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STAFF TRAINING DIGITALIZATION AS VALUE CREATION PROCESS IN COMPANIES

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ABSTRACT

Currently companies improve business processes including staff training and development. The corporate training and personnel development based on digital tools allow the company to respond quickly to changes in the competitive environment and business needs, that is, to remain competitive. The research gap concerns a lack of relevant studies that spread over holistic view on the business processes and staff training. The goal of the study is to find out whether there are digital tools specific to each stage of personnel training in the business training process, or there is a set of digital tools used at all stages, regardless of the stage. Qualitative methods are used in the study. The techniques such as summarizing, analyzing and synthesizing data are included in the methodology. As a result of the study, digital tools were analyzed according to the model: Define, Design, Deliver, Drive, Deploy, and Document. There are digital tools that are used at different stages, but their use is structured and applied to staff training as a holistic business process. It is reflected in the creation of Learning Management Systems (LMS) by corporations on their own or using existing digital solutions. The comparative analysis for different LMS based on eLearning Industry rankings had been done. The developing methodology could be a topic for further research using different approaches rather than one e-learning community, the staff by itself to analyzing different generations in a company and the effectiveness of the learning process.

Keywords: Human Resource Management, Staff Training, Business Process, Digitalization, LMS, E-learning

INTRODUCTION

Modern companies operating not only on the local but also on the global market are constantly faced with competition. Whereas in the past competition was more dependent on access to inputs or the scale of individual enterprises, now M. Porter highlights that it depends on productivity (Porter, 1998). Application of sophisticated methods and advanced technologies offering unique products and services help to become a highly productive company in any industry. This is impossible without employees with the necessary knowledge and skills. Besides, the use of advanced methods and technologies, innovations leads to the growth of strong high-tech employment (Goos, Konings & Vandeweyer, 2015). In a hypercompetitive environment, every investment, including human capital, must be evaluated in terms of its contribution to the organization's mission and success. The company's management wants to see the impact of learning outcomes on performance, that is, to evaluate the behavior or results for which the training program was created. Modern companies must constantly improve the efficiency and productivity of their business processes, including training and development of

personnel. Business processes play an important role in organizations. Process models help companies to better understand a business process and to identify and prevent issues. Understanding of business processes is the prerequisite to conduct a process analysis, redesign, or automation (Dumas et al., 2018). Corporations pay a lot to the problem of Business Processes Management (BPM). Business Process Management (BPM) is a set of techniques and tools for discovering, analyzing, modifying, executing and monitoring business processes. One of the ways that organizations can document their business operations and implement repeatable processes, and also constantly improving them is the use of BPM and certain languages for modelling business processes (Stein Dani, Dal Sasso Freitas & Thom, 2019). It has received considerable attention in recent years due to its potential for significantly increasing productivity and saving costs (van der Aalst, 2013).At the same time, economic development requires not only the widespread use of digital technologies (Sutherland, 2018) but also changes in management tools (Groen et al., 2017). In connection with the study by Glukhov (Ismagilova et al., 2017), it is also necessary to change the traditional business models.

The problems of the effectiveness and efficiency of work are considered by scientists from different countries (Curado & Bernardino, 2018; Gegenfurtner, Zitt & Ebner, 2020b; Lourenco & Ferreira, 2019). Business processes that are built effectively led to the rise of the output of any company. All the outputs are based on staff work. And the staff should be well educated, have excellent skills and competences to get high results. Therefore, training staff systems should be created and followed by a company. The continuous cycle of corporate training and personnel development enables the company to quickly respond to changes in the competitive environment and business needs, that is, to be competitive. The logic of training is that the value of an organization is created through various actions of its employees (through customer service, sales, new product development, project management, etc.).

We suppose that in the context of digitalization, the very interesting issue arises in consideration the training as an effective business process in the organization. It is also necessary to gain knowledge about the subject that will help build effective processes. However, our investigation has shown that both business processes and study staff training being described as separate issues. The research gap concerns a lack of relevant studies that spread over wholistic view on the abovementioned questions. The goal of the study is to find out whether there are digital tools specific to each stage of personnel training in the business training process, or there is a set of digital tools used at all stages, regardless of the stage. Concerning the goal of the research, it could be seen the qualitative methods should be used. In the framework of the research, authors include such methods as generalization, analysis and synthesis of data. The object of study is the training staff process as a business process in a company. Examples of the use of digital instruments in the area of training staff at all its stages in different international companies are considered.

