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Evaluation and design of a corporate e-learning platform for the B2B market. A case study for MTS PJSC.

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Abstract
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There is great potential globally and in Russia particularly for the growth of e-learning. This thesis aims to analyze the corporate e-learning market in Russia, evaluate e-learning systems and recommend the most vital technical features for its platform. In addition, the study examined key aspects of effective e-learning courses. The work was commissioned by MTS PJSC, the largest telecommunication company in Russia, with the objective of acquiring information valuable for the evaluation and design of a new service for the B2B market.

The study was divided into two main parts: literature review and empirical research. The first part of the study analyzed literature on e-learning environments including worldwide trends, market segments, technical standards, corporate e-learning platforms and basic features of learning management systems. In addition, adult learning theory and learning methods were considered. The empirical work investigates corporate learning and e-learning in real-life context and includes the participation of about 40 differently sized companies from different business fields. A case study research methodology was therefore applied. Data for the study were acquired by means of semi-structured interviews, a focus group interview, and a semi-structured questionnaire.

Analysis of the results of the study revealed characteristics, trends, and limitations of e-learning development in Russia. Key technical features were also identified and formulated taking into account company size. Based on the findings, and following andragogy principles and the Kolb’s learning model, recommendations were made for organization of online courses. In addition, a prototype of an online course was designed.

Keywords: corporate e-learning platform, e-learning features, online courses, andragogy principles, adult learning
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1 Introduction

The thesis presents a case study of the company Mobile TeleSystems PJSC (MTS). MTS is the leading telecommunication company in Russia and the Commonwealth of Independent States (CIS).

Rapid development of new mobile standards (2G, 3G, 4G, 5G...) and digital technologies over the last ten years have resulted in poor margins for traditional telecommunication services such as voice, Short Message Service (SMS), and data transmission. Over the last 3 years, the growth rate of the telecoms market has leveled out and all telecom companies are therefore investigating new directions in order to be profitable in the digital market. The main goals are to find the appropriate strategy and to transform the company into an organization suitable for new generation markets.

The Internet of Things, online services, cloud solutions (Infrastructure as a Service and Software as a Service), services based on Big Data analysis, and virtual reality technologies are becoming more popular and many new value-added services (Over-the-Top applications, smart and cloud solutions for all business areas) are being designed and launched in the B2C and B2B markets.

New technologies such as data processing, storage capacity, and data transmission have been improving every year and the number of internet users via smartphones, tablets or PCs has increased exponentially (Berger 2014). In other words, advances in the performance of the above mentioned technologies are allowing people to learn and communicate via Internet channels using their devices.

MTS monitors and evaluates world trends in society technology and business and analyzes potentially interesting and profitable areas in which to invest. E-learning has been found to be a significant growth area and a potential direction for development. Therefore, in the end of 2017 MTS launched the company MTS University Ltd. (MTS blog 2017). MTS has thus entered the market for continuing education and plans to offer training courses to other companies.
According to the digital strategy of the company, the CEO of MTS University Ltd. has the task of creating a new service “E-learning as a Service” for the B2B market. The B2B e-learning market is unfamiliar to MTS and telecommunications companies in Russia.

As a part of work on the B2B market for MTS my task is to suggest solutions that are appropriate to corporate clients and profitable for MTS. Therefore, my personal goal of this study is to explore and examine of the corporate e-learning market and understand demands, benefits, and restrictions.

Within the framework of this study, the key objective is to evaluate and suggest an appropriate set of technical features for a corporate e-learning platform. In addition, key aspects of effective organization of e-learning courses will be examined.

In line with the aim of the research, the current state of corporate learning and e-learning in a real-life context is investigated and includes the participation of about 40 differently sized companies from different business fields. Therefore, a case study research methodology is applied. Data for this study are acquired by means of semi-structured interviews, a focus group interview, and a semi-structured questionnaire. In addition, information about worldwide e-learning solutions and trends are gathered and analyzed.

