

AN EXPERIMENT SIMULATING CORPORATE TRAINING USING BUSINESS PROCESS MODELS

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Abstract. The article examines the application of business processes in the design and implementation of corporate strategy for employee's professional development. A training approach using processes in an organization is presented, which allows for the definition and unambiguous formalization of a learning goal and the learning path for its achievement. A model of a corporate hierarchy is used, represented by a tree structure of roles, implemented in cloud space. Each role is attached to the business processes in which it participates. In the proposed approach, the training of an employee is initiated by a manager with leadership duties, who defines the structure of the business process in accordance with corporate strategy. A simulation of corporate training was conducted with students of Plovdiv University. The students are divided into teams, each student simulating the activities of an employee with a specific role in the organization.

Keywords: business processes; BPMN; corporate training; corporate hierarchy; employee training simulation

1. Introduction

In today's corporate environment, providing effective employee training has become a critical factor for maintaining competitiveness and adaptability to market and technological changes. To leverage the full benefits of corporate knowledge, employees must have the opportunity to engage in learning both at the workplace – while performing their

professional duties – and outside this time frame. This necessitates ensuring access to such knowledge at any time, from any location, through various technological tools and digital formats.

Many organizations emphasize the importance of corporate training (Felstead, 2015), acknowledging the need to transition from a traditional type of corporation to a “learning corporation” (Hague, 2008). This transformation involves structural and organizational changes at all levels of the hierarchy (Ivanova et al., 2021). Such an approach requires redefining training so that it is adapted to the specific needs of the individual employee in the context of their workplace. Organizing the learning process in small groups responsible for their own self-directed learning, formalizing good work practices, and aligning them with the corporate strategy contribute to the success of the learning organization (Gilbert et al., 2009; Janković, 2018; Rosch et al., 2013). Each organization defines its own development strategy, which is largely implemented through employee training. In this regard, we emphasize the reinforcing role of self-directed learning as a leading instrument for implementing corporate strategy and achieving market success.

The aim of this paper is to examine the approach to corporate training, implemented in a cloud environment and based on models of real business processes taking place within the corporation.

Section 2 provides an overview of contemporary researchers’ understanding of the essence of corporate training and its approaches, as well as current trends in this field. Section 3 presents the investigated approach to corporate training, and Section 4 describes the experiment conducted on the basis of this approach. Finally, the conclusion systematizes the contributions.

2. State of the art

2.1. The essentials of corporate training

In the scholarly literature addressing employee training, various aspects of the process are examined, with particular emphasis on characteristics that arise from the specific professional context.

The authors of (Eraut, 2000) define corporate training as a learning “trajectory” through which knowledge necessary for achieving the corporate

strategy is acquired. In (Rintala et al., 2018), it is described as the acquisition of knowledge or skills through formal or informal learning activities conducted while performing job-related duties in the workplace. Research presented in (Yeo, 2013) indicates that 80% of corporate training occurs informally, encompassing self-directed learning, networking, coaching, and mentoring.

In (Decius et al., 2021), emphasis is placed on the workplace context as an important environment for employee learning and development, in which corporate knowledge can be created. According to (Misko, 2024), workplace learning is a continuously occurring practice that takes place through specific work systems. Some companies maintain specialized systems such as virtual schools and corporate universities (Ellis, 2014), which include intelligent modules and functionalities for training and learner profiling, analysis of employees' strengths and weaknesses, and AI-based tools employing neural networks to generate career development recommendations, among others.

Ref. (Stroud, 2016) notes that corporate learning unfolds within the relationships and dynamics between "individual actors" and "collectives." It occurs through interactions in processes related to direct work responsibilities and contributes to the learning of both the individual employee and the organization (Zhao et al., 2010; Ivanova et al., 2019).

Corporate training enhances skills associated with improving formal qualifications, as well as informal, highly domain-specific professional competencies (Yeo, 2013).