MATERIALS AND METHODS

Literature Review

Managers expect that investment in training will be justified by improving the performance of its employees (by increasing customer satisfaction, increasing productivity, improving quality, reducing production costs, etc.). That is, the better and more effective employees do their jobs, the more competitive the organization becomes. The authors of (Heikal et al., 2019) stated that over the last few years in the field of human resource management a new technology developed that is known as Electronic Human Resource Management (E-HRM). The use of various digital tools in HR is becoming more and more popular every year (Dahlbom et al., 2019). The activity of face to face human resource management is replacing with Electronic Human Resource Management (E-HRM) in many organizations (Zhilenkova et al., 2019). The growth of HRM effectiveness is promoted by E-HRM which facilitates HRM functions and creates operational and dynamic capabilities for the company. Within an organization, the electronic human resource can be regarded as the function of human resources that

is focused on regulation, use and management of electronic processes and information. For web-based business applications, electronic human resource management plays an important role. As management is done online is taking fewer resources and time (Heikal et al., 2019). Training and development are considered by the company management as a means for the growth of efficiency of the company, and it is considered as one of the most efficient tools for achieving a competitive edge (Belitski, Caiazza & Rodionova, 2020; Bussler & Davis, 2001). Modern companies, to quickly respond to changes in the competitive environment and business needs, should actively use digital instruments (Gegenfurtner, Schmidt-Hertha & Lewis, 2020a) at different stages of the learning process.

The importance of learning through the experience of others (social learning) also grows when a company builds a system that involves learning from the experience of colleagues and competitors. Collective social learning has been growing even before the COVID-19 pandemic. More executives are experimenting with new ways of delivering learning, such as reimagining virtual learning and offering online coaching and integrating online visual collaboration tools to allow remote teams to participate in online design thinking sessions (Ismagilova et al., 2017). To remain globally competitive, firms must invest in knowledge and leverage the return on knowledge. Scientists (Belitski et al., 2020) are investigating the return on training during a crisis and have found it to be higher than before the crisis. In filling a gap in the calculation of returns to investment in knowledge creation within an organization, Maksim Belitski1, Rosa Caiazza & Yuliya Rodionova studied how entrepreneurial firms need to invest in training and skills to increase innovation outcomes. Training for organizations, teams and individuals provides benefits including improved organizational performance as well as other outcomes that relate directly or indirectly to performance (Aguinis & Kraiger, 2009). Also, it is noted that there are some benefits to society. This idea is supported by other authors. Training provides a sustainable competitive advantage - human capital and allows the company to generate higher returns in the short and long term (Danvila & Sastre, 2009). Staff training could be considered as a business process. Each step is important in the staff training process and could use different digital tools for the achievement of goals on it. Different corporations use one of two approaches: some create their own internal digital platforms for learning personnel, others use existing digital solutions on the market (Barykin et al., 2021a, 2021b, 2021c, 2021d, 2021f). There is no obvious evidence that one of these approaches is better than the other. But all the corporations use a holistic approach in creating the system of staff training concerning digitalization. Corporations use digital platforms to cover all the steps of staff training if they relate it as a business process. Also, scientists pay attention to both sides: trainees and trainers within digitally technology-mediated training contexts. It is widely held that performance information is a key differentiator and organizations that can obtain and use information about their markets and their processes on time can perform better. Thus, it is not surprising that companies are investing large amounts of money in developing new and more elaborate performance-monitoring systems (Harmon, 2019).

Training staff as a business process is divided into six steps according to Roy V. H. Pollock, Andy Jefferson, Calhoun W. Wick (Pollock, Jefferson, and Wick, 2015) - Define (Step 1), Design (2), Deliver (3), Drive (4), Deploy (5), Document (6) (the 6DsTM approach pioneered by Calhoun Wick and Roy Pollock of the Fort Hill Company). Terry notes (Robert, 2005) the evidence for the effectiveness of this technique but also highlights that most programmes are not designed with the long-term evaluation of performance and behavioural change in mind. The success of learning is linked to measurable improvements in business performance. The study (Bahgat et al., 2018) also agrees with the effectiveness of this technique: “FIRST Framework” which helps in facilitating the transfer of learning suggested by the authors is based on the 6DsTM approach and contributes active deep learner experience. It is very important to consider the business process from the point of view of creating value for the company. Lior Fink, Nir Yogev & Adir Even studied the process of business intelligence value creation (Fink, Yogev & Even, 2017). Organizational learning is a key organizational resource for generating business value from business intelligence assets. An important contribution of this research is the identification of value creation mechanisms that are unique to business in-

telligence. Paul R. Sparrow & Heba Makram studied value creation in talent management (Sparrow & Makram, 2015). They consider value theory is useful for HR thinking about talent management. (Giustina et al., 2017) shows how Big Data changes the focus in intellectual capital research particularly value creation and discusses new tools for managing Big Data to support disclosing intellectual capital value drivers and creating new intangible assets.