Structurally the study has been separated into two main parts: literature study and empirical research. In the theoretical part of the work, e-learning environments including trends, segments, technical standards, corporate e-learning platforms and basic features of learning management systems are analyzed in detail. In addition, adult learning theory and learning methods are considered. In the empirical part of the work, the case study method is chosen as a suitable approach for this research questions. Three methods are used for data acquisition. The next part of the study discusses theoretical and empirical results and presents findings and recommendations. Finally, a prototype of one course is created.
1.1 Industry background

Analysis of B2B market demands showed that corporate e-learning is a potential and rapidly growing area of the B2B market (Urdan & Weggen 2000). Russian analysts anticipate high growth of e-learning in Russia by 2020 (LogrusIT 2017). Moreover, the corporate e-learning market is projected to grow at 11.4% to 2020 (Docebo 2016, p.9). Seufert (n.d.) states, that the term e-learning is one of the new E-words that has produced hype in the market and embraces commercialization aspects.

Big business corporations believe in the online education trend and invest their money in their employees’ development (Edumarket 2017). In the above mentioned context of market buzz and commercialization opportunities, corporate e-learning is clearly worthy of investigation. Moreover, telecom companies have financial, technical and human resources and know-how to develop useful and profitable products in order to create value for current and potential clients.

1.2 Company background

*The MTS company offers integrated mobile and fixed telephony, long-distance and international communications services, cable television, data transmission based on wireless and wireline solutions, including fiber-optic access technology and 3G and 4G networks, as well as financial services.* (MTS Group Sustainable Development Report 2015, p.8)

*MTS PJSC was incorporated on March 1, 2000, through the merger of MTS CJSC and Rosico TC CJSC, its wholly-owned subsidiary. MTS CJSC started its operations in the Moscow license area in 1994 and then began expanding through Russia and the CIS.* (PJSC MOBILE TELESYSTEMS AND SUBSIDIARIES 2017, p. 9)

*MTS completed its initial public offering in 2000 and listed its shares of common stock, represented by American Depositary Shares, or ADSs, on the New York Stock Exchange under the symbol “MBT”. Since 2003 common shares of MTS
According to the MTS annual report (2016), MTS Group operated in 83 regions of Russia and four CIS countries. MTS PJSC holds the required licenses to operate in the entire territory of the Russian Federation. In the reporting year, subsidiaries of MTS PJSC had operations in the territory of Ukraine (MTS UKRAINE PrJSC), the Republic of Armenia (K-Telecom CJSC), the Republic of Turkmenistan (MTSTurkmenistan ES), and the Republic of Belarus (Mobile TeleSystems JLLC). The total population in the area covered by MTS PJSC services exceeds 230 million people.

Currently, MTS supports new progressive business directions such as cloud solutions, Big Data, Internet of Things and other, not connected with traditional telecommunication business.

1.3 Research problem and research questions

Within the framework of this thesis, the key objective is to evaluate and suggest the best set of technical features for corporate e-learning platforms. In addition, the e-learning platform including content must be organized according to principles of adult learning, and must be well-designed and attractive compared to other solutions in the Russian market.

Therefore, the research problem of this thesis is to identify an appropriate set of technical features for corporate e-learning platforms and to create guidelines for the organization of e-learning courses.

The thesis addresses two research questions.

The main research question:

What criteria should be used for choosing corporate e-learning platforms?
And the sub-question:

**How should e-learning courses be constructed and organized in order to maintain the effectiveness of online education compared to traditional classroom learning?**

The results of this study will allow MTS to design and launch appropriate solutions as a value-added service for the B2B market.

### 1.4 Scope of the study

The study has been conducted between 2017 and 2018. Moreover, this study has been limited by the territory, i.e. – Russian Federation and the market, i.e. – corporate clients of the MTS company.