Based on the conducted review, it can be argued that corporate training is a set of activities aimed at training or retraining employees, considering the goals and vision of the company.

Strategic planning of the direction of development, innovation, and optimization within corporate processes is the responsibility of the managerial staff tasked with defining the corporate strategy (Chirkova et al., 2019), and consequently, with overseeing employee training. Some of the key questions and priorities outlined in the organization's development strategy and vision are closely related to the selection of technological innovations and resources, structural changes within the organization, and

the distribution and redistribution of responsibilities among team members, to leverage the individual potential of each employee in alignment with corporate goals (Collin, 2011).

According to Human Resource Development theory, training should be implemented in two directions. Horizontal development aims to enhance the employee's knowledge, skills, and motivation for performing tasks associated with their current role. Vertical development, also referred to as "talent development," aims to provide training and preparation for the employee to assume a position at the next, higher level in the corporate hierarchy (Evtushenko et al., 2020). The approach of preventive vertical training is embedded in the strategic development plans of large organizations to form a talent pipeline or succession pool (Ivanova et al., 2019; Yovkova et al., 2023).

2.2. Corporate training approaches

Due to the specificity of corporate training – which must be closely aligned with the professional domain – the most widely used training approaches include context-based, competency-based, learner-centered, values-oriented approaches, as well as reflection and self-directed learning (Rusenova et al., 2025; Ludlow, 2015; Marquardt, 2016).

The context-based approach involves learning in a context that requires trainers to relate instructional content to real corporate processes and situations, encouraging employees to understand the logical connections between the knowledge they acquire and its application in workplace practice. According to (Stroud, 2016; Yovkova et al., 2023), this approach strongly engages learners in the learning process and significantly enhances its professional effectiveness. The context of the corporate environment in which learners and instructors operate encompasses multiple dimensions: individual, social, and cultural. Within this environment, learning activities take place that facilitate the transfer between the employee's individual understanding of key concepts and their manifestation in real professional practice (Pietruszyńska, 2023; Doornbos, 2011).

By context, (Gilbert, 2016; Evtushenko, 2020) refer to real work situations, corporate processes, cases, established good professional practices, regulatory requirements, and artifacts (documents, equipment,

systems, and resources) associated with the employee's everyday work performance. According to (Gilbert, 2016), context should be understood as the environment and circumstances that give meaning to the acquired corporate knowledge.

According to (Janković, 2018; Bizova, 2016), the competency-based approach is an educational paradigm that emphasizes the development of key skills and capabilities in employees rather than the documented accumulation of knowledge. The focus is placed on the employee's ability to apply acquired knowledge in real situations and solve current problems, while fostering critical thinking, creativity, communication skills, teamwork, and other competencies that are essential and specific to the corporation.

In the studies of (Stroud, 2016; Vasilev, 2006; Yeo, 2013), the learner-centered approach emphasizes the individual interests, abilities, and preferences of learners so that these factors support the enhancement of their professional competence.

Ref. (Evtushenko et al., 2020; Ivanova et al., 2021) highlight the values-oriented approach, through which employees develop values and ethical principles alongside the acquisition of knowledge and skills. This approach aims to cultivate responsible, moral, and proactive employees who are capable of making informed decisions and contributing to corporate prosperity.

The self-directed learning approach (Pietruszyńska, 2023; Ivanova et al., 2021) avoids the limitations of traditional courses and training programs delivered in physical or virtual environments, where all employees follow the same curriculum at the same pace. Self-directed learning allows employees to learn at their own speed, at times convenient for them, and to absorb an individualized amount of information – something that is easily achievable with the technological support of online environments and tools.

Authors of (Ludlow, 2015; Marquardt, 2016) emphasize the role of the reflective approach as one that fosters personal responsibility and autonomy in self-directed learners. The training process aims to prepare the employee-learner to participate actively in their own learning by reflecting on and formulating personal goals, and by being able – at every stage of the learning process – to plan, regulate, and monitor their learning activity in a reflective

manner. This includes selecting the most appropriate means for accomplishing the learning tasks, whereby training becomes self-directed learning and an avenue for individual personal development (Nikolov, 1987; Oprea et al., 2023).