Theoretical Fundamentals

Technology transition and economic growth (Galor, 2000) studied by many authors. Many scientists note the important role of intellectual capital in the innovative digital economy. Knowledge of the processes of its formation and application helps to choose the directions of the strategy of economic development (Zhilenkova et al., 2019). The development of an innovative digital economy depends on the efficiency of intellectual capital reproduction. Intellectual capital can be divided into personal, corporate and state one. Corporate capital is the intellectual capital of all employees in an organization. It is important to note here that the company's income does not decrease but even increases when investing in employee training. Interesting results were obtained in the work (Acemoglu, 1997). The author found that the profitability of innovation and training would increase with the thickness of the market for trained labor. Formal training programs affect labor productivity, as evidenced by research (Bartel, 1994) based on data on personnel policies and economic characteristics of enterprises in the manufacturing sector.

The company's competitive advantage is enhanced by the knowledge sources and knowing capabilities of the staff. Nahapiet & Ghoshal note that it is based on its intellectual capital (Nahapiet & Ghoshal, 2009). For this reason, firms that aim to compete globally have to invest in knowledge and have to use knowledge returns in training and skills to increase their competitive advantage (Belitski et al., 2020). There are different business model concepts: multi-divisional business model (M-model), triadic business models - T-models (Andreassen et al., 2018), considering how they create value among and between the buyers, sellers and the platform firm. Business model innovation allows firms to innovate in how they create value often through new technologies. Value creation could be described as an actor’s attempt to increase the value (Andreassen et al., 2018). Value is considered as value-in-exchange and value-in-use. Value-in-use focuses on the value that an actor creates through a use process for itself, the value-in-exchange - views value creation as a process of exchanging resources between actors.

Improvement of learning transfer is recognized as key to converting more learning programs into business outcomes. Companies that have implemented interventions to support learning transfer experience have higher levels of results’ achievement and return on investment. Due to the pandemic, companies around the world have cancelled face-to-face training and have used e-learning opportunities in most cases. Most executives agree that they must continue to provide multiple ways to add new skills while keeping employees safe. In corporate training, self-training using the Internet is intensively developing. Employees got many opportunities to improve on their own, as well as with the participation of the company when employees are given time for self-education. It became necessary to differentiate training, since employees may have different goals and desires, people from different generations work together in companies. Therefore, it is very important to have a clear notion of the use of different digital instruments for raising efficiency and effectiveness as outcomes of staff training. Among the different approaches, ELAS (to involve - learn - apply - support), SCEI (socialization, combination, externalization, internalization) and 6D (definition, design, deliver, drive, deployment, documentation) are practiced by the most effective learning organization (Tiwari, 2016).

METHODOLOGY

A learning process could be considered as a business function that creates maximum value for both the organization and the employee. The effectiveness of training and development of personnel, in this case, will be determined by increasing business results, and the process of creating value will consist of six steps (or "disciplines"): Define, Design, Deliver, Drive, Deploy, Document (Pollock et al., 2015) (see Figure 1).

