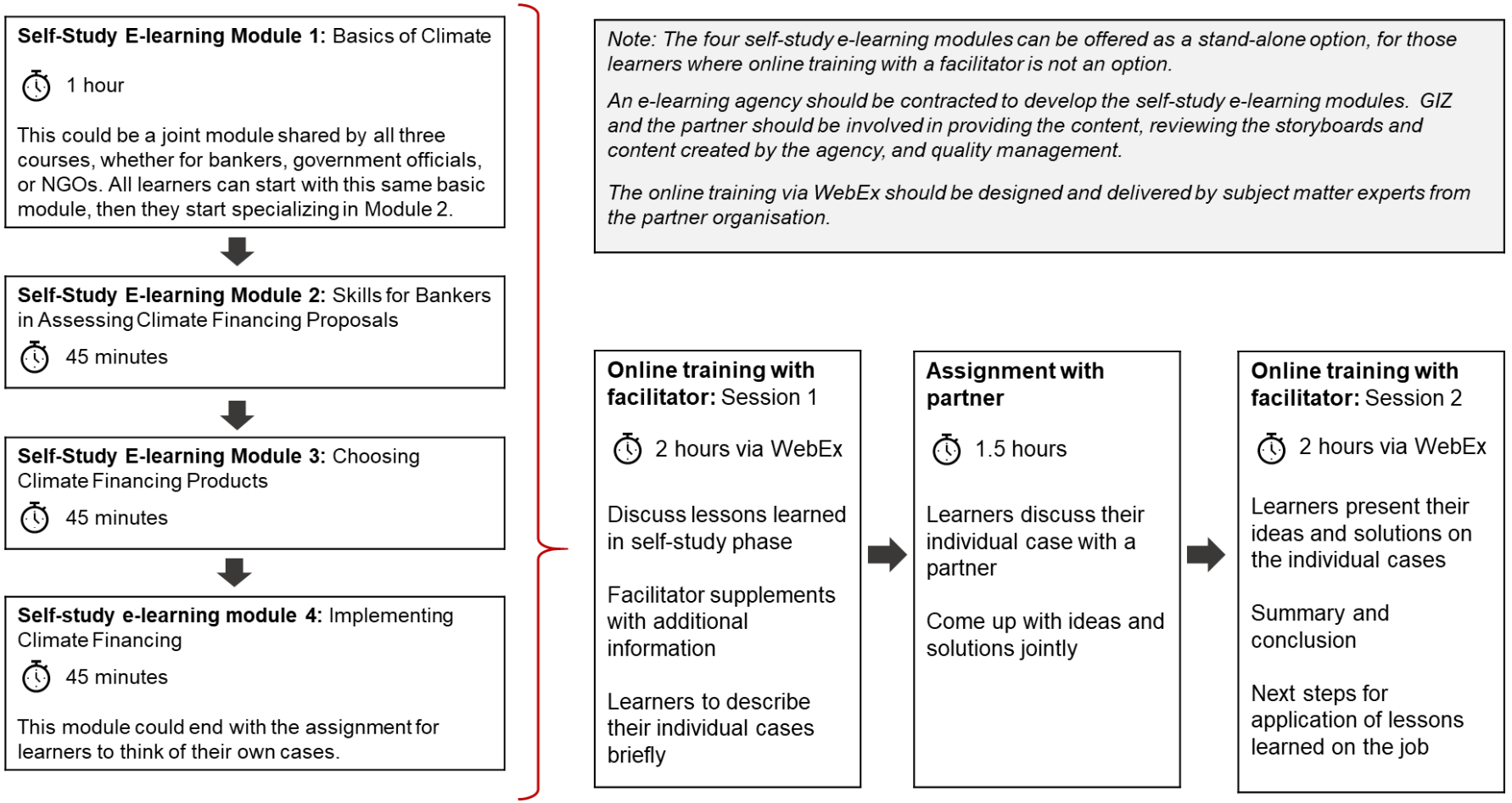
- Course for bankers – how to assess proposals, choose financial products, and mobilize financial products

Courses to be developed after the pilot:

- Course for government officials – how to write and submit proposals
- Course for farmer producer orgs, NGOs, government departments – on climate resilient agriculture

Blended Learning Course for Pilot: “Financial Skills for Bankers in Implementing Climate Financing”

After completing this course, bankers should be able to assess climate financing proposals more effectively, including applying appraisal skills for proposals, choosing what kinds of financial products are the most appropriate, and mobilizing the financial products to implement that proposal.