Design of corporate e-learning platforms is very expensive and time consuming. Therefore, only big enterprises can afford to develop such platforms on their own. In spite of the large number of e-learning platforms on the world market no ideal platform exists that is suitable for all contexts. For example, due to prevailing Russian legislation, many international e-learning companies have restrictions on operating in Russia. In addition, stemming from the Russian mindset and expectations many international e-learning platforms are considered inconvenient. In this study Russian mentality, business requirements and Russian legislation were taken into account in order to design the best decision in terms of corporate e-learning.

In this study the opinions and requirements of different companies are examined. The branch and size of the company do not play a significant role. However, an off-the-shelf corporate e-learning platform is more suitable for small and medium-sized businesses (SMB) that cannot afford to design their own platforms. In the MTS company, SMB clients comprise about 85% of the company's B2B clients. Sometimes, big enterprises can utilize off-the-shelf corporate online training as a service from well-known companies. It depends on their business tasks, number of employees and financial possibilities.
2 Literature review

2.1 E-learning as a new educational approach

The history of e-learning development began in 1960 when the first computer-based training program PLATO (Programmed Logic for Automatic Teaching Operations) was designed at Illinois University (TalentLMS 2014). This program integrated text and graphical content. Later, following technological development, these programs were stored on a CD-ROM. The high cost and expensive computing resources required that restricted the usage of training products such as PLATO (Faherty 2002). Consequently, the first e-learning programs were not very interactive between user and content, and they were used to deliver information to students only (TalentLMS 2014).

Nowadays, when e-learning is delivered through the Internet, Intranet or by means of wireless connectivity, the concept of e-learning has extended and the development of object-oriented programming is being promoted, where learning objects are independent units of learning resources based on some technical requirements and standards. The learning object approach enables the development of reusable resources (Douglas 2001, cited in Faherty 2003). Moreover, Longwire (2003, cited in Faherty 2003) states that creating learning resources in object formats enables the increase in flexibility, customization, ease of updates, interoperability, searchability, and manageability of content and learning resources. Friesen (2005) argues that interoperability, portability and reusability are the three main attributes for every e-learning procedure.

According to Wiley (2002), the fundamental idea of learning objects comprises the possibility to reuse small instructional components a number of times in different learning contexts. Moreover, any number of people can access and use them simultaneously.

Birchall & Woolfall (2003) state that e-learning is a new version of distance learning where knowledge is distributed and facilitated mainly by electronic means. Kakoty, Lal & Sarma (2011) argue that e-learning embraces a broad
range of electronic media like the Internet, intranets, extranets, satellite broadcasts, wireless connections, interactive TV, mobile apps, and others.

2.1.1 E-learning market and worldwide trends

According to Global Market Insights (2017), e-learning is a modern approach and a rapidly developing direction worldwide. Today e-learning is a very competitive market and there are more than 5000 participants offering numerous methods of online education (Seufert n.d., p.15).

According to Statista (2017), the e-learning worldwide market was worth about 165 billion U.S. dollars in 2016. In 2022 it is projected to surpass 243 billion U.S. dollars.

![Size of e-learning market in 2014 and 2022](image)

Figure 1. Size of e-learning market in 2014 and 2022 (Statista 2017).

In other words, the compound annual growth rate (CAGR) is positive at 5.08% in 2022.

Regional studies indicate that the highest growth rate is in Asia at 17.3% and in Eastern Europe at 16.9%. Although the Russian market for online education
lags 5-7 years behind the world market Russia is the country with the highest growth rate (Docebo 2014). In addition, the Russian market is considered to be a mature market (Docebo 2014). However, Russian analysts anticipate the high growth in e-learning in Russia by 2020 (LogrusIT 2017).

According to Edumarket (2017), the total education market value in Russia will increase about 11% over the next 5 years and reach 32.2 billion U.S. dollars in 2021. The value of the e-learning market is estimated to reach 860 million U.S. dollars in the same period. Such growth would mean that the market share of e-learning as a part of overall education would more than double and reach 2.6%. In 2016 the e-learning market amounted to 1.1% of the total education market (334 million U.S. dollars). It should also be noted that the Russian Government is promoting the trend to digitalization in the country and will take part in “electronic education” development in 2016-2020. As part of this policy a number of laws and regulations will be revised (Edumarket 2017).