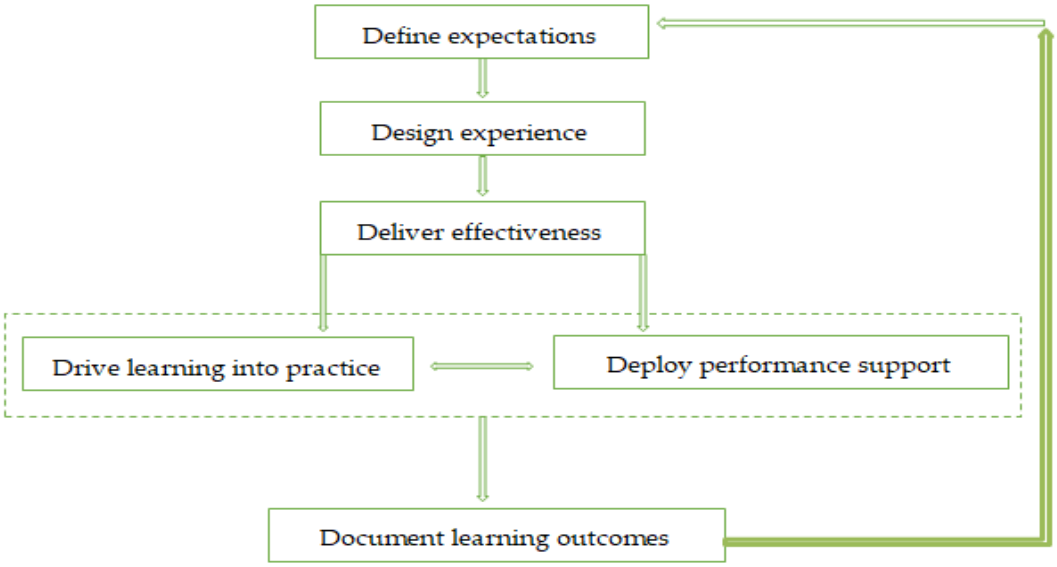

FIGURE 1
TAGES OF STAFF TRAINING DIGITALIZATION AS VALUE CREATION PROCESS (POLLOCK et al., 2015)

Each stage has its peculiarities and focuses. Based on it, we stated the hypothesis that each stage has its digital instruments for raising efficiency and effectiveness as outcomes of staff training. Therefore, the goal of the research is to find out whether there are digital tools specific for each stage of staff training in the business process of learning or there is a set of digital instruments used at all stages regardless of the step.

Step 1: Define Expectations

Diagnostics of what the company expects as a result of its corporate training program. Traditionally, corporate training objectives were formulated in terms of what employees learned or could do by the end of the course. In determining the expected business outcome of training, the main focus was not on the knowledge and skills of employees, but on the benefits of this training for employees and managers ("How will this training program help me achieve my goals?"). In other words, the training program would define business goals in terms of what the trainees will do after the training in the workplace and what benefits it will bring to the company.

Shifting the focus from the training process to performance helps training providers (internal or external service providers) get much more support from company management as well as from program participants. Managers are beginning to realize that they are also responsible for shifting theoretical knowledge to practical and valuing learning outcomes by business success criteria. A dialogue between managers and training specialists is launched to achieve coherence of the process. Employees who are aware of the value of learning for themselves are more interested in participating in the process and then returning to the workplace to put the results into practice.

Step 2: Design Experience

This stage includes the development of the full experience of personnel training and development, which is a process of transformation of training into business results. The traditional ADDIE (Analysis, Design, Development, Implementation, and Evaluation) pedagogical design scheme, which consists of analysis, design, development, implementation, and performance evaluation, focuses mainly on the training program itself, on the formal learning process. It pays little attention to learning that occurs before and after the program, although they are very important in determining the final result (Parshukov, Bril & Krolivetskaya, 2020). The process of transforming learning into business outcomes involves four phases:

I. Preparation of the training plan, participants and learning environment.

II. Targeted learning - in this phase, training methods are selected under the required standards of behavior and the business objectives of the company.

III. Transferring training to practice and its application.

IV. Achieving improvements: this phase assesses the progress made by participants in training programs.

In this approach, participants can be recognized as having completed a training program only after they demonstrate the application of the training results in practice and improve their performance.

Step 3: Deliver Effectiveness

At this stage, the importance of developing and presenting training in such a way that its value for forming new knowledge and skills in employees and organizations becomes obvious is emphasized. To this end, development of training courses should take into account achievements of cognitive neuroscience and bottlenecks of the learning process (e.g., limitations of attention and memory spans, cognitive overload and impaired learning outcomes, the need for sufficient time and support for learners to build their own connections when learning new material).

The effectiveness of the learning process requires an understanding of how people, especially adults, learn. They need to be aware of the relevance and usefulness of learning for themselves and to see how it relates to their work tasks. Therefore, it is important for training professionals, with the support of company managers, to create value and monitor the perception of the usefulness of the learning programs.

Step 4: Drive Learning Into Practice

Employee learning creates value for the company to the extent that its results are translated into practice and applied at work, and this relationship can be expressed by the equation: "learning × transfer of learning to practice=results". It reflects the fact that to obtain better results, it is necessary to prepare a quality-training program and it is also important to pay attention to putting the knowledge and skills acquired into practice. Otherwise, the investment in learning will be wasted, in which case it will be perceived as spoilage when spent resources did not produce any value.

Management should not leave the transfer of learning to a twist of chance or personal initiative of employees. To ensure this, a system of indicators and actions should be developed to identify measure, monitor and reward business objectives. The active participation of managers at this stage should be carried out jointly with training specialists.

Step 5: Deploy Performance Support

This phase consists of introducing active and continuous performance support after the completion of formal training. This support stimulates employees, increases their confidence and the likelihood that they will apply the new skills in their work.