Self-Study E-learning Module 1: Basics of Climate
1 hour
This could be a joint module shared by all three courses, whether for bankers, government officials, or NGOs. All learners can start with this same basic module, then they start specializing in Module 2.
Self-Study E-learning Module 2: Skills for Bankers in Assessing Climate Financing Proposals
45 minutes
Self-Study E-learning Module 3: Choosing Climate Financing Products
45 minutes
Self-study e-learning module 4: Implementing Climate Financing
45 minutes
This module could end with the assignment for learners to think of their own cases.
Note: The four self-study e-learning modules can be offered as a stand-alone option, for those learners where online training with a facilitator is not an option.
An e-learning agency should be contracted to develop the self-study e-learning modules. GIZ and the partner should be involved in providing the content, reviewing the storyboards and content created by the agency, and quality management.
The online training via WebEx should be designed and delivered by subject matter experts from the partner organisation.
Online training with facilitator: Session 1
2 hours via WebEx
Discuss lessons learned in self-study phase
Facilitator supplements with additional information
Learners to describe their individual cases briefly
Assignment with partner
1.5 hours
Learners discuss their individual case with a partner
Come up with ideas and solutions jointly
Online training with facilitator: Session 2
2 hours via WebEx
Learners present their ideas and solutions on the individual cases
Summary and conclusion
Next steps for application of lessons learned on the job

6 Templates / Documents for E-learning

This section contains templates and documents to help projects manage the e-learning process more effectively. It follows a roughly chronological approach according to the four stages of e-learning: scoping, design, delivery, and review.

6.1 Templates / Documents for the Scoping Stage

6.1.1 Decision Matrix

Use this matrix to check whether e-learning is a suitable and feasible option to your and your partner's context.

6.1.2 Checklist for Overall Planning

Use this checklist to help you with the overall planning of the proposed e-learning. This checklist can help you decide whether you have sufficient resources within your project to carry out all the necessary tasks, or whether you need to request assistance and advisory services from outside your project

6.1.3 Questions for the Scoping Stage

Use these questions in a workshop (or workshops) with your partners and representatives from the target group / learners to better understand their need for e-learning and gather requirements.

6.1.4 Digital Readiness Assessment

Use this assessment to ask the right questions in assessing the digital readiness of your target group. By answering the questions and reflecting on them, you will enhance the success of your project. You will also be able to gauge what degree of complexity is possible in the project.

6.1.5 Checklist for Analysis

Use this checklist to make sure you have covered all important points during the scoping stage.

6.2 Templates / Documents for the Design Stage

6.2.1 Checklist for Design

Use this checklist to make sure you have covered all important points during the design stage.

6.3 Templates / Documents for the Delivery Stage

During this stage, you can keep using the documents from the previous stages and refer especially to the Framework for E-Learning and Didactic Standards in this Operational Toolkit.

6.4 Templates / Documents for the Review Stage

6.4.1 Feedback Form

Use this form to evaluate e-learning and gather feedback from learners.

ANNEXES

6.1.1 Decision Matrix

E-learning can allow projects to reach many learners at once, independent of time and place. However, e-learning is not suitable for all topics and target groups, e.g. for learners who do not have access or the skills to use digital devices. This decision matrix can help you determine whether e-learning is an appropriate option to deliver your training or course.

Pros of e-learning

- Participants can complete learning regardless of time or geographic boundaries

- Overall cost of e-learning can be lower than face-to-face training, if you include all costs associated with face-to-face training (travel costs for trainers and participants, rental fees for facilities, catering costs, etc.)

