

# Learning services-based technological ecosystems

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1 Introduction

2 Context

4 Conclusions

3 Learning  
services-based  
technological  
ecosystems

5 References



I Introduction

# Introduction

- Learning is essential to the human being
- Teachers and instructors may help create an environment that facilitates learning, but learners should ultimately take an active role in order for learning to occur
- Knowledge Society demands profound changes and transformations of educational methods to achieve active education
- Active education is “educating in a different way, giving prominence to the youth, making the students responsible of making the most of their time, getting rid of routine, worrying more about educating than assessing” (Michavila, 2013)

# Introduction

- The application of ICT to educational processes leads to changes that affect the way individuals learn and to the necessary digital competencies that students should possess
- Technology may facilitate the tailoring of learning to students' needs and promote their engagement in the learning process

# Introduction

- Technological advances have favored the birth of the digital world,
- The educational context cannot stand aside from this constant evolution of technology and this evolution has to have its reflection on the educational and learning process as a whole
- The use of ICT in education offers new possibilities that may complement traditional teaching, and two fundamental aspects are required in order to achieve high-quality ICT-supported learning
  - ✓ Educational methods
  - ✓ Underlying technological platform

# Introduction

- The increasing complexity of ICT and their widespread use in all aspects of society make it necessary to address ICT from an integral perspective
- Understanding the problems, challenges and growing relevance of ICT in the development of strategies, including decision making and management, in order to improve the overall performance and profitability of the organizations that deploy them
- Transition to the digital world requires the reengineering of every process, and even reassessment of organizational goals

A network diagram consisting of thick blue lines forming a complex web of interconnected nodes and edges. The lines are of uniform thickness and form a series of irregular polygons. In the top right corner, a specific region is highlighted in a light red color. This region is bounded by several blue lines and contains the text "2 Context". The text is in a dark blue, sans-serif font and is centered within the red area. The overall background is white.

