

What is Platform & Infrastructure?

Platform and infrastructure include feature-rich platforms, technology-empowered infrastructure, educational tools and technologies, and repositories that are essential in enabling efficient interactions and operations and maintaining digital ecosystems. A platform can provide a software system or environment for applications and services, while infrastructure encompasses the physical and virtual parts supporting the functioning of systems.

Guidelines for Platform & Infrastructure Component

Consider integrating digital media as tools for modelling, co-construction and rapid prototyping throughout the DT process.

- Consider using educational robotics to enable the development and testing of realistic prototypes in virtual spaces.
- Consider using MaLT2¹ (MachineLab Turtleworlds2) to create and tinkle 3D dynamic graphical models during rapid prototyping.
- Consider using SorBET² (Sorting Based on Educational Technology) for playful learning through classification games.
- Consider using ChoiCo³ for embedding choice-driven simulation games related to various real-life problems.
- Consider using nQuire⁴ for conducting surveys and understanding the needs of the target group for which they are designing a solution and also collecting feedback for game prototypes.
- Consider using a Learning Analytics (LA) dashboard that allows flexible and customisable data presentation of Design Thinking (DT) learning activities and students' performance outcomes with explanatory visualisation support.

Examples: In the case of the usage of authorable LA, teachers can define which data should be captured from online learning tools and what should be presented on a

¹ MaLT2 is an open-source online tool of symbolic expression in mathematical activity by means of programming; <http://etl.ppp.uoa.gr/malt2/>

² SorBET is a Tetris-like sorting games in which the player sorts elements into the right category; students can create their own sorting games <http://etl.ppp.uoa.gr/sorbet/>

³ ChoiCo is an open-source, online authoring tool that provides an opportunity to play, design and modify choice-driven simulation games related to complex real-life issues; <http://etl.ppp.uoa.gr/choico/>

⁴ nQuire is a web-based community and citizen science platform designed and maintained by the Open University UK, a version of which (nQuire for students) has been created for students use; <https://nquire.org.uk/>

dashboard. Also, consider ethical aspects in this stage and check if needed to get approval from students and parents.

Use a secure technical infrastructure and platform

- Ensure the collected data are stored in cloud infrastructure with a private school network and preferably a Virtual Private Network (VPN).

Examples: In the case of online learning, consider letting students be connected through VPN to the platform to ensure the security of the platform.

- Use a platform hosting an ecosystem of diverse web-based learning environments that will enable the seamless and interactive execution of digital DT activities.
- Use a learning platform that provides all the necessary infrastructure to facilitate seamless integration and interoperability of existing and new parts.
- Use a platform that has the ability to intercept and log user interactions, allow processing, analysis, and visualisation of data, and enhance learning activities with automated support.
- Use online authoring systems that support non-technical users like students to develop and share their digital products, providing a tangible and accessible means to structure the DT process and deal with its ambiguity issues.

Assign a dedicated person to manage and monitor the platform.

Examples: Consider some actors like school technicians or IT administrators to manage the platform, monitor the security of data storage, and make sure that the platform is always available for physical and online learning.