ELEARNINGNEWS ARTICLE

Year 8 - number 306 Wednesday 09 october 2024

LTI: how to easily integrate external elements into LMS platforms

Discover the advantages of using Learning Tools Interoperability, the standard that allows for the integration of external educational tools and resources within eLearning platforms.

In the field of eLearning, integrating external resources is not a simple operation for administrators and trainers. Whether it's interactive quizzes, simulations, educational videos, or collaborative tools, these contents often come from third-party providers. For this reason, coordinating everything without the presence of a shared standard can become complex.

Learning Tools Interoperability (LTI) is a protocol useful precisely for this purpose: it allows learning platforms to easily connect with external resources, maintaining a smooth experience for users and ensuring data security.

Learning tools interoperability (LTI): what is it

LTI is an **international standard developed by 1EdTech**, (previously known as IMS Global Learning Consortium). The goal of this protocol is to **standardize and simplify the way digital learning platforms interact with external tools and resources**. With LTI, it is therefore possible to connect third-party content or applications (for example, virtual simulation software or an interactive quiz) directly within the interface of the LMS platform.

Normally, the integration of these tools requires the use of custom **APIs** or middleware, but with LTI this process is much simpler and faster. The standard reduces the need for complex technical interventions, while ensuring **compatibility between different systems** and unified resource management.

Learning tools interoperability (LTI): how it works

The operation of the LTI protocol is based on a data exchange mechanism between the tool provider and the LMS platform. In simple terms, the learning system sends a request to an external tool (for example, a quiz or a simulation) and receives access to the requested content in response. This process is managed through standardized protocols that include:

- **Launch messages**, used to establish the connection between the LMS and the external tool.
- **OAuth protocols**, to manage secure authentication and encrypted transmission of credentials.
- **Return parameters**, which allow the provider to return feedback or results to the LMS, so that student performance is tracked directly on the platform.

The entire process is managed without the user having to worry about technical details, in order to ensure a smooth and integrated learning experience.

Advantages of the LTI standard for LMS platforms

The adoption of this standard offers several advantages for eLearning platforms and their end users.

- **Simplified integration**: LTI **reduces technical complexity** and allows immediate and standardized integration of external content and applications.
- **Smooth UX:** thanks to a single login within the platform, users can access a complete range of external tools without having to switch from one site to another. This results in a **reduction of technical barriers** and an improvement in **user experience**.

- **Security and data management:** the standard implements advanced secure authentication protocols that guarantee the **protection of personal information** and sensitive data and reduce the risk of unauthorized access.
- **Flexibility and scalability**: administrators do not have to reconfigure the entire infrastructure to integrate new tools, as LTI offers native **scalability**. This is useful for organizations that want to constantly enrich their learning ecosystem with new content or technologies.

Tools that can be integrated into eLearning platforms via LTI

LTI has **wide flexibility** in supporting different types of tools and resources. Below we analyze the main categories of tools that can be integrated via LTI into an LMS platform.

- **Multimedia and interactive content**: allows easy integration of educational videos, presentations, interactive quizzes and more. For example, platforms like **YouTube**, **Vimeo** or quiz tools like **Kahoot** can be inserted directly into the LMS, allowing students to access materials without having to switch from one site to another.
- **Simulations and virtual laboratories:** it is possible to integrate virtual laboratories and interactive simulations directly within the courses. An example can be **Labster**, a platform that offers scientific laboratory simulations.
- **Assessments and tests:** assessment tools such as **Google Forms** or platforms specialized in standardized tests can be integrated with an LMS to manage exams, quizzes and surveys. Thanks to these, students can complete assessments directly on the platform and the results can be automatically synchronized with the LMS records.
- **Collaborative tools:** applications such as **Google Docs**, **Padlet** and online discussion tools can be integrated to foster collaboration between students. With LTI, these tools merge with the LMS, allowing students to share files, work on documents in real time and participate in discussions without leaving the platform.
- **Adaptive learning tools:** some providers offer adaptive learning tools that, through LTI, can analyze student performance and automatically adapt training content based on results.

Guidelines for implementing LTI in eLearning platforms

Implementing the LTI protocol in your LMS platform requires a series of steps to ensure that the tools are correctly integrated and function as intended.

1. **Verify LTI support of your LMS:** first, make sure that the LMS platform you are using supports LTI integration. The most advanced platforms support them natively, but sometimes it may be necessary to activate extensions or additional modules.
2. **Identification of tools to integrate**: identify the external tools you want to integrate by evaluating the needs of your course or your students. For example, if the focus of the course is on collaboration, it might be useful to integrate shared work tools; if the course includes many tests, you should integrate an assessment platform.
3. **Registration of tools with LTI keys:** integration takes place through a system of **keys and passwords**. When you register an external tool, the provider will give you an LTI key (a unique identifier) and a password that you will need to enter your LMS. These parameters allow your system to authenticate and connect the tool securely.
4. **Configuration of accesses and permissions:** after connecting the tool, it is important to configure access levels. Make sure that only authorized users can access external tools to ensure that user data is protected.
5. **Integration testing:** before launching the tools, perform a series of tests to verify that everything works at its best. Check that data is transmitted correctly between the tool and the LMS and that there are no compatibility or loading problems.
6. **Monitoring and updating:** once the integration has started, it is important to monitor its use. Most LMSs offer reporting tools that allow you to see how students use external resources. Keep your integration up to date, as new updates to LTI or the tools themselves may require technical changes.