Trends in e-learning are undergoing change. Adkins (2016) investigated the self-paced e-learning market in 122 countries based on data from significant e-learning suppliers. This analysis included off-the-shelf content, learning management systems (LMS), and e-learning services. Regarding this report, the worldwide five-year growth rate for self-paced e-learning will be negative at -6.4% CAGR to 2021. The steepest declines of more than 10% are anticipated in Asia and Latin America. However, according to this investigation, there are 15 countries where the trend will be positive and growth will be over 15%. This growth is forecast especially for African countries. It was further found that the Russian market is the largest buying country in Eastern Europe. However, the growth rate for self-paced e-learning is negative-to-flat for Eastern Europe as a whole at -1.1% (Adkins 2016). According to Adkins (2016), the key reasons for negative trends in Russia are the unstable economic situation and the price of oil which has prompted many energy companies to reduce their training budgets. Despite decreasing growth rates for self-paced e-learning the overall trend for e-learning industry is positive because new trends are emerging. The
first is the fast growing mobile learning market and the second is the managed training (Adkins 2016).

The Brandon Hall Group (2016) investigated the main priorities in e-learning which are presented in Figure 2.

![Figure 2. Top 5 learning technology priorities (eLearningLearning 2016).](image)

Social or collaborative tools, mobile learning and data analytics play a significant role in e-learning development, which suggests that the popularity of personalized and “just-in-time” learning methods is increasing.

### 2.1.2 E-learning environment: types and segments

Generally, two types of e-learning are distinguished: synchronous and asynchronous. These approaches have their own advantages and disadvantages. Synchronous e-learning allows learners and teachers to interact with each other in real time. The main disadvantage of this approach is inflexibility, because a live course must be attended with a teacher in a specific time slot. Asynchronous learning is carried out any time. It does not matter whether learners or teachers are online or offline. Information is delivered via web services, e-mail and other tools. However, this approach can be suitable only for self-motivated learners. It has therefore been concluded that effective e-
learning courses should have both types of learning: synchronous and asynchronous (TalentLMS 2014, 43-46).

E-learning embraces a broad set of applications and processes comprising computer-based learning, web-based learning, virtual classroom, and digital collaboration (Urdan & Weggen 2000, p.8).

According to Henry (2001), an overall e-learning solution comprises three key parts: technologies, content, and services. All these categories play a crucial role in the comprehensive solution. The significant elements and their features in a comprehensive e-learning solution are depicted in Figure 3, Table 1, Table 2, and Table 3.

![Figure 3 Comprehensive e-learning solution (Henry 2001).](image)

As can be seen in the figure, lines between three key elements are blurred. The key reason is claimed to be tough market competition. Therefore, many training providers or software providers has begun to branch out into other areas expanding and increasing their businesses (Urdan & Weggen 2000, p. 20).

