2022

Organizational Analysis in Preparation for LMS Change: A Narrative Case Study

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Original Publication Citation
Powers, F. E., & Moore, R. L. (2022). Organizational analysis in preparation for LMS change: A narrative case study. *TechTrends*, 1-10. https://doi.org/10.1007/s11528-022-00784-z

TechTrends
https://doi.org/10.1007/s11528-022-00784-z

ORIGINAL PAPER

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Organizational Analysis in Preparation for LMS Change: a Narrative Case Study

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Accepted: 12 September 2022

Abstract
Collaboration and teamwork are concepts routinely attributed to organizational success and successful change management. Yet often the details of these collaborative experiences are limited to participants in the team involved. In this case study we highlight how a learning experience architect, as part of an organizational working group, could leverage human performance technology (HPT) principles to lead the analysis efforts surrounding an LMS platform change at a professional training organization. Human performance technology is the study and practice of improving productivity in organizations. This includes designing and developing effective interventions, processes, and methodologies that are ethical, results-oriented, comprehensive, and systemic (West, 2018). This article covers the project's genesis, the project team's creation, and how the analysis work was carried out. The first author's unique access to the subject matter of this case study provides the ability to present the project's analysis phase in the following narrative format. This article's intrinsic case study represents an exploratory inquiry into a single case, as this article's conclusions are inherently limited to its scope. Nevertheless, the article provides evidence that large scale change within organizations requires a balance of effective communication practices and organizational systems thinking.

Keywords Organizational analysis · Teams building · Change management

Introduction

Organizations in the private sector and higher education are increasingly turning to learning management systems (LMSs) to manage organizational communication, training, and collaborative learning experiences (Blackmon & Moore, 2020; Moore, 2019). From a technical viewpoint, LMSs provide a centralized information technology (IT) system that can efficiently and consistently facilitate an organization's training needs (Grönlund & Islam, 2010; Kraleva et al., 2019; Mcgill & Klobas, 2009; Muhardi et al., 2020; Rabiman et al., 2020). And while there are clear benefits for using an LMS, there are also potential challenges in selecting and implementing such a system. Perhaps the most pressing challenge is selecting an LMS that can provide the tools and resources to support the greater organizational and end user's needs in meaningful ways. Aligning these two sometimes divergent needs presents a challenge for any training organization but is potentially magnified when the organization's core business model is based around education, as is the case within higher education and professional training organizations. In both examples, we put forth that the LMS is not simply a technological toolset but a representation of the organization's identity. Based on these descriptors of an LMS, one can likely ascertain that the selection, development, and implementation of a new LMS is a complex process that would affect multiple levels of organizational policies and procedures. As such, this article is situated within that process, specifically bounded within the onset and analysis phase of a corporate initiative to modernize a professional training organization's LMS.

Often when an organization decides to implement a technology tool like an LMS, the organization will turn to the information technology division (ITD) and approach the process as a technology project (Mohapatra & Mahalik, 2018; Moore & Johnson, 2017). This can be problematic because

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in many organizations, the ITD operates too far removed from processes owners or business functions (Moore & Johnson, 2017). This separation results in a disconnect between the technology implementation and alignment to the specific tasks and users. One way to mitigate this is by including stakeholders in the development process—a technique that has been shown to result in positive impressions from stakeholders and end users (Mcgill & Klobas, 2009; Rabiman et al., 2020; Trkman, 2010). This collaborative approach to information systems development and implementation gives stakeholders the opportunity to incorporate their needs and vision into the process, resulting in more successful projects (Boudreau & Robey, 2005; Moore & Johnson, 2017; Prinsloo, 2018; Wing et al., 2017). In addition to the aforementioned issues associated with ITD, senior leadership far removed from the day-to-day operation of the organization have been found to compound problems by mandating process and data requirements that appear to do little for the front-line user (Senge & Sterman, 1992; Sunder & Ganesh, 2021).

To highlight how a collaborative approach to information systems development can be used within the context of choosing or developing an LMS, we highlight the process that a professional training organization within the aerospace sector used in creating a project team and performing a systematic analysis utilizing an established HPT framework. This article serves as a snapshot of one part of a multi-year process. The purpose of this case study is to describe the analysis efforts of an organization's internal working group whose objective was to identify and implement a new LMS for a professional training organization.