Step 6: Document Learning Outcomes

This stage is necessary to evaluate the effectiveness of corporate training and investments, as well as to identify opportunities to improve the company's performance. It measures, collects and analyzes the learning outcomes. The indicators and analysis should be appropriate, credible and motivating for the target audience. The data obtained is a prerequisite for optimizing training programs. Training and development specialists should make a report and presentation to demonstrate the results obtained. Based on their findings, managers will make one of four decisions: maintain the same level of investment in education, increase investment, reduce investment, or close the training program. It is expedient to search for the use of digital instruments at each stage based on its peculiarities at first. Secondly, we suggest searching for examples that cover all the stages if there are such ones.

The platforms of Learning Management Systems (LMS) were chosen for the analysis based on rankings of eLearning Industry-2020 in August 2020. We chose the eLearning Industry as the largest community with the largest list of LMS solutions and the most transparent methodology of the research. The sample consisted of 551 LMS solutions acting internationally. We united results from Top-20 best LMS software based on customer and user experience (The Top Learning Management Systems | Reviews & Pricing 2020, n.d.). The methodology of both of the rankings was developed by the e-Learning Industry in collaboration with Dr Panagiotis Zaharias who is a scientific collaborator of eLearning Industry INC and UX expert (The Top Learning Management Systems | Reviews & Pricing 2020, n.d.).

The ranking based on customer experience consists of three parameters to be evaluated by customers:

- Customer Satisfaction (CSAT Score): measures the degree of customer happiness with a particular product, service, or interaction;
- Customer Effort (CEF Score): quantifies the amount of effort required to get customer support from the LMS vendor;
- Customer Expectation (CEX Score): measures the gap between customer expectations and service received by the LMS vendor.

The ranking based on user experience consists also of three parameters but the others:

- System Usability Scale: The most widely used and validated metric for measuring ease of use;
- Perceived Usefulness: The degree to which a user considers that the LMS maximizes their work performance;
- Net Promoter Score (NPS): The metric that quantifies on a 1-10 scale how much users are likely to recommend the product or not (The Top Learning Management Systems | Reviews & Pricing 2020, n.d.).

There were the first ten taken from best results in both of the chosen rankings. Results were accumulated and the total score was calculated for final ranking. It was accepted that rankings have the same impact.

RESULTS

As it was mentioned above, the training staff consists of six stages. Firstly, we study examples at each stage and the results are as follows:

Step 1: Define Expectations

The process of diagnosis of expected business results in the digital era for HR was shifted to the use of automated systems of goal achievements. However, turning to corporations we cannot find specific ones that are separated from the total digital platform that is usually used. For example, international corporations DeLonghi, TNC-BP, STADA, Gazprom, Sber-

bank use SAP solutions for those purposes, such as SAP Performance Management Russian corporations use our domestic developer's product, 1C: Enterprise module "Management by Objectives and KPI".

Step 2: Design Experience

Online training is essential at this stage. Organizations use solutions available on the market and develop their own. Such areas as micro-training, knowledge management, mentoring, assessment continue to develop. The main trends in the field of e-learning for personnel: mobile learning, adaptive learning using AI, an individual learning path, an individual employee development plan, evaluating the effectiveness of training, creating a developing environment that does not interfere with creativity and gives high results (Evseeva et al., 2019). An interesting VTB and Yord pilot project is an example of using a robot Albert to train sales managers. Platforms, online quests, VR glasses, webinars are already actively used by companies in the process of personnel training.

Step 3: Deliver Effectiveness

Concerning digital instruments at this stage usually, companies use online surveys, online profiles, voting platforms, for example, menti.com for monitoring the impersonal attitude of personnel to the learning process and outcomes.

Step 4: Drive Learning Into Practice

In the Learning Transfer Research 2017 (Leimbach, n.d.), the authors identified 66 activities (methods) of transferring the knowledge gained through training to the practical activities of the employees of the organization. They singled out 11 of them, which help employees to use them most effectively in their work and increase productivity, and further divided them into three groups: methods of preparing for training, methods of designing training, methods of integrating new knowledge into work.

The first group, Learner Readiness, focuses on aspects that help prepare employees psychologically and emotionally and increase their learning incentives. The study notes that taking this group of methods into account can increase the efficiency of knowledge transfer among students by 70%. These include:

- Developing learning motivation (emphasizing the importance and value of learning for the employee, including lifelong learning);
- The intention to put the knowledge and skills acquired into practice (to integrate them into their working environment);
- Alignment of career goals and acquired skills (it has been revealed that the appreciation of the value of new skills by the employee leads to their better application at work for increasing productivity).
- Shaping personal effectiveness (the employee's belief in their learning abilities, and the impact of learning outcome on the improvement of their productivity).