<table>
<thead>
<tr>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology infrastructure</td>
</tr>
<tr>
<td>- Internet, Intranet, hybrid delivery platforms</td>
</tr>
<tr>
<td>- Cloud storage capability</td>
</tr>
<tr>
<td>- Facilities for remote access (e.g. mobile)</td>
</tr>
<tr>
<td>- Omni channels capability</td>
</tr>
</tbody>
</table>
| Learning Content Management System (LCMS) | - Analytics based on Big Data  
- Possibility of fast expansion of a platform on client's servers  
- Geographical integration capability  
- Friendly user interfaces  
- Personalization and customization capabilities  
- Security of personal data |
|----------------------------------------|-------------------------------------------------------------------------------|
| Learning Management System (LMS)       | - Options for delivering, tracking, reporting and management of online content  
- Ability to deliver and track all multiple content with the integrated environment  
- Demo access for clients |
|----------------------------------------|-------------------------------------------------------------------------------|
| Learning technologies                  | - Performance management, assessment 360, employee development plan, test, certification  
- Financial reporting, activity tracking  
- Capability of integration with other HR systems (e.g. recruitment, carrier development, compensation system, etc.)  
- Mapping of skills and creating the system of competence |
|----------------------------------------|-------------------------------------------------------------------------------|
| Learning technologies                  | - Possibility to collect data about a learner's activity from many technologies (xAPI)  
- Integration with the e-learning solution of up-to-date and high quality learning technologies (e.g. mentoring, chat forums, webinars, software simulations, virtual classroom sessions, video conferences, gamification, online meeting with elements of augmented reality, online library, mobile learning, etc.)  
- Adaptable and flexible to new technologies |
Table 1 Comprehensive e-learning solution (Technology) (Henry 2001) and (Faherty 2003).

| Generic e-learning education and knowledge content (courses, events, resources, collaboration, mentoring, etc.) | - Ability to leverage these technologies for own application  
- Mobile Learning |
| --- | --- |
| | Table 2 Comprehensive e-learning solution (Content) (Henry 2001) and (Faherty 2003).

<table>
<thead>
<tr>
<th>Content</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic e-learning education and knowledge content (courses, events, resources, collaboration, mentoring, etc.)</td>
<td>- Capability to support wide access to learning materials, in generic off-the shelf fields (e.g. IT, applications, management skills, finance, etc.)</td>
</tr>
</tbody>
</table>
| Classroom content | - Internally and externally provided  
- Focus on competency definition and learner (e.g. length, accuracy, usefulness, relevance to the current situation and time)  
- Adaptable to different devices (e.g. desktop, tablet, cellphone)  
- Following the knowledge management system and rules of psychology |
| Published content | - Specific and relevant to learner’s needs that are planned to develop  
- Easy integration in the e-learning solution |
<table>
<thead>
<tr>
<th>Services</th>
<th></th>
</tr>
</thead>
</table>
| Hosting          | - Usage of vendors or outside providers to house or maintain software for a client  
|                  | - Many benefits from hosting (speed, cost, access, integration, resistance, updates)  |
| Consulting       | - Strategy and design of the overall e-learning program  
|                  | - Integration with critical business processes and other learning systems  
|                  | - Outsourcing, facilities management  |
| Support          | - Assistance with implementation of the e-learning systems (e.g. launch, marketing, promotion, approach to cull the content, management feedback, technology platform)  
|                  | - Technical and implementation support  |
| Design and content services | - Tailoring and customization of the e-learning platform, delivery environment and integration with other applications  
|                  | - Transfer existing materials to online format  
|                  | - Build of custom content for clients' needs  |

Table 3 Comprehensive e-learning solution (Services) (Henry 2001) and (Faherty 2003).

New technologies listed in tables make the e-learning process more flexible, user friendly, and cost and time effective which has led to increasing day-to-day demand among the people. Many different vendors and companies offer their core products in content organization, learning services, and selling technologies (delivery solution) independently. However, Kakoty, Lar, and Sarma (2011) state that there is an increasing demand for e-learning requiring a combination of tools, technologies and methodology throughout the organization. According to Global Market Insights (2017), the e-learning
market is highly competitive on the worldwide scale. Therefore, e-learning companies need to adapt their strategies, focusing on partnerships, mergers and acquisition. This approach allows sustained growth in the market and provide more multipurpose services for ending clients.

2.1.3 E-learning procedures and technical standards

Many organizations throughout the world are involved in design and development of e-learning software, content or services. Thus, e-learning standards are important to enable objective comparison of courses (Instructional Design 101 2018).