- E-learning can be combined with other learning formats and components to enhance impact (blended learning)

-E-learning can include innovative didactic features and add variety and excitement to the learning process

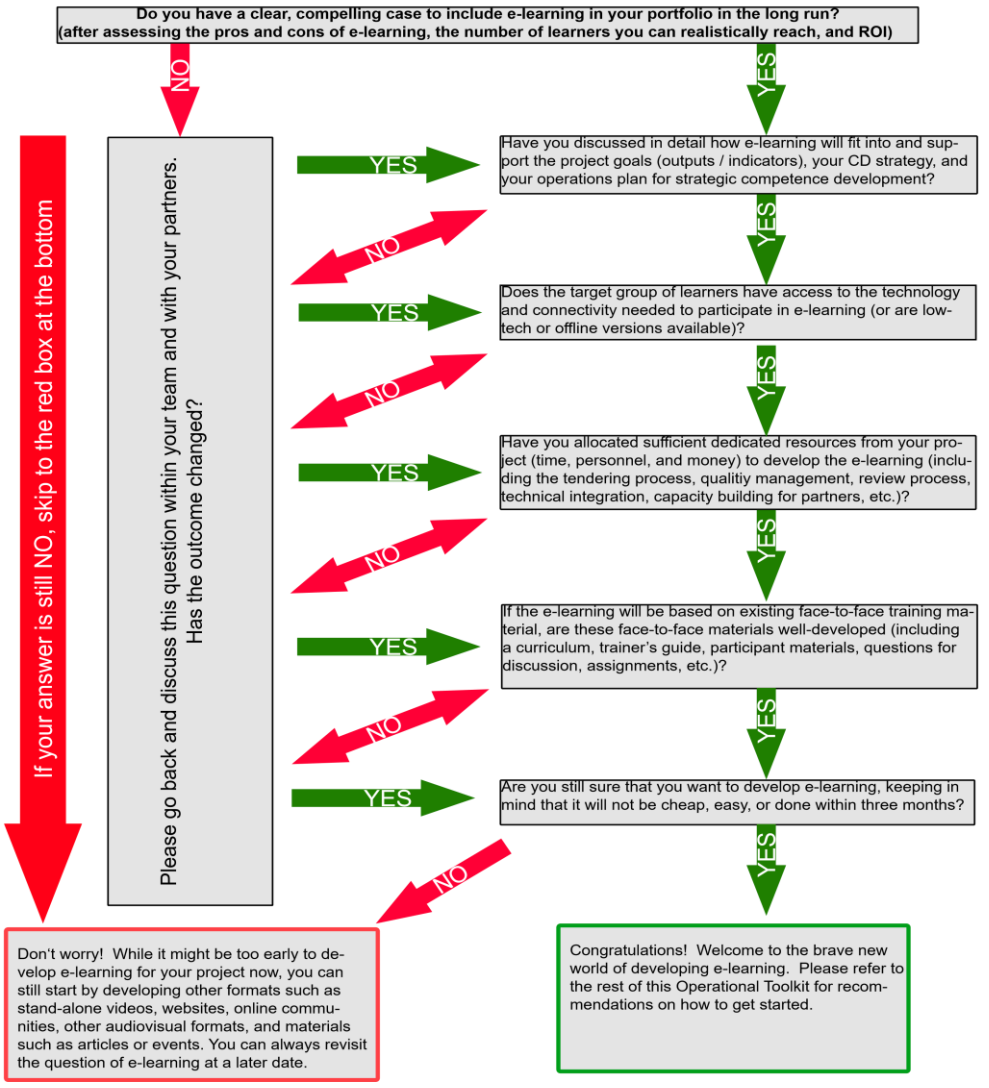
Cons of e-learning

- E-learning is not appropriate for all topics, situations, and target groups. It may be hard to decide whether e-learning is appropriate because many factors are involved, including the number of learners you can reach

- Developing e-learning is not fast, easy, or cheap

- Delays in development and review cycles are sometimes due to slow communication, indecisiveness, lack of internal agreement, or changing requirements on the part of GIZ and/or partners

- There could be the temptation to see e-learning as a stand-alone product and not integrate it sufficiently into the overall project goals and CD strategy



6.1.2 Checklist for Overall Planning

Note: This checklist can be used during the entire process of developing and implementing e-learning. At the very beginning of the process, you can use this checklist, along with the Decision Matrix in the Operational Toolkit, to kick off your discussions. You will probably revisit these questions iteratively as the process goes on.