For that purpose, corporations create their internal digital platforms to monitor and recommend staff what and where they can learn. One such case is Motorola, which has its own internal digital platform for training staff. Motorola uses the Individual Dignity Entitlement method. This is a quarterly employee survey that measures the bonuses their managers receive. The purpose of the surveys is to assess both the working attitude of employees and the work of managers in creating the conditions necessary for their training and the development of their subordinates. Each employee could register in the system and have his or her own educational plan for career development.

The second group is the design of learning methods (Learning Transfer Design). They increase the learning efficiency, improve the applicability of the acquired skills to the employee's professional tasks, and lead to a measurable increase in one's productivity by 37%. These include:

- Practice and modeling (when designing training, it should include training tasks that simulate the real behavior of employees at work);
- Setting training goals for an employee (which facilitates the use of the acquired knowledge and skills in his or her work activities);
- An overview of possible areas of application of the acquired knowledge and skills.

Digitalization is reflected as virtual simulation programs, the use of AI (Artificial Intelligence) in the design of programs (Konnikov, Konnikova & Leventsov, 2019).

The third group is methods for integrating new knowledge into work (Organizational Alignment). The transfer of knowledge also depends on the extent to which the organization supports the training and use of the acquired skills of its employees. It should enable the regular consolidation and use of the acquired knowledge and skills of employees through assistance:

- Manager/coach support (the more the manager supports the skills acquired by employees through training, the more they will use them in their work);
- Support from colleagues (the more the manager supports the skills acquired by the employee in the training process, the more they will use them in their work); support from colleagues (if the employee uses the acquired skills in the working life);
- Links to work tasks (the more skills are integrated into the work processes of the organization, the more effective the training);
- Learning culture (the organizational culture should support the change and use of skills acquired through learning).

The research results showed that if all the above methods were implemented simultaneously, the learning effect could be increased by 186%. This shows their serious impact on the effectiveness of the organization and the ability to increase the return on investment in training and staff development.

One interesting case in the use of digital instruments at this stage is the solution used for corporate training at Nokia, which allows employees to learn more effectively a new product using a training social network. It was represented in a professional community of retail experts around the Nokia brand, in which participants studied new technologies and devices, made reviews, and shared their results with other colleagues online. The company conducted an experiment, the purpose of which was to identify the most effective motivation of the sales department employees, which could allow them to increase sales at the end of the training. To do that, the employees were divided into two groups, in which the installation was made for different types of motivation - internal and external.

The first group was initially given the installation that they work in this company and are required to undergo training to familiarize themselves with the new product from the training materials. In the long term, after completing the training, they had the opportunity to receive bonuses for successful sales of a new product. That is, the group was trained formally, with an attitude of intrinsic motivation and the task of doing their job well, selling a new product.

The second group was instructed that they work with the legendary Nokia brand, and they have the opportunity to work on a new product earlier than anyone else. Their task is to get to know the product as fully as possible and to demonstrate their new knowledge to other experts. That is, the group trained informally, using the external motivation of employees, using an internal social network. As a result of the experiment, the company's management found that the sales of the second group exceeded the sales of the first group by 35%. This corporate training solution has become one of Nokia's best practices globally.

Step 5: Deploy Performance Support

Advanced corporate training programs offer performance support similar to client support provided by consumer companies. At this stage, there is a need to train and involve line managers who are given training for acquiring skills to support employees throughout the continuous learning process. Peer-to-peer exchanges after formal training are organized and encouraged, e.g. joint learning through social media. Trained staff are surveyed to find out additional new sources of support and to provide feedback on performance, to strengthen new skills. High-performance training programs provide pertinent work instructions, online materials, smartphone applications, access *via* online platforms of virtual communities to subject matter experts, coaches and other digital forms of support to employees in applying training and achieving success.

Step 6: Document Learning Outcomes

Documenting the results obtained is necessary to support the continuous learning cycle. The results of one program should be the starting point for the next cycle of business results diagnosis, learning experience design, program implementation, putting learning results into practice, performance support and performance evaluation.

This step also provides the use of digital instruments, such as cloud storage, electronic document management system. Usually, all of it belongs to the general electronic system or platform that a company has. Examples are SharePoint, Dashpivot, Pandadoc, Evernote Business, Zoho Docs, Ascensio System OnlyOffice, M-Files DMS, etc.