Ref. (European Commission, 2022) presents gamification as a corporate training approach that relies on cloud infrastructure and business process models to improve employee development.

Web-based environments are most used for organizing and delivering corporate training, as they facilitate access and allow the training to be tailored to the specifics of the professional domain and the individual preferences of employees. The development of web-based training environments can be implemented in several ways: within in-house corporate development centers, through outsourced custom solutions, by adopting standardized domain-specific commercial platforms available on the market, or by using free web resources that offer scalability (Evtushenko et al., 2020).

2.3. Workplace context

The knowledge, skills, and attitudes of employees form the foundation for the effective execution of corporate strategy. Achieving organizational goals requires clearly identifying existing deficiencies within the organization, establishing mechanisms to address them, and presenting and formalizing work processes unambiguously within the context of the corporate culture. An organization's affiliation with a particular professional domain is not a sufficient criterion for selecting standardized corporate training programs. It is essential to consider the specifics of the organization and its professional field.

To personalize training, it is necessary to account for the individual characteristics, attitudes, and preferences of employees within the context of the corporate development strategy. In this regard, numerous studies examine the relationship between successful job performance and the generational cohort (employee generations) to which employees belong (De Jong, 2018; Gierańczyk et al., 2023; King, 2012; King, 2008).

In 2024, the International Labour Organization analysed the labour market and investigated workforce behaviour, drawing conclusions about

the characteristics, attitudes, and motivation for learning within each generation (X, Y, Z, and T). An important emphasis of this study is the role of e-learning within the overall corporate educational paradigm (Gocheva et al., 2025).

3. Corporate training in the cloud environment

We examine training from two perspectives: its pedagogical design and its technological implementation (support). The pedagogical design must reflect the goals of the training – in this case, the implementation of the corporate strategy. Technological support must provide an infrastructure that enables adaptive, accessible, reliable, and scalable training.

The pedagogical design for the full or partial implementation of the corporate development strategy within corporate training requires an explicit definition of business processes and the roles of the employees who perform them. For this purpose, we use a visual representation of each work process through a sequence of interconnected elementary activities. The BPMN standard is selected as the most appropriate means for such visualization. The organizational hierarchy is represented as a tree structure of roles belonging to the various departments of the organization and arranged across different levels of the corporate hierarchy. A set of business processes in which the role participates is attached to each role. This approach enables the implementation of the corporate training strategy for horizontal and/or vertical development.

The combination of competency-based and context-based training approaches is achieved through the formalization of the business processes occurring within the corporation and the attachment of the corresponding set of BPMN diagrams to the respective roles involved in them. The learning pathway for an employee in a specific role is the set of BPMN diagrams attached to that role.

For the technological implementation (support), a cloud infrastructure is selected (Fig. 1), in which the hierarchical tree structure of the organization is realized as a set of folders and subfolders corresponding to each level and the roles belonging to it.

We propose an approach that uses a free cloud environment with free web resources, which we evaluate as the most suitable option in terms of

implementation, usage, and maintenance costs. For each role in the organization, a dedicated folder is available, to which the employees assigned to that role are attached (i.e., they receive access rights to the resources within the folder). Each folder contains training materials for the business processes specific to the professional activities associated with that role.