2 Context

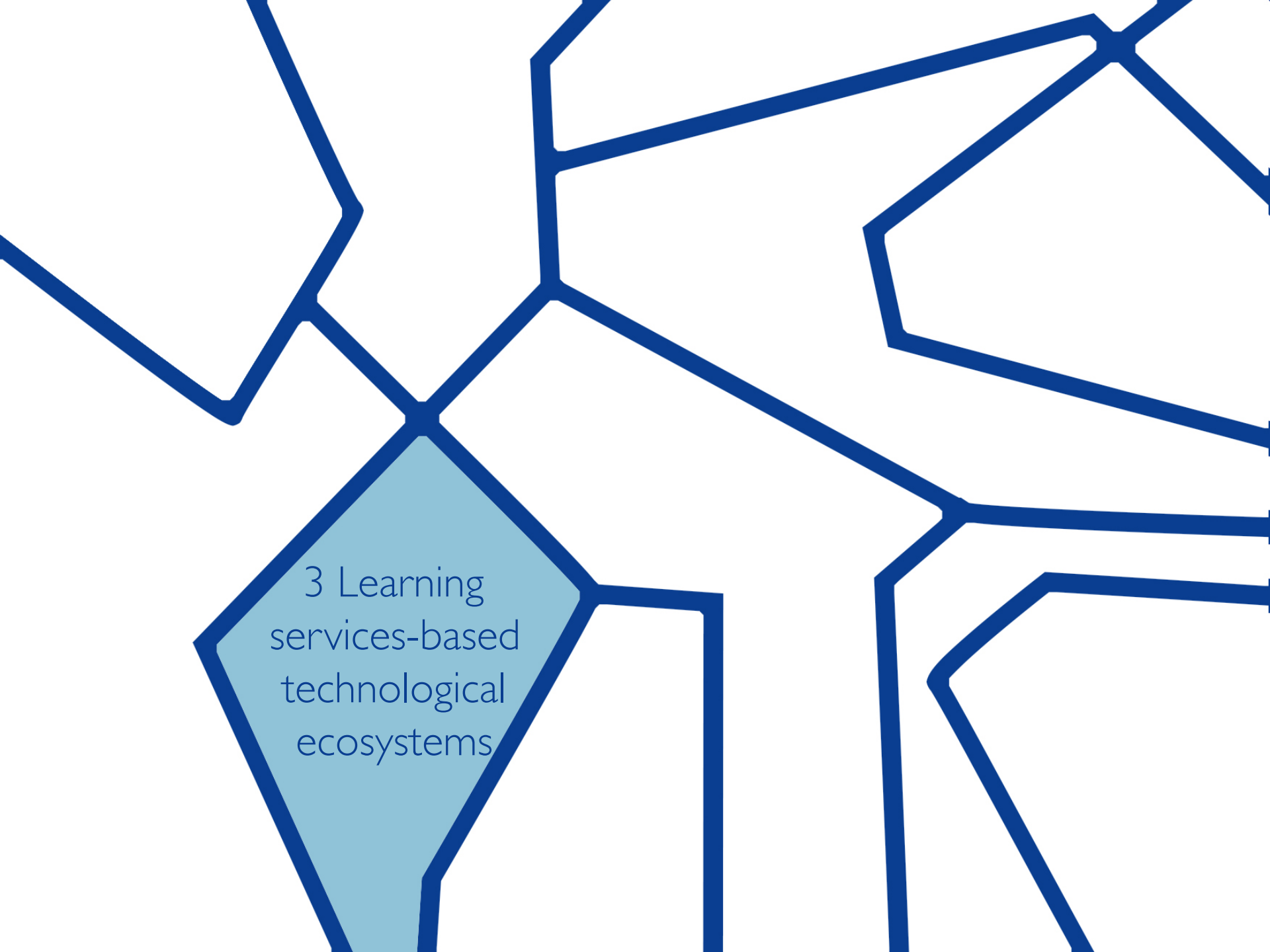


# Context

- Increasing presence of open educational resources
- LMS are not currently the only educational component in the realm of education
- A diffuse frontier between formal and informal learning processes

# Context

- When this set of available learning tools and services is supported by an institution that is in charge of a higher degree of integration among them, and also in charge of the evolution of the different components, a new concept emerges: **the technological learning ecosystem**, a concept that goes beyond merely stacking fashionable technologies

A network diagram consisting of a complex web of dark blue lines representing connections. The lines form various irregular polygons and shapes. One specific node in the lower-left quadrant is highlighted with a light blue fill and a dark blue border. This highlighted node contains the text "3 Learning services-based technological ecosystems".

3 Learning  
services-based  
technological  
ecosystems

# Technological ecosystems

- An ecosystem is a community of living things whose vital processes are interrelated, and whose development depends on the physical characteristics of the environment