We found out that there is also a set of digital instruments that is used in training staff as a business process covering all stages. These instruments belong to LMS - a Learning Management System (LMS) is a software application for the administration, documentation, tracking, reporting, automation and delivery of educational courses, training programs, or learning and development programs. The learning management system concept emerged directly from e-Learning. Although the first LMS appeared in the higher education sector, the majority of the LMSs today focus on the corporate market. Learning Management Systems make up the largest segment of the learning system market. The first introduction of the LMS was in the late 1990s (Davis, Carmean & Wagner, 2009). The main objective of the LMS is to replace isolated and disparate training programs with systematic methods for assessing and improving competencies and performance across the organization. The focus of LMS is to manage learners by tracking their progress and growth across all types of learning activities. It handles costly administrative tasks such as generating reports and data, but in most cases is not used to create training courses (Pirogova & Makarevich, 2020).

Turning to cases all these digital instruments could be classified based on several characteristics: type of business, industry focus, type of installation and distribution (see Table 1).

Table 1
MOST WIDELY BEST EVALUATED LMS SOFTWARE IN AUGUST 2020

No	LMS Software title	Best customer experience ranking score	Best user experience ranking score	In total, final resume	Type of business	Industry focus	Type of installation	Distribution

1	Loop	91	89	180	Corporations, Small and Medium-sized Enterprises (SMEs)	Broadcast, Media, Food & Beverages, Hospitality, Management, Consulting, Retail	Desktop/mobile app, cloud services	Subscription on the number of users
2	Docebo	90	90	180	Corporations and SMEs	IT, Oil and energy companies, Retail	Cloud services	Subscription on the number of users
3	TalentLMS	90	87	177	Corporations and SMEs, and public institutions	Airlines/Aviation, Food & Beverages, Hospital & HealthCare, Information Technology and Services, Retail	Mobile app, cloud services	Subscription on the number of users
4	LearnUpon LMS	90	86	176	Corporations and SMEs	Computer Software, Human Resources, Medical Devices, Oil & Energy, Retail	Cloud services	Subscription on the number of users
5	Adobe Captivate prime	89	87	176	Corporations and SMEs and public institutions	Computer Software, Electrical/Electronic Manufacturing, Financial Services, Information Technology and Services, Retail	Cloud services	Subscription on the number of users
6	GrusAim	90	85	175	Corporations and SMEs, and public institutions	Airlines/Aviation, Government, Administration, Hospital & Health Care, Oil & Energy, Pharmaceuticals	Desktop/mobile app, cloud services, web-server	Subscription on the number of users

7	Learn Amp	88	86	174	Corporations and SMEs	Gambling & Casinos, Information Technology and Services, Leisure, Travel & Tourism, Marketing and Advertising, Staffing and Recruiting	Cloud services	Subscription on the number of users
8	iSpring Learn	89	84	173	Corporations and SMEs	Banking, Hospital & Health Care, Human Resources, Information Technology and Services, Retail	Mobile app, cloud services, web-server	Subscription on the number of users
9	Inquisik	89	83	172	Freelancers, public institutions and SMEs	Computer Software, Financial Services, Government: State/Local, Manufacturing, Professional Training &Coaching	Desktop/mobile app, cloud services	Subscription on the number of users
10	Tovuti LMS	89	83	172	Freelancers, Corporations and SMEs, and public institutions	Computer Software, Education Management, eLearning, Financial Services, Hospital & Health Care	Mobile app, cloud services	Subscription on the number of users
11	CanopyLab - Social Learning by AI	87	85	172	Corporations and SMEs, and public institutions	Education Management, Higher Education, Maritime, Philanthropy	Mobile app, cloud services	Subscription on the number of users

12	Eurekos LMS	89	81	170	Corporations and SMEs, and public institutions	Construction, Financial Services, Human Resources, Investment Banking, Retail	Cloud services	Subscription on the number of users

As it was said in methods, we used two rankings - Top-20 best LMS software based on customer experience and Top-20 best LMS software based on user experience. Therefore, there is a list of 12 LMS software in the final table. Based on the accumulation of rankings we can assume that there are two leaders for both users and customers - Loop and Docebo. However, all the rest have not very solid estrangement. All the software uses the same principles for the distribution - subscription. Also, all of the LMS has the option to be used by SMEs. Corporations may use all products except Inquisik. Public institutions are in demand among seven from 12 of LMS. Freelancers as a target audience are reflected in two solutions – Inquisik and Tovuti LMS. The difference is in industry focus: all solutions have a different set of industries they are focused on. There are some in common such as IT, Retail, Human resources – it could be seen more than four times in solutions. Nevertheless, each solution has something specific: Loop has a focus on Broadcast and Media, Docebo on Oil and energy companies, TalentLMS on Airlines/Aviation and Hospital & HealthCare, etc.