Topic	Subject	Item	Relevance of the item	State of assessment	To Do's / Responsibility	Result / Reference to Documentation
Product	Reach	Number / distribution of participants; frequency of course cycles				
	General properties	e.g. web based or local e-learning, offline versions				
	Objective	Individual competence goals				
		Institutional outcome				
		Indicators and their measurement				
	Quality	Accreditation				
		Certificates				
		Quality statements, criteria				
	Time / Phases	Course components and their time allocation (e.g. online learning phases, workshops, field work / projects, exams, transfer activities, follow-up)				

Topic	Subject	Item	Relevance of the item	State of assessment	To Do's / Responsibility	Result / Reference to Documentation
	Access	Enrolment, admission, fees and method of payment				
Process	Project cycle	Deadlines and sub-budget for design, production, training delivery,				
	Management	Who steers the project, who has to be involved				
	Budget	Available budget, its sources, in-kind effort				
		Budget allocation (software, IT services etc.)				
	Quality	Quality assurance built in the process				
		Evaluations (internal, by learners, external)				
	Partnerships	With whom, for what (roles in the project)				
		Mutual duties to agree upon; outlines of MoU				
	Subsequent Cycles	Revision, extension, diversification				
	Reuse by other parties	Sales options for the product, licence policy				
		Exchangeability / interoperability standards to be applied				

6.1.3 Questions for the Scoping Stage

The first stage of developing e-learning is scoping. Proper scoping helps you to understand the learners and their needs better, define the goals and parameters of the e-learning to be created, and estimate the resources required, thus enabling e-learning to deliver its intended impact.

You may decide to carry out the scoping stage yourself (using resources from your project), or you may decide to contact the GIZ Sectoral Department to request support in carrying out the scoping stage.

In the scoping stage, stakeholders typically meet in a workshop format to tackle the **following categories of questions:**

1. Context for the e-learning
2. Overall goal, learning objectives, and topics
3. Target groups
4. Course parameters (content, duration, etc.)
5. Course format and modes of delivery
6. Institutional and organisational factors
7. Technological factors and additional specifications
8. Timeline

The scoping stage may take place iteratively and can involve a series of workshops with different stakeholders. It is important to involve representatives from the actual target group (learners) during the scoping stage as well as throughout the development process (see Digital Principles, Design with the User). For further background and tips, see the Didactic Standards for E-Learning in this Operational Toolkit.

The answers to these questions form the basis for a **course concept** that specifies the digital content to be developed. These questions can be adapted to the specific situation of the project. The answers serve as input for ToRs for E-Learning Creation.

Characteristics	Specifications
1. Context	What is the local context of the course that will be developed? For example: How is the e-learning course to be embedded in the partner structure? Is there an overall pedagogical and didactic approach? How will you ensure sustainability? What are the partners' resources (financially and steering capacity) to ensure long-lasting impact with the e-learning? How does e-learning / digital learning fit into the project's results model and results matrix, Capacity Development strategy, and operations plan for strategic competence development (HCD)? What learning offerings already exist, and how should the e-learning that will be developed fit into these existing offerings? Will the e-learning be based on existing face-to-face learning offerings?
2. Overall goal, learning objectives, and topic(s) of the training *Note: We recommend the SMART formulation for learning objectives:* **S**pecific **M**easurable **A**ttainable **R**esults-Focused **T**ime-Focused	**Overall goal:** What is the overall goal for the training? For example, "To overall goal of this course is to give agricultural entrepreneurs in Benin tools that they can use to improve their business plans and overall financial performance." What is the expected impact from the training? For example, "By helping to boost business performance among agricultural entrepreneurs in Benin, this course contributes to Goal 8 (Decent Work and Economic Growth) of the Sustainable Development Goals." **Learning objectives:** What do the learners want to achieve? In other words, what should they be able to do better or differently after completing the training? For example, "After completing this course, agricultural entrepreneurs in Benin will be able to apply the XYZ model to structure their business plans and use ABC tools for financial planning and analysis." How will learners be able to apply the learning to their jobs? What topic(s) should the training include? Working title for the training: _____