Literature Review

Learning Management System

A learning management system is a web-based software application which assists with the delivery of learning experiences. As the purpose of this article is to not redefine the terms used to describe learning management systems in general, we put forth the following established definitions of LMSs. Lawler (2011) describes that a robust LMS should include certain feature sets, including: automated administration of teaching and learning tasks (i.e., grading), self-guided experiences and services, rapid assembly of learning materials, scalability on web-based platforms, the capability of personalized experiences, and support for portability and accessibility standards. Turnbull et al. (2019) further defines an LMS as acting as a web-based interactive learning environment which assists in automating the administration, organization, delivery, and reporting of educational content and learning outcomes. Thus, baseline expectations of any LMS include some if not all these specific features.

As more technology is integrated within organizations, it is critically important that the organization's vision, missions, and objectives are all closely aligned with the selected technology tools (Moore & Fodrey, 2018). This is significant for functional tasks where a link between the technological tool and the specific work task impacts individuals' performance (Mcgill & Klobas, 2009; Trkman, 2010). As it stands, an organization is made up of a collective of individuals; these same individuals and their actions make up the organization's identity and culture. Naturally then, studies have shown that organizational culture has been found to have profound effects on any systematic change, including but not limited to software implementation (Dueholm Müller & Axel Nielsen, 2013; Mohapatra & Mahalik, 2018; Niazi et al., 2010; Shih & Huang, 2010).

The literature makes clear that aligning support and performance functions of an LMS is critical to LMS acceptance and ultimate project success (Chaubey & Bhattacharya, 2015; Macfadyen & Dawson, 2009; Turnbull et al., 2019, 2021). In several circumstances within the context of higher education, the extant research points to specific features and functions being critical to LMS success in specific contexts (e.g., the availability of forums, advanced analytics, collaborative spaces, among others (Cobos et al., 2019; Ilyas et al., 2017; Lawler, 2011; Ramírez-Correa et al., 2016)). In nearly all circumstances, success or failure of implementation appears to hinge on the LMS's ability to address organizational needs. But the root cause of these failures or successes often stems not necessarily from the tool itself, but how the tool was designed, selected, or implemented.

As such, the analysis described within this article highlights many of the functions and features included in a potential LMS as they pertain to the subject of this study's specific context. Yet the study's focus is not on these LMS characteristics, but rather on how these elements were discussed, debated, and collaborated upon within the analysis phase of the overall project. Thus, this study utilizes a conceptual framework based within Human Performance Technology to facilitate discovery of these features and processes to support the success of the technological implementation regardless of technological selection or feature set.

Human Performance Technology

Human performance technology has been described as the study and practice of improving productivity in organizations. The actions within the study and practice of HPT include designing and developing effective interventions, processes, and methodologies which are ethical, results-oriented, comprehensive, and systemic (West, 2018). While the technological implementation project easily fits within

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the scope of HPT, it is important to note that this study does not include that complete scope, as the project team later described within this article was not tasked with accomplishing the entirety of the project. Instead the team was tasked with the initial analysis phases of the project.

Regardless, the scope of this work fits well within the International Society for Performance Improvement (ISPI) standards for performance improvement design, itself a set of standards universally recognized as foundational elements withing the conceptual framework that is HPT. These standards include:

1. Focus on Results or Outcomes
2. Take a Systemic View
3. Add Value
4. Work in Partnership with Clients and Stakeholders
5. Determine Need or Opportunity
6. Determine Cause
7. Design Solutions including Implementation and Evaluation
8. Ensure Solutions' Conformity and Feasibility
9. Implement Solutions
10. Evaluation Results and Impact

(International Society for Performance Improvement, 2022).

This article focuses on the team building, partnership, and stakeholder's element of the ISPI set of standards while also including implicit and explicit connections to other elements set within the framework. As already described, it is possible that even a seemingly small software change can inexplicitly affect organizational culture and vice versa. Because of this, it would appear critical to establish the scope of any proposed change, be it technical or interpersonal. Evidence suggests this is best accomplished through open collaborative approaches undertaken by the organization itself (Boudreau & Robey, 2005; Moore & Johnson, 2017; Prinsloo, 2018). Specifically, this involves identifying appropriate stakeholders and including them in the development process. A stakeholder is an individual or set of individuals who contribute to and benefit from activities that lead to value creation (Freudenreich et al., 2020). Leveraging appropriate stakeholders helps not only identify blind spots which may occur in project implementation, but also ensures that the technology and task fit is appropriate, resulting in better technology usage and user experiences (Abelein et al., 2013; Harrati et al., 2017; Mcgill & Klobas, 2009).