Overall e-learning procedure can be divided into five categories: metadata management, content packaging and communication, learner profile, learner registration, and security (Kakoty et al 2011). Every category has some standards and specifications that are developed by International E-learning organizations. Adina (2007) states that there are four main organizations: Aviation Industry Computer-Based Training Committee (AICC), Institute of Electrical and Electronic Engineers (IEEE), Instructional Management System Project (IMS), and Advanced Distributed Learning Initiative (ADL) that evolve these standards. E-learning standards apply to a system of rules that describe how courses must be created and delivered over multiple platforms. Interoperability of learning tools and content, reusability, durability, and accessibility are key advantages of e-learning standards development. All parts of e-learning procedures must operate seamlessly together (Adina 2007).

Abdullah and Aziz Ali (2017) argue that metadata is the structured information about the main characteristics of this information. According to Heng (2002, cited in Faherty 2003), metadata is significant to learning objects because it describes the content of the learning object. Adina (2007) states that the metadata content is the heart of e-learning. The metadata element is usually contained in Extensible Markup Language (XML) format.
Therefore, metadata plays a key role in interoperability standards (Abdullah & Aziz Ali 2017). According to metadata standards all the learning content and catalogs must be tagged in a coherent way to support indexing, storage, searching, and retrieval of learning objective by multiple tools (Abdullah & Aziz Ali 2017).

The main idea of Content Packaging and Communication standards is to allow courses to be transferred from one system to another. Then, when content is launched, communication with learner about data and previous activities must be realized (Abdullah & Aziz Ali 2017). In addition, Adina (2007) argues that these standards specify some rules about how to delivery content to the learner.

Abdullah & Aziz Ali (2017) state that the learner profile standard allows sharing information about learners across multiple systems. Learner profile information can include personal data, a learning plan, learning history, accessibility requirements, assessments of knowledge, certifications and degrees, and statuses of participations in current learning (Abdullah & Aziz Ali 2017). In different countries there are some specific Data Protection Regulations that must be taking into account.

Learner registration standards allow regulation of information about what should be offered to a learner and provided about participants (Abdullah & Aziz Ali 2017).

The meaningful learning object standards and their descriptions are presented in Table 4.

<table>
<thead>
<tr>
<th>Learning procedures elements</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata</td>
<td>- There are metadata standards named “The Learning Object Metadata” of IEEE Learning Technology Standards (LTSC) and the</td>
</tr>
</tbody>
</table>
Content Packaging and Communication

- Content packaging standards are described by IMS Content Packaging specification, the IMS Simple Sequencing specification, and the ADL Sharable Content Object Reference Model (SCORM). The latter is more popular than others.
- For communication and interaction with Learning Management System (LMS) the Aviation Industry Computer-Based Training Committee (AICC) and Tin can API standards utilize. Tin can API is a successor to SCORM. This standard can track such learning activities as mobile learning, offline learning, collaborative learning, and simulations (eLearning INDUSTRY 2016)

Learner Profile

- The important standard is named “IMS Learner Information Package” specification.

Learner Registration

- There are two standards: “the IMS Enterprise Specification” and “the School Interoperability Framework” depicting this direction.


As can be seen in Table 4, e-learning procedures have unique and specific worldwide standards. The main idea of these standards is to improve flexibility and adaptability of e-learning tools.

2.2 E-learning in corporate education

Corporate education is very different from traditional education. The key role of corporate education is to generate knowledge among employees that aids
development and growth. Moreover, corporate learning enables employees to improve their skills and continue to operate in the company (TalentLMS 2014, p. 25).

Berger (2014 p.13) states that the main task of corporate learning is to change mindset of employees and their behavior at the workplace. There are some significant characteristics of corporate learning that are depicted in Table 5.