DISCUSSION

One of the most important factors in the economic development of a country, region or organization is innovation. The concept of open innovation, initially explored by Chesbrough at the company level, was developed in the study of Christensen. In (Christensen, Olesen & Kjær, 2005) authors examine the determinants of open ways of innovation, focusing on technological aspects, and revealing the concept of open innovation. The concept of open innovation is linked to the logic of entrepreneurial ecosystems. In particular, (Pustovrh, Rangus & Drnovšek, 2020) notes that open innovation can be useful in analyzing collaboration among stakeholders within the entrepreneurial ecosystem. The work (Barykin et al., 2020b) agrees and considers collaboration as the main feature of digital ecosystems. Innovation teams play a significant role in the entrepreneurial ecosystem. Digital innovation teams depend on two cognitive states to function: team-specific cognitions required for digital innovation and digital project-specific cognitions (Hadjielias et al., 2021). Both of these cognitive states are influenced by organizational training, the results of which influence the potential performance of work teams and finally the company. No less important is the communication compatibility of potential members of the work team, the research of which is done in the work (Barykin et al., 2020a). Bengt-Åke Lundvall & Anker Lund Vinding consider that product innovation require on-going information exchange and interactive learning (Bengt-Åke & Anker, 2004).

Concerning the hypothesis that digital tools for staff training are specific at each stage, we can sum up that there are some instruments being peculiar to each stage but the use is structured and applied to training staff as an integral business process. It reflects in creating LMS by corporations on their own or using existing digital solutions.

Based on Table 1 we can assume that most LMS could be used by corporations but not by freelancers and public institutions. All of the LMS could be used for SMEs needs, but there is a different focus in industries. It could be of interest to know what are the reasons for companies from different industries and different locations for the final decision about the type of digitalization for staff training in a whole: Existing solution or own internal, and LMS software choice if the decision was to choose an existing solution.

The paper is based on the research of the worldwide known community and open resource e-Learning Industry, but there could also be other communities with rankings to explore and make a comparative analysis. Research can still be developed on the modified methodology using different approaches rather than one e-learning community.

The staff by itself could be the basis for future research. When creating and implementing corporate training, it is recommended to take into account the characteristics of representatives of different generations and their needs for using information technology in the training process, so that it proceeds more efficiently. The theory of generations was developed by William Strauss and Neil Howe to describe the generational cycles in US history and has become widespread throughout the world. Taking into account the importance of digital twins (Barykin et al., 2021e) the authors consider that the study of using digital instruments and evaluation of its efficiency concerning different generations in a company could be the field of further research. Organizations also need to track the effectiveness of the learning process like any other process - that could be also an additional field of further research. In general, the returns on investment in innovative training are generally lower than the impact of training on firm performance (Belitski et al., 2020).

CONCLUSION

Staff training is an important task for the company. Qualified personnel are the carriers of the knowledge and skills necessary for successful business development and innovation. We suggest the wholistic approach in a view of a lack of relevant studies. The holistic view spreads over on staff training as a business process. There are digital tools that are used at different stages, but their use is structured and applied to staff training as a holistic business process.

Staff training is divided into six steps with (Pollock et al., 2015) various digital tools being used on different stages. On the step of 'Define expectations' corporations use automated systems of goal achievements - performance measurement systems. Every organization keeps track of its performance in some manner. Some have very elaborate performance measurement systems that allow them to determine what is taking place in real-time, while most tracks a wide variety of measures and review them at the end of each week or month. 'Design experience' step has in digital use mobile learning, adaptive learning using AI, an individual online learning path, an electronic individual employee development plan. Step 'Deliver effectiveness' is about online surveys, online profiles, voting platforms (for examplementi.com) for monitoring impersonal attitude of personnel to learning process and outcomes. 'Drive learning into practice' step covers the use of such instruments in corporations as internal digital platforms to monitor and recommend staff what and where they can learn, virtual simulation programs, use of AI (Artificial Intelligence) in the design of programs. Step 'Deploy performance support' refers to online materials, smartphone applications, access *via* online platforms of virtual communities to subject matter experts, coaches. The sixth step 'Document learning outcomes' is provided with digital tools *via* cloud storage, electronic document management system.

Our approach allows digital technologies implementation for pushing the training process to a new level. The opportunities that open up for companies will allow them to get specialists with the necessary qualifications faster and at lower costs. HR development programs should include the use of digital technologies.

AUTHOR CONTRIBUTIONS

All the authors have contributed substantially to the entire work reported. All authors have read and approved the final manuscript. The authors would like to thank the anonymous referees for their very useful suggestions.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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