3. Target Group / Learners *Note: The discussions on Section 2 on the goal and objective and Section 3 on the target group are mutually interdependent, so you might go back and forth several times iteratively between the two sections arrive to at the most precise descriptions for each section.* *In addition to including learners in the scoping stage through interviews or workshops, developing personas in a design thinking workshop is another good technique to better understand the learners and their needs.*	Who is the envisaged target group of the course? (jobs/positions/ titles, demographic characteristics such as age, gender, level of education, literacy, etc.) Will the course help to reduce inequalities among members of the target group such as the digital divide, the gender gap, unequal access to education, etc.? If so, how? What motivation do the learners have to participate in training? What are their needs, expectations, and current level of knowledge and skills? What is their level of digital literacy and previous experience participating in digital learning offerings? What technological resources do the learners have, and how do these determine the course development? (e.g. computer, tablet, smartphone, feature phone, radio) What connectivity do the learners have access to, and how would these determine the course design? (e.g. Broadband internet, Wi-Fi internet network, 4G mobile network, 2g/3g mobile network)
4. Course Parameters (Content, Duration, etc.)	In each course, which specific contents are to be developed? How can these be grouped into modules (e.g., 4-5 modules per course)? Does the course require previous/additional skills/knowledge? What shall be the duration of the course (and of the modules within the course), and what is the estimated workload? What language(s) should the course be offered in? What is the learning material that is already available? In which format is the material available (PPTs, pdfs, etc.)? Which licenses are or will be applied to the developed learning material? […]

5. Course format / mode of delivery
 	
Note: Different formats are appropriate for different situations. For example, self-paced e-learning courses are most suitable for:
• A large number of potential learners
• Content that can be worked through independently and that rarely changes
 	
• Formal learning with little or no interaction
 	
• Requires many different ways of motivating the participant (and checking for learning success)
 	
For more background and tips, see the Didactic Standards for E-Learning in this Operational Toolkit.Drawing a graphic of the course format is very helpful, both for the project team as well for providers. See Case Study: Sample Blended Learning Curriculum in this Operational Toolkit.
 	
In the case of blended learning (e.g., self-
	What is the (proposed) format of the course?
	
	What is the mode of delivery?
	
	For example:
	
	• E-Learning course:
	  ○ Self-paced e-learning course, unfacilitated
	  ○ Self-paced e-learning course, facilitated
	  ○ Session-based e-learning course, unfacilitated
	  ○ Session-based e-learning course, facilitated
	• Blended learning course, e.g.,
	  - A combination of both face-to-face and online elements, or
	  - A combination of different online elements such as asynchronous modules (e.g., self-study e-learning modules) and synchronous modules (e.g., instructor-led webinars)
	
	In case of blended learning, which part(s) is the provider responsible for developing, and which part(s) are other stakeholders responsible for developing?

paced e-learning modules combined with webinars), the e-learning development agency will be responsible for creating the e-learning, and experts from the partner organisation and/or the GIZ project are often responsible for designing and delivering the webinars. *Most e-learning agencies do **not** cover design and delivery of webinars.*	
6. Institutional and Organisational Factors	Who are potential stakeholders involved in the development process or implementation phase? What are the estimated available resources (time, money, personnel) for the development, production, delivery and support of the course/program? How might the course/program be advertised? How will the course/program fit into staff learning plans, performance reviews, etc.? Will participants get a certificate after successful course completion? […]
7. Technological Factors and Additional Specifications *Note: After the first three questions in this section (on language, level of interactivity, and hosting of learning modules), the technical specifications get more detailed. A*	**Language(s).** Which language(s) should the course be in? In case of multiple languages, who will do the translation? Is it necessary to adapt the content for different intercultural contexts depending on the language or different regions? **Level of Interactivity.** What level of interactivity should the course have? See table below for possible levels of interactivity.

separate meeting with staff with an IT background from the partner side may be needed to answer these questions.