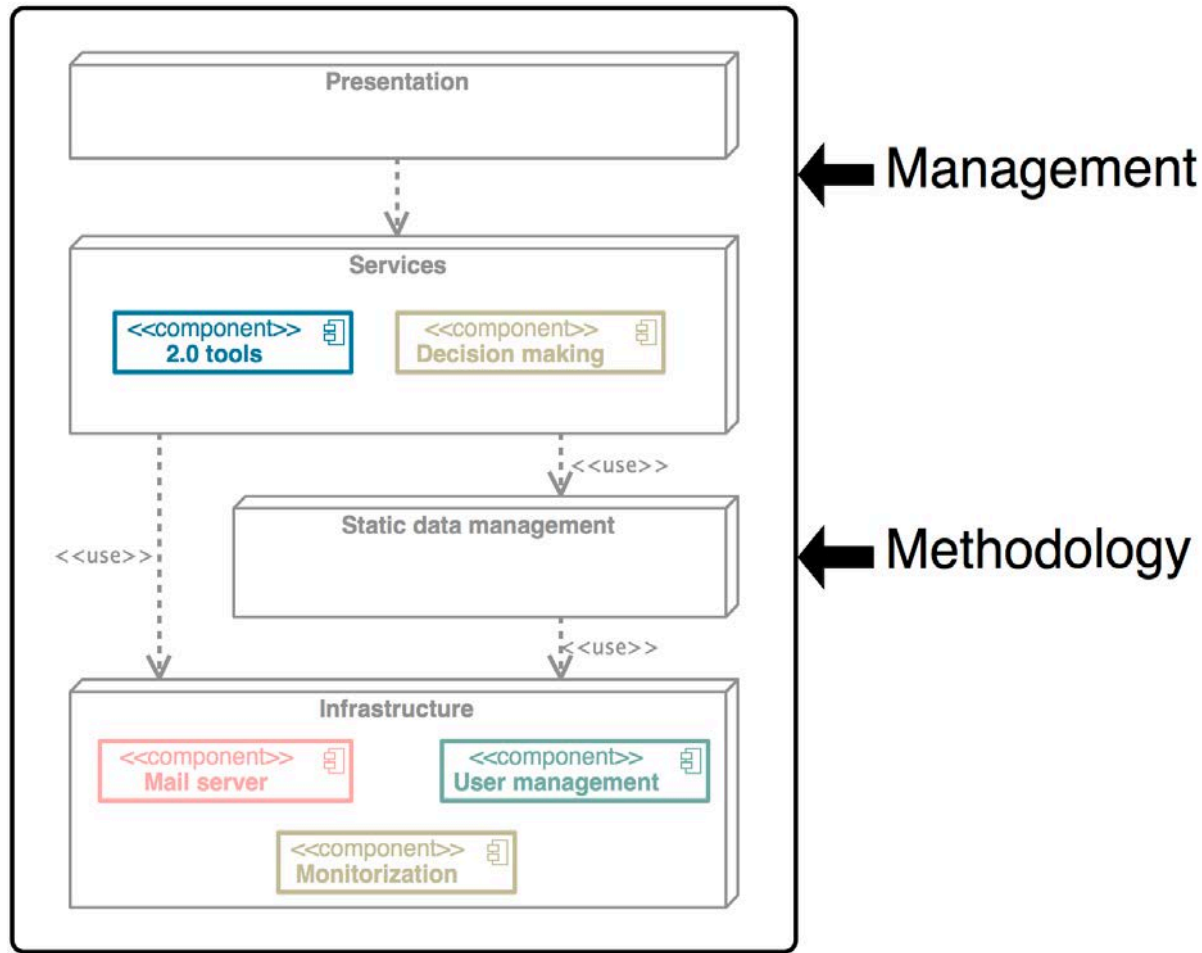
# Technological ecosystems

- If past use of ICT in educational processes had automation as a distinctive characteristic, which led to the emergence of LMS, then the present is characterized by integration
- The biggest challenge is now to connect and relate the different tools and services for effective learning, with the technological learning ecosystem as the ultimate result
- These technological learning ecosystems are more and more complex internally, but they should facilitate semantic interoperability of their components to provide their users with enhanced functionality, simplicity, customization and adaptability in a seamless way

# Technological ecosystems

- Two aspects of technological ecosystems may be identified
  - ✓ The architectural framework
  - ✓ Its components
    - Learning analytics
    - Adaptivity
    - Gamification
    - Semantic portfolios

# Architectural framework for technological learning ecosystems



# Learning analytics

- The high quantity of data generated in a virtual learning environment (especially when the concept of LMS is extended to the concept of technological learning ecosystem) makes it necessary to overcome system limitations in order to be able to apply, in an academic sphere, similar techniques as those used on business intelligence



# Adaptivity

- To support effective adaptive learning ecosystems, knowledge repositories should be able to implement knowledge management based on business intelligence, and they should be able to manage learning information from both formal and informal sources, and to establish meaningful relations through connected and interoperable components

# Gamification

- Adaptability may be combined with gamification-based rules
- Gamification offers an interesting way to engage participants in a learning process: videogames have changed the way young people understand reality and relate with each other, and their use in learning processes (game-based learning) and as learning objects (educational videogames or serious games) is more frequent as time goes on
- Gamification is an emerging trend that consists of the application of techniques and tools employed in videogame design to other contexts, and its application to educational contexts is one of the most promising areas of application

# Gamification

- A clear example of a field of application of gamified processes is the collection of evidence of learners' competencies during their lives, both in formal and informal learning contexts, and the registration of this evidence in a personal or institutional portfolio
- In this way the student's folder (portfolio, or e-portfolio) becomes a tool that allows a person to develop his or her learning process
- The portfolio includes a range of evidence (course grades, assignments, essays, diagrams, progress notifications, feedback comments, etc.) that is sorted and structured according to various programming criteria

A network diagram consisting of several interconnected nodes and edges. The nodes are represented by thick blue lines forming a complex web. One node on the right side is highlighted with a solid teal fill. The text "4 Conclusions" is written in a light blue font within this highlighted node.