<table>
<thead>
<tr>
<th>Characteristic of corporate learning</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast-paced learning</td>
<td>Trainings must be delivered as faster as possible to gain maximum result, because time is money.</td>
</tr>
<tr>
<td>Carrier-related learning</td>
<td>Enterprise learning has to help employee to gain their knowledge and skills to be high qualified and effective at work.</td>
</tr>
<tr>
<td>Benefits for organization, Return on Investment (ROI)</td>
<td>Focus on pragmatic issues and benefits for organization. ROI of the learning investments is difficult calculated in short-term period.</td>
</tr>
<tr>
<td>Training versus Education</td>
<td>Corporate learning focuses on training. It means, the act of being prepared for something (new business task or product, new skills, necessary technology, etc.)</td>
</tr>
</tbody>
</table>

Table 5. The significant characteristic for corporate education (TalentLMS 2014).

In other words, corporate learning plays a significant role to improve the competence level of personnel. If this process is fast, flexible, task and employee oriented the company will gain much money due to high competitive
personnel. However, ROI of the learning investments are difficult calculated in short-time period.

2.2.1 Key drivers of corporate e-learning development

Currently, stemming from globalization and digitalization business markets are changing quickly. The rapid spread of the Internet allowed people in the world to eliminate such barriers as time, place, age and, economic nature. The corporate clients encounter big challenges about how to cope with tough competition and improve effectiveness of their business. According to Berger (2014, p. 3), there are three key pressures influencing company's successfulness: time, globalization, and cost. He states that company agility is a significant competitive factor. Moreover, learning is no additional option, it is a strategic necessity!

Berger (2014, p.3) argues that success of new companies that emerged after the global financial crisis of 2008 concludes in high effectiveness of their cost business model. Thus, global competition makes companies reduce their costs. In this case, corporate e-learning can be helpful for them to develop employees. Faherty (2003, p.4) states that the lack of skilled employees can be a barrier of business increase.

According to Berger (2014, p.3), cost pressure affects the way of e-learning development. The first is about optimization of current processes and reducing time for education by means of e-learning opportunities. The second is about reducing costs for trainers in company, travel and infrastructure. These aspects stem from e-learning development (Berger 2014, p.3). Faherty (2003, cited in Kellett 2002) notices that 50% of traditional training expenses are caused by travel, food and accommodation costs.

Diversity of people and different knowledge levels of participants, the growing trend of digital generation, and extreme high growth of people using smartphones, tablets or PC leads to revision of traditional education approaches in companies and to a focus on corporate e-learning (Berger 2014,
pp.3-6). In addition, Faherty (2003, cited in Chandana 2002) notes that content in the e-learning system is more tailored to the needs of the individual, than in traditional classroom education. In addition, e-learning allows centralized update of changes in content.

According to Kakoty et al (2011), the key benefits of e-learning are the cost efficiency, accessibility and flexibility. In other words, e-learning gives people opportunity to get necessary and sufficient knowledge regardless of location, age, time-zone, and language barriers. Employees can learn at their own pace while continuing to work (Faherty 2003, p.4). Therefore, e-learning can increase business reactiveness. Rosenberg (2001, p.31) states that one of the biggest e-learning advantages results in the employees sharing of their knowledge with each other. Web-based communities are the best way to do it.

However, there are some key questions and drawbacks that may limit investments in corporate e-learning. The first concludes in measurement of e-learning success. In other words, business management wants to see measurable contribution from e-learning evolvement to business results (Berger 2014, p.3). Generally, Return on Investment (ROI) model is utilized to measure effectiveness of training products. To calculate ROI, it is important to determine such tangible benefits as: increase in productivity (tasks completed), improvement in quality (fewer defects), staff turnover reduction, lost-time reduction, customer satisfaction increase (number of repeated sales) (Faherty 2003).

The second challenge is about the employee’s motivation and their participation in e-learning deliberately. The method of making online training obligatory is not so effective. There are some key tools that can increase motivation. The significant point concludes in connecting the career advancement and e-learning process. This approach makes the learning process transparent and understandable for employees. However, content must be relevant, valuable, and helpful. The correct reward system is a meaningful tool. It can be built on getting some valuable prize immediately. For example, if an employee derives
the highest score on the test he can get access to specific course. It is important that the reward system should be easy and valuable for employees, but also profitable for business (SHIFT 2018). Usage of such informal signs as badges and a visual system of credits from one course to another can be a way to compare qualifications of employees earned online (Berger 2014).