(Note that costs rise quickly as interactivity goes up)

	Very Low Interactivity	Low Interactivity	Medium Interactivity	High Interactivity
Descriptions of levels of interactivity	Simple page turner or sequential electronic reference. Heavily focused on information delivery. May include audio.	Enhanced page turner that might include animated illustrations and synchronized presentation elements. May also add some limited student control over presentation elements.	Cohesive presentation with branched elements, adaptive feedback, and remediation.	Single player role playing game with success and failure paths, scoring mechanisms, and feedback with replay or after-action review features.

Hosting / LMS platform. Where can the learning modules be hosted?

- On the partner's Learning Management System (LMS), which is based on _____ system (e.g., Moodle, SAP, etc.)

- On atingi.org;

- On another learning platform (if this is the case, a separate tender would have to be carried out for an LMS)

Online / Offline Access to the Course. Should the course be available offline? If so, what features should be included, and what can be left out from the offline version?

Licensing or Follow-Up Fees. Should the courses be developed so that no license fees or other follow-up fees will be incurred (apart from updating the content at a future date)?

Tracking of Learners' Progress. Should the course allow the tracking of the learners' progress (either by the learners themselves and/or by other persons)? If so, what exactly should be trackable (keeping labor and privacy laws in mind?

Accessibility and Inclusiveness. Should the course be accessible to learners with disabilities or special needs? (Note that this usually costs more) If so, which target groups should be taken into consideration?

Responsive Design. Should the course run on a PC or on other devices as well (e.g., tablets, smartphones)? If so, which devices?

Updating the Course. Should there be the possibility to update the course in the future? If so, who should be able to do the updates, and

	how? Note: If members from the GIZ team or from the partners should do the updates, the provider will need to train these persons on how to do the updates. If the provider should do the updates, how many updates and for what period of time?) Should the provider hand over the source code? Which authoring tool should be used?
8. Timeline for tendering process and course production	What is the envisaged timeline for the tendering process and developing and implementing the training? What are the major milestones? […]

6.1.4 Digital Readiness Assessment

For an interactive digital readiness Assessment Test see this page : Digital Readiness - Toolkit Digitalisierung (toolkit-digitalisierung.de)

Digital Readiness Assessment: How ready is your target group?

This assessment helps you to ask the right questions in assessing the digital readiness of your target group. By answering the questions and reflecting on them, you will enhance the success of your project. You will also be able to gauge what degree of complexity is possible in the project.

The questions cover the individual, organizational, and societal levels of digital readiness—all of which are important for sustainable development. Answer the questions according to this scale, then total your points at the end:
5 points: Strongly agree
4 points: Agree
3 points: Somewhat agree
2 points: Somewhat disagree
1 point: Disagree
0 points: Strongly disagree

When answering the questions, use a combination of your own experience and desk research, as well as selected interviews with representatives from the target group.

Keep these questions in mind when going through the assessment:

→ What results should the project bring to the target group?

→ How will the intended digital solution benefit the target group and project sustainably?

3.2

Reset

Digital Readiness: Individual Level

The target group uses digital applications and systems regularly.

Scale: 0 1 2 3 4 5 Points: ?

The target group is competent in using mobile devices (mobile phones, tablets).

Scale: 0 1 2 3 4 5 Points: ?

The target group has a positive attitude regarding digitalisation.

Scale: 0 1 2 3 4 5 Points: ?

Digital Readiness: Organisational Level

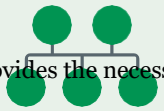
(This level might not be applicable to some groups, e.g., refugees or the unemployed).

Digital access: The target group has access to IT infrastructure (software / hardware) within the organisation.

Scale: 0 1 2 3 4 5 Points: ?

Learning and Development: Staff have basic competencies in digital applications, and management supports them in continuously developing their digital skills.