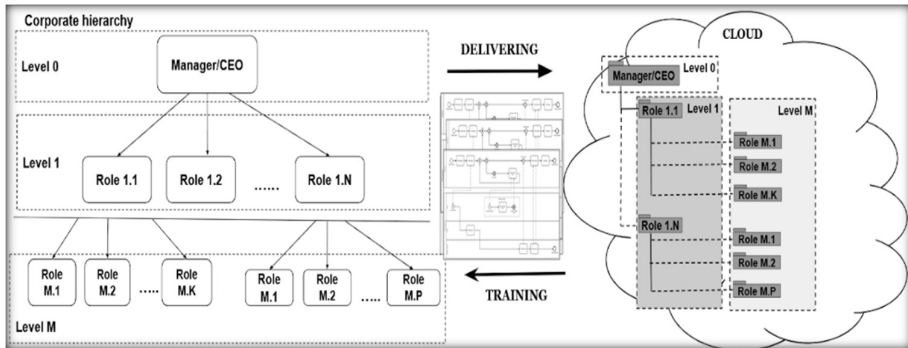


Figure 1. Cloud corporate hierarchy for training

Each business process is represented by a BPMN diagram, which is interpreted as a learning pathway (or a component of one) for the employee's role. In this way, by studying the processes, employees acquire the competencies required for their job performance.

There are existing systems for dynamically visualizing the execution of business process diagrams, which allow for interactivity during training. Access to the training content in the folders is organized adaptively, depending on the corporate training strategy – whether a horizontal or a vertical career-development pathway has been selected.

4. Experiment

For reasons of low financial investment, ease of technological maintenance, and avoidance of the need for specialized staff to install and maintain a training environment, the freely accessible web platform Google Workspace was chosen. It provides integrated capabilities for working with folders, files, external resources, teamwork, and information sharing among team members.

A simulation of corporate training was conducted with students of Plovdiv University. The students are divided into teams, each student simulating the activities of an employee with a specific role in the organization. The chosen organization for which the students simulated training was a “university”.

4.1. Methodology of the experiment

The participants in the experiment were 66 third-year students in the Business Information Technologies program, enrolled in the compulsory course Modelling and Management of Business Processes. Students were organized into 6 teams, each with a team leader and a supervisor (responsible teacher). The simulated training was conducted over 8 weeks and used various gamification techniques. The training concluded with interviews and a survey that used a 5-point Likert scale (from completely disagree to completely agree) to measure the responses.

The experiment progressed through several stages (each lasting one week):

- The teachers prepared the training by selecting corporate roles (e.g. head of department, student) and business processes to be included in the experiment (e.g. organizing a department council, sitting an exam);
- The students were assigned to teams and selected their team leaders;
- Within each group, the students explored the corporate training approach, distributed the roles and target business processes, and organized the cloud workspace;
- The students studied the business processes that their group would present, after which each student modelled an initial version of their diagram;
- The students developed the first version of their diagram and discussed the modelling challenges within the group;
- The students revised and produced the final version of their diagrams and reviewed them as a group;

- The students integrated executability into their diagrams, created web pages containing the diagrams, and modeled a learning course composed of diagrams;
- The students simulated training based on a diagram developed for the higher role and evaluated that diagram using predefined criteria (peer reviewing);
- The students prepared a group presentation describing their workflow;
- The students presented their group work and finally conducted a 360-degree evaluation of all presented projects;
- Surveys and interviews were conducted with the learners.

Weekly in-person or online team meetings were held to discuss current tasks and arising issues. Each stage concluded with a report from the team leaders on the work completed during the period and an evaluation form for each team member with quantitative assessment of their work.

4.2. Results

As a result of the conducted experiment, the hierarchical structure of the organization was modelled in the cloud platform and for each role a business process was developed through a BPMN diagram (incl. its executable version), as well as web pages with BPMN resources as a web platform for learning.

Fifty-four of the students completed the survey (Table 1), which collected learners' opinions across six dimensions: Motivation to Learn, Training Effectiveness, Training Outcomes, Training Organisation, and Collaborative Learning. Some of the questions focused on details related to the used gamification, which is the subject of another paper (Gocheva, 2025), and are therefore not included in this paper, nor are the interviews that were conducted.