Expanding on several of ISPI's standards, including a focus on results or outcomes, the need to add value, along with taking a systematic view, it becomes clear that within an organization, tasks will be diverse in complexity and level of autonomy afforded to the user (Alam & Campbell, 2012; Fu et al., 2019). A challenge within many organizations is identifying these diverse tasks and understanding how technology can support them through new processes, automations, or other emergent support interventions. The proper alignment between the tasks and the chosen technology system can be the difference between a successful and an unsuccessful implementation (Petter et al., 2013). This is most nascent within the context of the end user experience for any technological tool; users need to be engaged early and often within the process to help establish connections between the context of their work tasks and the proposed new system(s) (Abelein et al., 2013). End users are generally focused on how to do their job in the most efficient way possible, so it is not surprising that they will avoid an offered solution that does not improve their work performance or aid in their completion of work tasks (Harrati et al., 2017; Moore & Johnson, 2017). Therefore, it is crucial to engage users throughout the development and subsequent implementation processes (Abusamhadana et al., 2019; Chan & Pan, 2008).

Rummler put forth a formalized conceptual approach to HPT, known as the nine performance variables model, which was implemented with the project team (Raimas & Rummler, 2009; Rummler & Brache, 2013). Rummler's model was specifically chosen due to its fundamental approach to human performance technology and its propensity to address systemic organizational opportunities and central processes (Ramias & Rummler, 2009; Rummler & Brache, 2013).

Background and Context

The professional training organization featured in this case study is a private enterprise with over 5000 employees in 27 global locations. We will refer to this organization as ACME Training within this case study to honor confidentiality. ACME Training's product offerings are based within the aerospace field, specifically training aircraft pilots and mechanics on individual aircraft programs. These programs are taught using a variety of training methodologies and modalities including asynchronous e-learning, synchronous online instructor-led presentation, in-person instructor-led training, practical on-aircraft training, and advanced full-motion flight simulation. Pilot and mechanic programs that lead to a regulatory-based certificate are highly standardized and must follow an approved syllabus and meet specific performance-based objectives. Program courses that fit within this regulatory space have specific requirements for both instructional staff qualifications and training devices.

At the point in which the analysis and design phases of this project took place, the organization delivered training materials in three distinct ways. All asynchronous training programs, collectively called "e-learning," were delivered via a standalone direct-to-customer LMS. All instructor-led

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training materials were delivered and presented via a set of defined file folder paths through various global training locations. Only the instructors could present this material, and the material was never shared directly with learners. Finally, materials intended for learners were delivered either via physical print materials or an iPad-specific e-reader application. The three systems were separate and did not communicate with each other or share platform commonalities.

The ACME Training LMS represents the organization's central, most visible viewpoint for both the client (learner) and the instructional staff. It is also the primary user interface for course schedulers and training management personnel. Each year, close to 50,000 people will utilize the LMS. Learners will access materials before, during, and after training via mobile and desktop user interfaces. Instructors will leverage the LMS's mobile and desktop platforms every day to accomplish their job duties (i.e., grading). As an example, for recurrent training courses, the learner will receive pre-study materials in the forms of PDFs, video, and short eLearning-based activities several weeks before the in-person training begins through the LMS. As the learner approaches the training date, the LMS provides pertinent updates regarding training logistics (i.e., class location, instructor assignment, hotel accommodations, etc.). Then finally as the learner arrives at the training location and participates in in-person activities, the LMS provides course progress, instructor feedback, and remedial information necessary for course success. These standard activities are performed for each course taught throughout the organization, representing approximately 10,000 different aircraft-specific training courses offered weekly throughout each calendar year.

Methods

A case study research design was deemed appropriate for this study as the scope of work was bounded within a specific event, activity, or process (Creswell & Poth, 2016). This case provided a unique opportunity for the first author to embed themselves within events not extensively considered in the extant literature. Data was collected from many mediums throughout the project's six-month analysis and design phases, including direct observation, formal correspondence (email, company messages), process document artifacts, small breakout meetings, and informal communications via meetings, work sessions, and text messages. The findings within this data and the authors' personal experience within the project are thus reflected in the case study's narrative description below.

