Strategies for the implementation of learning technologies in organizations

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Abstract. Many organizations' performance and survival challenges require dynamic capabilities and tools to accelerate the acquisition of those capabilities. Organizations continuously look at their learning strategies as a key factor in preparing their human capital for rapid changes and demands. Learning Technologies are positioned as an enabler that provides different learning opportunities, which is why they are so important. Designing strategies for implementing learning technologies in organizations is hard to be overview. Only a few contributions address technology as crucial in accelerating performance, innovation, and competitiveness. The present research will focus on the strategic implementation of learning technologies. The approach we chose to solve this problem is to develop guidelines that support the strategy for implementing technology in the learning field. The approach will allow us to relate the strategy with the challenges and the impact the organization is expected to achieve.

Keywords: Learning Organizations, Learning Culture, Learning Technologies, Learning & Development

1   Introduction

Nowadays, organisations operate in a transforming context, guided by a changing and accelerated environment. In their efforts to quickly pivot for a more agile operating model, they understood that enabling collaboration and leveraging enriching experiences to their human capital is important. This is needed to create the conditions for continuous learning and the rise of the needed capabilities. L&D teams are gradually shifting to the spotlight of the organizations' strategies to lead this vision and prepare the workforce for rapid changes and demands.

The transformation faced at the business level is transversal to the L&D operations. Currently, plenty of new learning technologies can accelerate this mission and, in some cases, guide the evolution of the learning strategy itself. It is not an easy action. Learning Technology becomes much more massive every day, and we may find several cases where huge investments are made without clear evidence of the added value to the organization. More than $280 billion is spent on training, upskilling, and professional certification programs. Many billions of dollars are spent on collaborative learning platforms, content, skills tech, and industry solutions. (Bersin, 2021). According to the SierraCedar report, companies often have ten different platforms for learning, and overall spending on Human Resources (HR) technology is several thousand dollars per employee per year (often more than is spent on training and enablement). Furthermore, companies must ensure a positive return on these investments (Bersin, 2021).

While it is easy to point the finger at technology, it is not software which is the problem but how it has been implemented (Miller, 2014). One KPMG study into project failure concluded that only 7% of project failure was due to hardware and software issues. The study mentioned that 17% was due to failure to define project objectives, 20% was attributable to poor communications, 32% to poor project management and 17% to poor management in the transition of issues (Miller, 2014).

Technology adoption and strategy renewal need to emerge in parallel and inform one another. An organization cannot devise a new strategy without assessing the real potential of new technologies and its ability to acquire the necessary skills and resources. Conversely, it cannot adopt every new piece of digital technology without a strategic plan to leverage it (Bughin et al., 2019). Therefore, strategy implementation (SI) is a critical component of why some organizations outperform others, as even a well-formulated strategy cannot guarantee success until it is effectively implemented. SI differs from strategic formulation (SF); while SF is related to planning and decision-making, SI is the translation into reality of that strategic intention (Tawse & Tabesh, 2021).

In this research, we will focus on the SI of learning technologies. The approach we chose to solve this problem is to develop a framework that supports the strategy for implementing technology in the learning field. It will allow us to relate the strategy with

the challenges faced, the technology selection, and the impact the organization is expected to achieve.

In order to narrow down the research, we selected the following learning technologies:

- Learning Management System (LMS), is a software application or web-based technology used to plan, implement and assess a specific learning process (Taylor, 2019, p.57).
- Learning Content Management System (LCMS) that allows users to create, manage, host and track digital learning content (Bersin, 2022a).
- Social Learning Platforms (SLP), are solution that organizations can use to create, manage, and deliver employee training programs. They enable learners to interact based on the model of social media platforms like Facebook, LinkedIn, or Instagram (Nichols, 2022).
- Learning Experience Platforms (LXP), are user-centric learning softwares built for businesses and consumers to learn, grow skills, discover new information, and engage with peers and leaders across the organization (Wisetail, 2022).

We also consider other technologies that appeared as emerging trends:
- Talent Experience Platforms (TXP), are a holistic approach to HR where the different domains (Recruiting, Compensation, Internal Mobility, Learning & development), are combined, representing a unique experience for the employee (Eightfold, 2022). .
- Augmented Reality and Virtual Reality (AR/VR), the first is an immersion on a total virtual experience and the second is a hybrid form of visualization that combines the real and virtual worlds (Choi, 2016).
- AI-driven platforms to infer the skill taxonomies or frameworks, are algorithms can automatically develop skills inventories, identify adjacent skills, and see which skills are growing or dropping in demand rather than simply matching people to jobs (Bersin, 2022b).
- Metaverse is the envisioned end state incorporating all digital worlds alongside the physical world, with interoperability between them all. Metaverse is not just gaming, and VR and AR are two of the possible platforms where people can interact with metaverse (Mckinsey, 2022).