4 Conclusions

# Conclusions

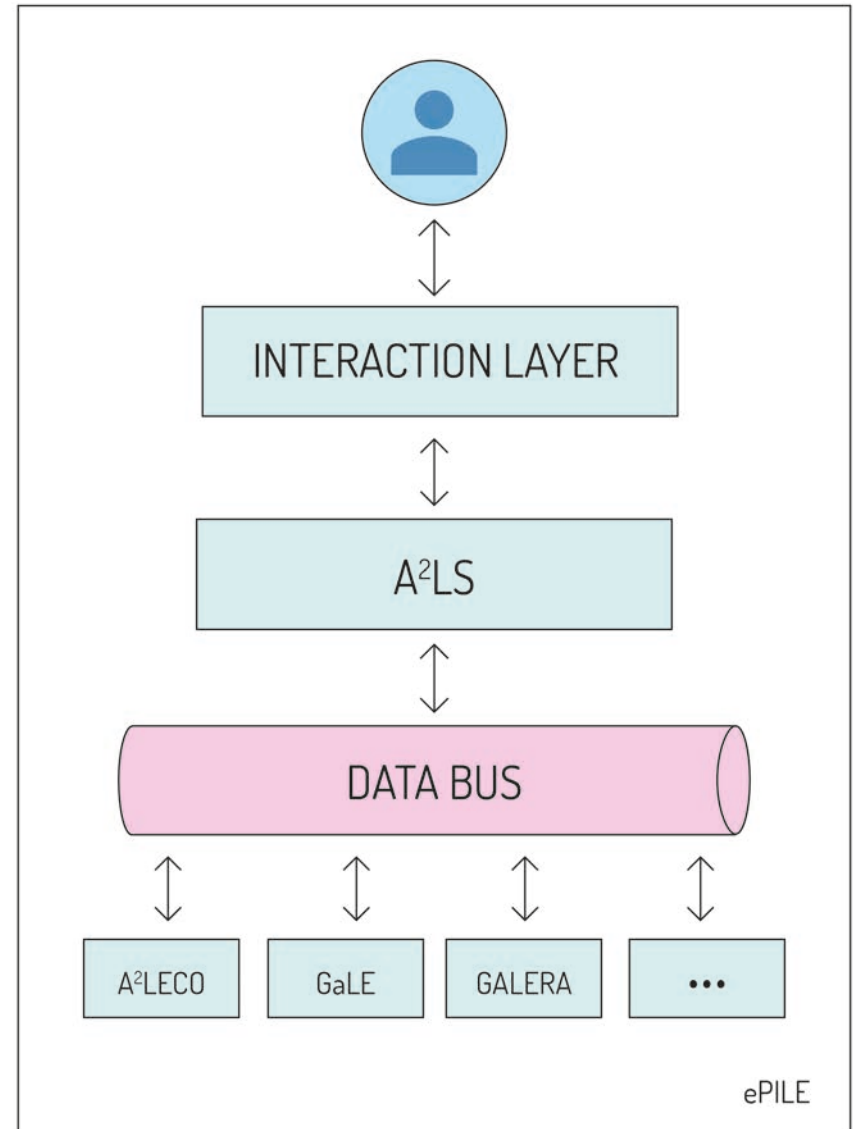
- This proposal has this cornerstone as starting point: the LMS as the only component of a strategy for educational and technological innovation, or a strategy for effective knowledge management, is no longer valid
- This does not mean that LMS should not be sent into oblivion, but that it is absolutely necessary to integrate the LMS in a new technological framework, able to integrate emergent technologies that have not completely satisfied the expectations of educational research and practice