Qualitative case study methodology involving learning management systems is not new. A recent systematic review put forth 28 articles between 2008 and 2019 that performed case study research of various LMS topics and subjects (Turnbull et al., 2021). Interestingly within the investigation, the authors identify that only 9 of the 28 describe using a qualitative case-study research design within their methodology section. They conclude that *case study* is "often used as a label of convenience in LMS research, rather than a descriptor of a rigorous approach to research design" (Turnbull et al., 2021, p. 9).

This case study is bounded within a single case, the initial stages (analysis and design) of a corporate professional training organization's LMS implementation. Stake (2005) identifies case study as an appropriate research methodology when researchers are interested in studying a phenomenon bounded within a designated time and space. As the analysis and design phases of the LMS project both exist within an actual real-world timeline (i.e., months, years) as well as representative phases of common models of instructional design (Stefaniak & Xu, 2020) and human performance technology (Hardré, 2003), we believe the study to be appropriately bounded. Secondly, this specific case study represents what is known as an intrinsic case study (Stake, 1995). A case study is referred to as intrinsic when the phenomena, in this case the analysis and design stages of an LMS implementation, is a unique opportunity for specific inquiry. This inquiry is only made possible due to the authors' own direct involvement within the corporate project. While this brings about certain limitations which will be discussed in a later section, the unique access provides us the ability to research what would have otherwise been an inaccessible area of inquiry, which is reflected in that none of the articles highlighted within Turnbull's systematic review of the topic included corporate environments and professional training organizations. The following research questions guide the case study:

1. How does the project team begin and carry out the process of an organizational analysis?
2. How does a team convey systems thinking to a large organization?

Case Study

Project Genesis

The project's genesis began with the organization's learning experience architect who set out to do some in-training course observations. Through these observations, they quickly identified significant challenges when using training materials both in the classroom and on provided tablet computers for both the instructor and learner. ACME was using an amalgamation of tablet applications, server-based file folders, and several business enterprise systems to facilitate

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the scheduling of courses, distribution of course materials to instructors and learners, formative assessment, and issuing grades. With so many disparate systems interconnected, this created an overly complicated experience both for learners in terms of usability and for instructors in terms of facilitation and content delivery. For instance, in a single course an instructor or learner would be required to log into multiple systems at different points throughout the training experience to access necessary course tools. And once accessed, there was no clear indication to instructors or learners about what content should be used where and to what extent. Additionally, the grading process for the instructor appeared to be overly burdensome and led to delays in learners receiving their end-of-course certificates.

In addition to the learning experience challenges, the architect observed many situations in which the assessment methods were not well-aligned with the course's stated objectives. For instance, several courses specifically listed performance-based training objectives to be accomplished within a simulation environment. The simulation software utilized in the training of these objectives had been designed to measure time of learner tasks, actions, and physical performance. Still, there was no means to utilize this data in a meaningful way during learner assessments as the simulation system and the assessment system were not connected. Rather, an instructor would rate these performance-based tasks on a four-point scale based on their observations while teaching within the simulated environment.

Making a Team

The architect, having extensive knowledge of the capabilities of multiple LMS systems, submitted a proposal to upper management through his organization's senior vice president. The proposal put forth a project to address the challenges mentioned above and improve the instructor and client's user experience and assessment methods via a new LMS platform. In this proposal the architect also included several technical capabilities the LMS could provide that were in line with established corporate initiatives such as collecting data to assist in making strategic business decisions.

The LMS project was pitched to the senior vice president-level staff members was quickly determined to be in line with the recent goals put forth by the newly established C-level leadership. In the proposal, the learning experience architect proposed the creation of a cross-functional project team which could lead the project as a dedicated working group to take the project from initial analysis to the development of a proof of concept/initial prototype. From the authors' experience, this type of work in the past would have normally been accomplished by the information technology division (ITD), and the suggestion to allow for a cross-functional team to operate at this capacity was new for the company.