The most positively evaluated aspect of the training was collaboration: 70% agreed that they received support from their team, and 63% believed that communication within the group was beneficial. The responses to the statement "working in a group hinders me" showed polarization – 22%

completely agreed, and nearly every second student felt they might have performed better independently.

Organizational aspects were generally well received but could be optimized: 37% found the schedule overloaded, and 7% were dissatisfied with how the tasks were structured. Attitudes toward motivation and training effectiveness were predominantly positive – 48% agreed, while the proportion of those who disagreed remained below 15%. Additionally, 48% stated that the practical tasks in the simulated work environment increased their motivation.

Table 1. Survey data

in %	Comp. disagree	Tend to disagree	Neither agree nor disagree	Rather agree	Comp. agree
1. Motivation to learn					
Practical assignments in a concrete simulated work environment contributed to strengthening motivation for work.	14.8	11.1	25.9	40.7	7.4
2. Training effectiveness					
Evaluating a colleague's work raised the level of understanding of business process modeling.	13	13	18,5	9,3	46,3
3. Training outcomes					
The training method met my expectations.	22.2	13.0	25.9	31.5	7.4
I believe that I was able to successfully complete all the missions.	16.7	1.9	13.0	44.4	24.1
I was satisfied with the knowledge and skills that I acquired after completing the missions.	11.1	5.6	16.7	48.1	18.5

My group was able to submit the work within the specified time period.	14,8	5,6	11,1	13,0	55,6
4. Organization of training					
The work was structured and well-organized by the teaching team.	7,4	22,2	16,7	40,7	13,0
The time schedule was too busy.	9,3	16,7	25,9	37,0	11,1
The team leader was able to successfully organize the group and coordinate the work.	11,1	0	16,7	16,7	55,6
I participated in the group's communication meetings.	11,1	3,7	5,6	18,5	61,1
Every week, I tracked my progress and current status.	9,3	9,3	18,5	25,9	37,0
The cloud environment was convenient and easy to use.	3,7	7,4	14,8	38,9	35,2
5. Collaboration in learning					
There was great benefit from communication between group members.	16,7	1,9	18,5	13,0	50,0
Working in a group interfered with completing tasks – I would have done better alone.	22,2	24,1	16,7	14,8	22,2
I received support from the team I worked with.	9,3	1,9	18,5	13,0	57,4
I was discussing current work with a teacher.	14,8	18,5	27,8	24,1	14,8
The team leader was discussing the current work with a teacher.	7,4	9,3	14,8	25,9	42,6
Communication with the teacher helped with the completion of the weekly missions.	5,6	7,4	24,1	31,5	31,5

Regarding the effectiveness of peer reviewing, 56% expressed satisfaction, indicating that this method clearly enhances understanding of work processes and is one of the most productive elements of the training.

The learning outcomes in terms of satisfaction with acquired knowledge and skills were evaluated positively – 67% were satisfied.

Fifty-six percent reported that their group consistently met the assigned deadlines – an encouraging indicator of time-management skills. Concerning the chosen technological framework for organizing and conducting the training, 74% considered the cloud environment convenient. The leadership role of the team leader was rated highly by only 56%, suggesting that some groups may have functioned without a clearly established leader.

Interaction with the instructor was limited: only 14% reported frequently discussing their ongoing work with the teacher, whereas communication with the team leader was more active – 43%.

We can conclude that practical tasks and team support yielded the strongest results, whereas the heavy workload and the tension between group and individual efficiency require better management.

5. Conclusion

In conclusion, we can state that the proposed approach is effective in terms of achieving the corporate objectives defined in the organization's strategy, as well as in providing adequate and adaptive training for each employee in their chosen direction of professional development – whether horizontal or vertical. The experiment clearly highlights and supports the necessity of a context-based and competency-based training approach in order to meet the requirements for focused, targeted, and adaptive training aligned with the corporate development strategy. The processes taking place within an organization are complex and collaborative in nature, and this complexity has been successfully reflected in the proposed methodology for conducting corporate training.

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