Scale: 0 1 2 3 4 5 Points: ?



Agility: The organisation is agile both in shaping and reacting to digital changes and provides the necessary financial, technical, and human resources to do so.

Scale: 0 1 2 3 4 5 Points: ?

Digital Readiness: Societal Level

The society has public institutions, NGOs, and civil society organisations to promote and manage digitalisation.

Scale: 0 1 2 3 4 5 Points: ?

The ICT Development Index (IDI) in the target country is ≥ 5.0 (5 Points) / ≥ 4.0 (4 Points) / ≥ 3.0 (3 Points) / ≥ 2.0 (2 Points) / ≥ 1.0 (1 Point)
(Source: ITU)

Scale: 0 1 2 3 4 5 Points: ?

The country has legal guidelines for working with digital data and follows them.

Scale: 0 1 2 3 4 5 Points: ?

Submit ints:

This assessment gives you a basic idea of how ready your target group is for digital solutions. You can follow up on this assessment with a more detailed analysis.

RESOURCES AND LINKS:

Digital Societies Competence Centre
Digital Gateway (GIZ Platform for digital topics): www.giz.digital
ICT Development Index (2017): **http://t1p.de/s4yb**
Networked Readiness Index (2016)

6.1.5 Checklist for Analysis

Topic	Subject	Item	Relevance of the item	State of assessment	To Do's / Responsibility	Result / Reference to Documentation
Needs	Training / HR demand	Who should learn what (content, competencies)	✓			
	Demand for change	Priorities and strategy (improve outcome, reduce costs, reduce drop-out, expand reach)				
Readiness	Prospective learners	Assess individual readiness, e.g. by questionnaires				
	Their technical environment	Perform technical readiness tests				
	Their organisational context	Question both the learners and the management				
Resources	Content	Assess institution's own training material and other documents				
		Look for material available from partners				
		Explore the market				

Topic	Subject	Item	Relevance of the item	State of assessment	To Do's / Responsibility	Result / Reference to Documentation
	Capacity	Available experts (such as authors, trainers) in-house or through co-operation partners				
		Available technical services within institution and with partners				
Constraints	Technical	Institution's IT standards and limitations; prior decisions on learning software, e-learning standards, authoring tools etc.				
	HR Policy	Institution's rules for HR activities, e.g. prerequisites / exams / certificate / cost and time allocation				
	Other institutional factors	Quality management rules; style guides; data protection; contracting rules; gender related and intercultural requirements				
	Legal	Intellectual property of content, licenses				

6.2.1 Checklist for Design

Topic	Subject	Item	Relevance of the item	State of assessment	To Do's / Responsibility	Result / Reference to Documentation
Learning scenario	Didactic concept	Selection of methods related to content				
		Proposed types of interactions (exercise types, etc.)				
		Proposed use of animations, audio and video material				
		Adaption to learners' needs and readiness as analysed				
		Degree and methods of tutorial support				
		Methods of collaborative learning				
	Content analysis	Suitability of existing content (text, multimedia) for the purpose, need to change or replace it				

Topic	Subject	Item	Relevance of the item	State of assessment	To Do's / Responsibility	Result / Reference to Documentation
	Detailed structure	Course phases, chapters, lessons, their interrelation and linkage by tests etc.; supply of additional material				
		Preparatory steps to verify the readiness assumptions and identify and close individual skill gaps				
	Course environment	Elements of course environment and their intended use				
	Roles	Definition of the course staff in terms of roles (senior trainer, tutor/assistant, visiting expert) and their tasks				
Calculated quantities parameterising the subsequent phases	Amount of time	Per lesson: Online learning hours (average learner), hours of tutor availability; hours for special activities				
	Amount of material	Number of screens (pages), exercises, graphics / animations				

Topic	Subject	Item	Rele-vance of the item	State of assess-ment	To Do's / Responsibility	Result / Reference to Documentation
Recommen-dations for production	Authoring tools	Possibly a recommen-dation for authoring tools that suit best for the purpose				

6.4.1 Feedback Form

Dear participant,

You have taken part in the _____E-Learning course. To help us further enhance the alignment of such e-learning courses with your needs, we would ask you to participate in this survey and share your experience and any suggestions you might have for improvements.