Developing a cross-functional team that involves stakeholders and ITD members at the initial stages aligns with the suggestions from Moore and Johnson (2017) for how ITD can foster innovation within an organization. The executive team expressed interest in trying something atypical and approved the creation of the working group, henceforth known as the project team. Each executive vice president was tasked with identifying a member from their respective division to participate on the project team. After a few weeks, the team was finalized to include six individuals: the learning experience architect, a senior business analyst, two associate-level business analysts, a full stack developer, and the informational technology lead for the training operations divisions. The project team was then given a deadline of one year to produce a functional product (LMS) capable of implementation in three pre-identified aircraft programs as an "Alpha run." The costs associated with the project were to be allocated within each respective division's overall operational budgets; budgets already included dollars set aside for travel, workgroup events, and internal development. No capitalized single-cost figure was budgeted for functional product development. Beyond these elements, the executive vice president presented the team with the following LMS expectations:

1. An improved client and instructor user experience;
2. The means to measure speed, timeliness, and accuracy when assessing performance;
3. A solution to provide current schedules and course progress to individual learners; and
4. The ability to export aggregated data relevant to meaningful known performance indicators which could be filtered based on a specific training program, demographics, customer type, and aircraft category.

It is important to note at this point that although the above elements were the project goals for the LMS project, the remainder of this article will not be covering how the LMS met these goals, but rather how the project team performed the necessary analysis to meet these stated goals (Fig. 1).

The Team Gets to Work

From the onset of project team meetings, it was clear that the prospect of implementing a new LMS represented a considerable shift in organizational tasks across nearly the entire enterprise. As such, the project team rapidly launched into a series of analytic activities that considered the various levels of management and front-line personnel throughout the organization and how each division would be influenced by the design, development, and delivery of the final training product.

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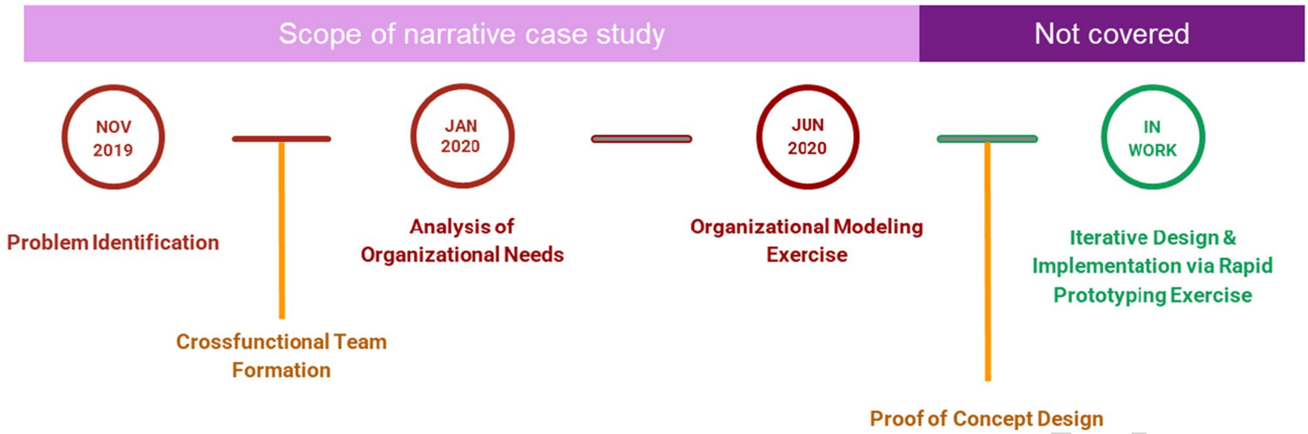

Fig. 1 Case Study Project Scope

Analysis at Leadership Level

In line with existing research, the project team started their analysis with high-level leadership to better understand what leadership perceived as the needs for the greater enterprise (Ragu-Nathan et al., 2004). The team first met with the senior-level leaders who approved the initial feasibility assessment (a component of this exercise) and had chosen the project team members. This leadership level oversaw various strategic initiatives but was removed from the tactical day-to-day workings of the training centers. This initial meeting focused on broad, high-level requirements which generally centered around access to meaningful business and learning metrics, reporting functionality, and the capability of parsing data in real time.

The project team then carried out several smaller one-on-one or one-on-few breakout meetings with individual senior leaders and members of their respective teams who the senior leaders themselves chose. These meetings were conducted via 30- to 45-minute video teleconferences, where an open ended three-question agenda was asked to each group. The questions included the following: When you think learning management system, what do you think of? How do you feel an LMS will help the organization? How do you feel the LMS will affect your personal work? These questions were used to begin an open dialogue within the smaller groups.