2 Systematic Literature Review

We performed our Systematic Literature Review (SLR) guided by Kitchenham's Procedures for Performing (Kitchenham, 2004).

2.1 Research Motivation

The objective was to summarize the main challenges faced by organizations, to identify the existing evidence concerning the learning technologies, to identify any gaps in current research, and last but not least, to provide a framework/background to position the research appropriately. The stages of an SLR adapted are described in Figure 1.

Fig. 1. Stages of the Systematic Literature Review adapted.

2.2 Research Question (RQ)

The systematic review aims to answer a basilar question:

Main RQ - What strategies do organizations consider to implement learning technologies?

In order to achieve the objective, three main areas of analysis were formulated:
RQ1.1 - What are the main challenges that organizations address?
RQ1.2 - What are the common learning technologies used/recommended?
RQ1.3 - What impact (return on investment/benefits) of implementing learning technologies?

2.3 Systematic Literature Review Analysis

In the Systematic Literature Review, 3 main dimensions came to light when we looked at the implementation process. Learning technology implementation to be successful needs to go beyond the technology alone. It must be aligned with the business needs and what the employees (users and learners) value. The second dimension is to identify

how the technology can best support those objectives. The third dimension is the Impact, expected and achieved.

Structured and strong planning is crucial, and it starts even before the decision on the best technology. A proper strategy is required that facilitates the analysis of the 3 dimensions of successful implementations: Challenges, Technologies and Impact.

In the challenges dimension we identified: the need to continuously retain and transfer knowledge or upskill/reskill the employees' capabilities. Other challenges were related to the great resignation "movement" faced by several organizations and the fast technological evolution, continuous change and competition.

At the technological learning layer, we found implementation uses cases with:
- LMS , to training management
- LCMS, to visualize and create e-learning content
- SLP, to deliver a learning experience embedded with social learning activities
- LXP, to a more learner-experience approach

Regarding the impact, the SLR pointed out some of the metrics used by organizations, such as: diversity in the content available, personalized user experiences, flexibility and increased employee exposure to learning opportunities.

3 Research Methodology

3.1 Research Problem

A topic that has not yet been researched is how technologies can respond to the challenges organizations are facing - Learning Technology identification and strategy to implement it needs to come together. The capabilities of the information system and characteristics of the organization, its work systems, its people, and its development and implementation methodologies, determine the extent to which that purpose is achieved (Silver et al. 1995).

It became clear that successful learning technology implementations are not a matter of chance. Failed implementations usually happen for reasons that are predictable and preventable. (Taylor, 2019). Only a few contributions explorer technology as a key actor and this is surprising as technology is of central importance to organizations and is driving the transformation of companies in areas beyond learning, such as new ways of work and core business models.

Our research problem is that a review of current academic literature fails to provide consistent strategies for implementing learning technologies and a clear picture of their impact on organizations.

3.2   Research Methodology Process

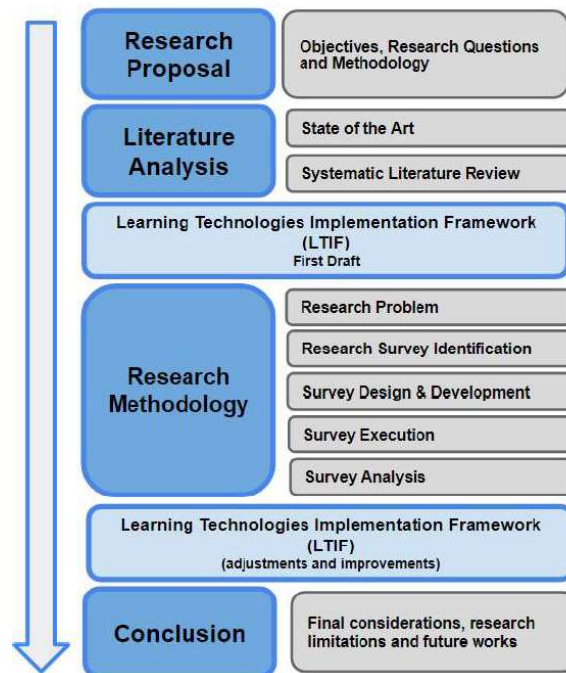The process considered is illustrated in Figure 2.

Fig. 2. Stages of the Systematic Literature Review adapted

Our research considers two main methodologies: the Systematic Literature Review (SLR), that is based on the research question and analyzes the existing literature and context; and the Research Survey that we will explore now.

Figure 3 presents the survey research process followed in the different stages: Survey Design, Survey Instrument Development, Survey Execution, and Data Analysis & Report Results.