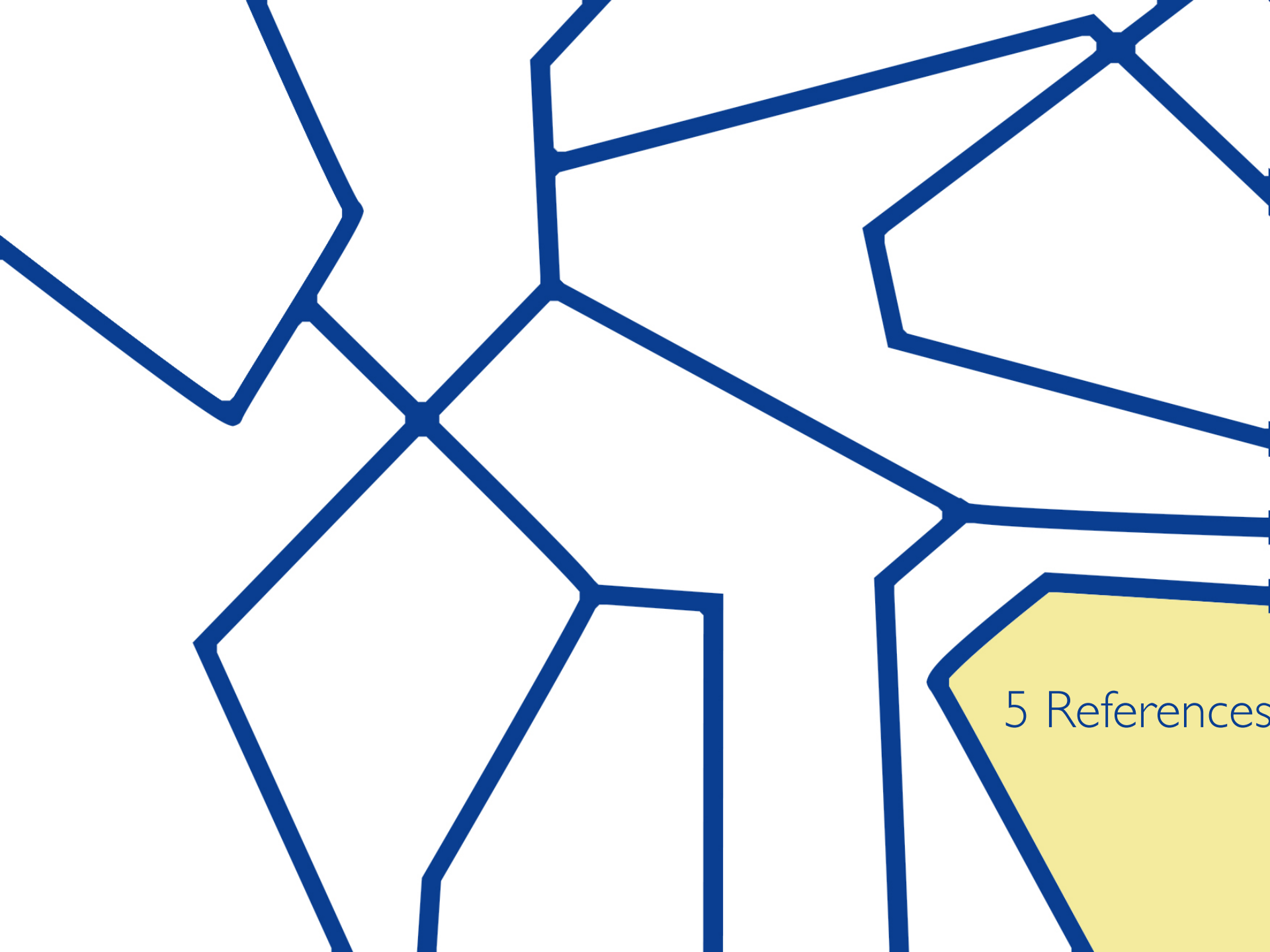
# Conclusions

- We have named this new framework the technological learning ecosystem
- The framework must give support to renewed educational processes, where adaptability to any context or learning need is a characteristic and not just something to wish for.
- The ecosystem must give response to technology and knowledge management strategy within any institution that deploys it, and also have space to grow, evolve and adapt dynamically to the institution's business and educational requirements

# Conclusions

- Our proposal is organized in structural project to develop technological learning ecosystems





5 References



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# Thank you!



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