The project team identified that several of the senior leaders and their teams did not fully grasp the scope and magnitude of an LMS outside of the basic use case of facilitating course content delivery across multiple platforms. Much of the observed confusion within these teams appeared to be a conceptual misunderstanding of what an LMS could provide for a professional training organization. This misunderstanding appeared to have stemmed from an unfamiliarity with current state technological capabilities and instructional material development processes. Nearly every meeting's final 10 minutes, several of which went over the allotted time, transitioned to a more open-forum, in-depth idea session. Some of these idea sessions spun into longer one-on-one conversations with participants who appeared motivated to assist in the LMS project. These idea sessions helped the project team better understand what senior leadership and their respective teams were actually looking for in an overall enterprise solution, regardless of perceived LMS preconceptions. This gave the project team the necessary context to create a project charter, detailed requirements document, and preliminary responsibility/accountability (RACI) matrix.

The following features were identified within the initial requirements document: the LMS would act as the primary touch point between the organization and its learners (organizationally called clients); the LMS would provide a means to better understand the usage and effectiveness of training products and training efficacy; and finally, the LMS would be leveraged to analyze training and user data to increase potential market opportunities.

After the experience of this initial analysis at the organizational level, the project team anticipated a similar experience when beginning to work with various other levels throughout the organization. That is, they predicted that many individuals who would benefit from the LMS would not be mindful of the fact that an LMS was a viable solution. The project team determined the following: for the project to be successful they would have to clearly present the benefits of an LMS across multiple organizational levels considering both extensive organizational processes and internal cultures. In subsequent internal project team meetings, the project team also identified a compounding difficulty inherent to the project's goals: the project's technical detail. The project team recognized that for a vast portion of the enterprise, the use of complicated terminology and technical language would negatively affect comprehension of LMS benefits.

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Systems Thinking

As the LMS represented a major change to the organization at nearly every level, a systems approach was recognized as an appropriate way to analyze the current state, beyond just the senior leadership perspective. A systems approach is based on the understanding that every change potentially affects every aspect of the organization (Kotler, 1992; Stefaniak, 2020). Additionally, as the actual outputs of the organization (training methods and modalities) would not be changing, the scope of the LMS project was truly centered around the processes associated with instructional content, namely delivery capabilities across platforms, and better access to training materials. As a systems approach emphasizes processes instead of outputs (Kotler, 1992), it seemed to the project team that a systematic design approach would be ideal.

Simplicity in Communication

To address the challenges associated with the technical nature of the LMS conversations, the project team aimed to facilitate the broader enterprise meetings with a framework that they felt would look visually intuitive when presented to various levels of leadership while also providing enough detail for later development action and overall project management. The project team settled on the nine performance variables model by Rummler (Ramias & Rummler, 2009; Rummler & Brache, 2013; Wilmoth et al., 2014). Rummler's model is among the foundational models for the field of human performance technology and is popular amongst practitioners looking to change organizations that affect central processes. The team selected this approach because the model likens organizations to ecosystems, in that every component is interrelated, which the project team closely identified with. Additionally, the model appeared to flow well with the mind mapping/project management software the project team used to facilitate meetings and create actions.

In Rummler's nine performance variables model, the organizational analysis has three levels: the organizational level, the process level, and the job/performer level. The model details nine performance variables under the goals, design, and management categories. At the job/performance level, a linear logic begins with input to the performer, the performer then performs a task based on the input, this is represented as an output, and outputs result in consequences. Subsequently, a feedback loop communicates consequences back to the performer to represent either task success or failure (Wilmoth et al., 2014). This last element was of critical importance for the scope of the LMS as the system's use would have to be meaningful to performers at the job level while still providing the necessary organization and process variables for their respective levels.

Broader Organizational Analysis

To engage the end users and create a more representative understanding of organizational needs, the project team developed an interview protocol to be used as additional front-line stakeholders were added to conversations. For a month, the project team conducted nearly 40 information-gathering sessions with individuals at various levels of the organization who would be affected by the implementation of the LMS. The interviews were conducted over the phone and in person. The interviews would start with sharing the project charter's vision statement, and then a series of open-ended questions similar to those asked of the senior leadership were asked. Meeting notes were collected, and interview responses were sorted into broad categories associated with the nine performance variables. From these meetings, the project team identified the following key takeaways:

1. The company's published core values/road map did not clearly articulate how management and job performers can contribute to organizational goals.
2. The processes which include training delivery were included within the information technology space, thus estranging it from the training providers themselves.
3. Information technology processes were negatively impacting technology use in the learning environment for both job performers and learners/clients.
4. The company was not leveraging data collected during training events to improve training materials or the learning experience.