Fig. 3. Stages of the Systematic Literature Review adapted

The "Learning Technologies Implementation" written online survey was designed to understand organizations' strategies for implementing learning technologies. The survey considered the research question and the three main dimensions of analysis: challenges, technology and impact.

The Cochran formula allowed us to calculate the sample.

$$n = \frac{Z^2 Pq}{e^2}$$

n = sample size
z = reliability level or significance level. As the confidence level is 70%, Z is set at 1,036
p = is the % of the population estimated to have a particular characteristic.
We consider 50% the maximum error, as we do not know the proportion.
e is the degree of precision
q = 1-p
e = acceptable sampling error (e = 0.11)
Calculation: (((1.036 x 1.036) x (0.5 x 0.5)) / (0.11 x 0.11)) = 21,36 = 22,17 respondents

Data collection was conducted during August and September, 2022. Considering the target population defined, the potential respondents were selected on LinkedIn and personal networks. The response rate for the survey was 37,7% that represents 23 answers.

3.3 Research Survey Analysis

Our analysis confirmed the relevance of the implementation of learning technologies and their transversality across different industries. Learning technology use cases were

found in different organizations spread worldwide. We did not find evidence of deceleration when there was already a current fit of their existing ecosystem with the modern workforce.

In the Challenge dimension, we understood that most organisations are implementing learning technologies with a strategic mindset, not purely to reduce cost or headcount. This evidence reinforced the literature review finding that pointed in the same direction. Another interesting finding was the identification of L&D priorities besides the business challenges. The needed increase in employee engagement in learning was the main priority identified by the respondents. It is a vital step as it relates to the notion of learning culture observed when implementing learning technologies.

We reinforced our findings about the current complex learning industry by looking at the technologies. Respondents have an average of 3 different platforms in their learning ecosystem, and only 17,4% mentioned not foreseeing new implementations.

The implementation is an effort to continuous improvement and not a spot project. From a project mindset, L&D professionals must move to a product mindset to innovate continuously. When preparing an implementation, they need to identify the technology and find the best partners to keep cooperation and same direction. To assess the main features needed, requesting further information from the providers about their experience in similar projects or their product roadmap, are key in this identification. Besides, it is strongly relevant to plan the implementation considering the actions before the implementation itself and during the project.

The Impact is a dimension that connects with the identification of the challenges. While identifying the challenges and priorities, L&D professionals should also detail the metrics, respective impact foreseen and channels that will be considered to measure it. This exercise will follow all journey, having a highlighted role at the end of the implementation. To look at metrics related to business challenges and L&D Priorities, the implementation project and the technology performance, need a holistic view of the impact.

Learning technology implementation is an emerging market, and organizations are exploring their path, sometimes creating a tailor-made learning technology ecosystem. Some are pioneers, so sometimes, there are no best practices or other use cases to support their strategies.

4 Learning Technologies Implementation Framework (LTIF)

The written survey developed was useful in confirming the dimensions proposed in the LTIF by interpreting the answers provided. The foundation for the LTIF remains the macro view of the learning technology implementations used in formulating the re-

search questions: challenges that organizations are facing, the learning technology identified to support these challenges and the expected impact. The scheme of the LTIF is presented in Figure 4.
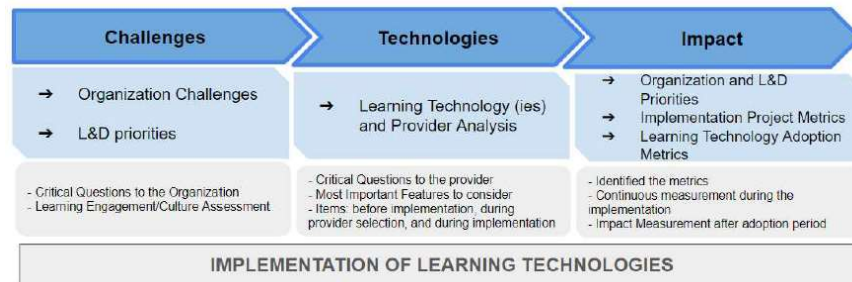

Fig. 4. Scheme of the Learning Technologies Implementation Framework

5 Conclusion

An implementation of a learning technology starts even before the selection of the technology. The alignment with the organization's strategy is the starting point. Identifying the technology is the following step, and exploring the best provider goes beyond analyzing platform features: the provider's service and the integration into the existing infrastructure are also important areas to dive deep.

There is still much work to do in this area and a big buffer for improvement and to standardize best practices when implementing learning technology. Considering this, we believe that this research can be a foundation for future work. It may be improved by using a bigger and more diverse sample and by including other technologies or framework items. Related to the framework, testing in a real environment can increase the quality and its application.

We will continue the research of this topic in our future studies in the **PhD Web Science and Technology.**

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