All answers are anonymous, and we will not be passing on your data to any third party. The data is statistically grouped and evaluated to allow us to improve the quality of our courses.

Thank you for your help and support!

Please read the following statements and indicate your level of agreement by marking the appropriate box. You have six possible answers ranging from "totally disagree" to "totally agree". If you cannot answer or do not wish to, please tick the "no answer" box.

General information

Event title:	
Duration:	from: to:

Content relevance and transfer possibilities

	Totally disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Totally agree	No answer
The topics and content of the course are important for my work.	☐	☐	☐	☐	☐	☐
The contents of the course are important for my personal development.	☐	☐	☐	☐	☐	☐

Please list the topics that the course did not deal with but would have been important for you:

	Totally disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Totally agree	No answer
The content of the course successfully met my expectations.	☐	☐	☐	☐	☐	☐
I know how I can apply the course content in my work.	☐	☐	☐	☐	☐	☐
I know how I can pass on what I learnt to my colleagues.	☐	☐	☐	☐	☐	☐
I can make good use of what I have learnt in other contexts.	☐	☐	☐	☐	☐	☐

The course has enabled me to continue working independently with the material.	☐	☐	☐	☐	☐	☐

Have you already got concrete ideas of how to apply what you have learnt? Yes ☐ No ☐

Please describe the initial steps you will take to implement your ideas:
What support do you require in this process?

Working and learning methods

	Totally disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Totally agree	No answer
The content and outcomes of the individual learning units were clear throughout.	☐	☐	☐	☐	☐	☐
The working and learning methods were appropriate to the tasks and suitably varied.	☐	☐	☐	☐	☐	☐
The use of images, diagrams and animations supported the learning process.	☐	☐	☐	☐	☐	☐
Participants were able to bring their own experience and examples into the course.	☐	☐	☐	☐	☐	☐
I could relate the case studies to the context of my own work and life.	☐	☐	☐	☐	☐	☐

The course was: too long ☐ too short ☐ just right ☐

For participants of Blended Learning courses:

	Totally disa-gree	Some-what disa-gree	Neither agree nor dis-agree	Some-what agree	Totally agree	No an-swer
The required attendance phase was a good addition to the e-learning phases.	☐	☐	☐	☐	☐	☐

Participants

	Totally disagree	Some-what disagree	Neither agree nor dis-agree	Some-what agree	Totally agree	No an-swer
The atmosphere among the participants themselves was always cooperative	☐	☐	☐	☐	☐	☐
I was able to benefit from the experience of other participants.	☐	☐	☐	☐	☐	☐
I will continue to exchange views on this subject with some of the other participants.	☐	☐	☐	☐	☐	☐

Achievement of objectives

	Totally disagree	Some-what disagree	Neither agree nor dis-agree	Some-what agree	Totally agree	No an-swer
Learning Outcome	☐	☐	☐	☐	☐	☐
Learning Outcome	☐	☐	☐	☐	☐	☐

What competencies or expertise have you acquired in addition to the course's explicit outcomes?

Organisation & technology

	Totally disagree	Some-what disagree	Neither agree nor dis-agree	Some-what agree	Totally agree	No an-swer
In general, I am happy with the way the course was organized.	☐	☐	☐	☐	☐	☐
I received sufficient information prior to the course (e.g., login instructions, organisational advice, programme schedule)	☐	☐	☐	☐	☐	☐

What other information / documents would you have needed?

	Totally disagree	Some-what disagree	Neither agree nor dis-agree	Some-what agree	Totally agree	No an-swer
The technical support was very good.	☐	☐	☐	☐	☐	☐
I easily found my way around the online course.	☐	☐	☐	☐	☐	☐
The page load speed was satisfactory.	☐	☐	☐	☐	☐	☐

Reflecting on the course overall, what went well?
Reflecting on the course overall, what should be improved?
Any comments or recommendations that you might have for future events or courses.

Thank you!