Limitations

The main limitation of this study is that it focused on the first author's lived experiences within a specific project team. While that is a limitation – it is also an opportunity to share lessons learned that may be helpful for other practitioners facing similar challenges. While the focus was on a professional training organization, the needs and challenges are common to higher education institutions.

Another limitation is that this article only covers the overall LMS project analysis phase at ACME Training. Elements seemingly significant at the analysis phase could turn out to be trivial. In a more advanced project stage, new elements will be identified that significantly affect the findings described above. Additionally, while this study represents the analysis phase of an LMS development and implementation project, a basic assumption exists that an LMS was necessary to address known organizational challenges. Those within the HPT community would likely find this initial action, to select an LMS in concept before analysis, to be not in line with comprehensive HPT models put forth, such as Van Tiem

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(2012) and Stefaniak (2020). As such, this study being bound within a specific context and presented in a narrative form of a lived experience aims to assist those taking on projects within similar contexts or settings.

Conclusions

This case study documented an LMS selection process at ACME Training. Several themes emerged by implementing a human performance framework, including project team functionality and the use of systems thinking in organizational contexts.

Creating buy-in from stakeholders is a critical component of any project. There are multiple strategies to create buy-in, but all involve a committed engagement of stakeholders at various stages of the project cycle (Boudreau & Robey, 2005; Moore & Johnson, 2017; Prinsloo, 2018; Wing et al., 2017)). In this project, the buy-in creation started with the project team formation. First, the project team was formed with stakeholders from across the organization. Integrating different perspectives in the project team increases the likelihood of aligning the final product with user needs and creating buy-in from stakeholders in the finished product (Mcgill & Klobas, 2009; Moore & Johnson, 2017; Trkman, 2010).(Second, the project team was structured with a shared governance that would foster a sense of collaboration and shared ownership (Prinsloo, 2018; Wing et al., 2017). The project team had no established leader; this was by design as each member of the team represented relative expertise within their division. An example of collaboration during meetings was when the learning experience architect facilitated the meetings focused on instructional objectives. The IT lead would typically lead the conversation for meetings discussing information technology processes and protocols. This developed mutual respect and fostered a collaborative atmosphere that underpinned the project team's work.

This project also provided insights into the role of systems thinking within organizational contexts. Organizations are complex and have multiple interconnected relationships, and systems thinking is a helpful way to understand these relationships (Cabrera & Colosi, 2008; Moore, 2022; Peck, 2019; Sockman et al., 2019). The research member of the project group consistently observed that in general, participants were able to conceptualize the systematic nature of the potential LMS implementation and correctly identify how actions and reactions might occur across the enterprise via the mapping exercise or discussions around Rummler's variables. However, almost universally, participants place themselves at the system's center and appear to have difficulty conceptualizing otherwise, especially when elements are twice removed from their personal tasks and responsibility. This was represented in various meetings when individuals would speak, draw, or write out a process to assist in a mapping exercise. There are likely a plethora of reasons for this finding, yet they exist beyond the scope of this work.

While most participants could identify the primary nodes of the organizational systematic architecture or ecosystem, often represented by bubble charts with names and positions or processes in them, few people showed interest in the lines between the nodes, which consistently represented the technical means for information and data transfer. The project team expected this second point after initial discussions showed an aversion to overall technical communication. Further research is necessary to determine why most individuals who participated showed a relative aversion to conversations and processes that were overly technical in nature concerning the LMS. Gaps may exist within professional communities of practice and extant literature regarding the terminology necessary to discuss technical learning platforms (i.e., LMS) with those not involved in day-to-day LMS use and administrative efforts.

We have documented this case study because we believe the elements described provide potential guidance for other researchers and practitioners to leverage HPT and ID principles within collaborative settings with the potential for elevated levels of organizational success. We encourage others to build off our work, document their processes in LMS selection and implementation, and further contribute to the scholarship in this vital area.

Declarations

Conflict of Interest The authors declare that they have no conflict of interest or competing interests related to this or related works.

Financial Interests The authors have no relevant financial or non-financial interests to disclose.

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