According to eLearning INDUSTRY (2017) there is also the problem of the scope of security of e-learning programs. In addition, practical skills are more difficult to gain using e-learning system. This system is more about knowledge-centric education (TalentLMS 2014).

In spite of some drawbacks e-learning is a worthy alternative to traditional learning. It is faster, cheaper, more flexible, and potentially better (TalentLMS 2014).

Faherty (2003) states that the corporate e-learning has emerged as a capability to respond quickly to dramatically changing training needs. Moreover, he argues that e-learning technology can facilitate a training environment for independent located employee.

2.2.2 Corporate e-learning market analysis: key trends and features

The worldwide market for corporate e-learning is divided on the basis of technology, training type, and region (Market Research Future 2017, p.4). Regarding technologies, e-learning is classified into web-based, learning management system (LMS), learning content management system (LCMS), podcasts, mobile learning (m-learning), virtual classroom and others. In terms of training types two segments are distinguished: Instructor-led and text-based and outsourced.

Based on the market study by Technavio, size of the global e-learning market is anticipated approximately 31 billion USD in revenue up to the end of 2020 (Docebo 2016, p.9). During the period between 2016 and 2020 the 11.4% GAGR growth of the corporate e-learning market is projected (Docebo 2016,
According to Market Research Future (2017, p.6), the corporate e-learning market in Europe will be increasing between 2016 and 2023. New learning methodologies such as blended learning, collaborative learning, and competency-based learning are planning to be adopted. In addition, personal and continuous learning at work have an increasing trend (TOP Tools for Learning 2018).

Corporate e-learning market value in Russia was about 48 million U.S. in 2016. In spite of economic instability in Russia between 2013 and 2014 the demand for corporate online learning solutions is increasing now. Especially, banking and retail sectors have high needs in e-learning development. The main business model for corporate clients is based on subscriptions and selling licenses (Edumarket 2017, pp. 57-58).

According to Urdan & Weggen (2000, p.1), two wide product groups are distinguished in the corporate e-learning market: IT trainings and soft skills trainings. Faherty (2003, sited in Fry 2001) states that IT trainings comprised the primary E-learning market. However, soft skills’ trainings outpace IT. Soft skills market embraces such significant areas as general management, leadership, communication, human resources, sales and marketing, professional development, and team building (Faherty 2003).

Big business corporations believe in the positive online education trend. They understand that by means of effective training system they could evolve essential next generation skills that will be competitive advantages in the market (eLearning INDUSTRY 2015).

The key trends of the e-learning market that are developed focusing on corporate needs are presented below.

1. Continuing convergence of corporate training. Focus on “One-stop shopping” and Added-Value Services
   - Training companies began to realize “one-stop-shopping concept”. In other words, due to the pressure in the market they need to follow
corporate clients’ needs and create comprehensive e-learning solution integrating technology, content and services in one;
- Development of additional mostly demanded services for corporations (e.g. coaching, support, and tracking reports). Integrated these services into education strategy of organization;
- Usage of “blending” learning (mix of e-learning and traditional classroom learning) is to find the optimal combination of both systems in the process of corporate learning. Creating new learning models to satisfy corporate clients’ demands Seufert (n.d., pp. 15-17).

- Due to huge amount of participants on the e-learning market, less than 5% of competitors have 5% market share. Current situation stems from merges and acquisitions in the market;
- Corporate clients are ready to pay for high quality product to reduce mistakes. Moreover, clients prefer “safe choice”, differentiated service proposal, and strong long-term partnership Seufert (n.d., pp. 15-17).

3. Modularization and Standardization
- Due to standardization and modularization of the content technical barriers of e-learning usage being reduced. The main idea is to have an opportunity to track the different content created by multiple providers through the one training management system easily. The content must be reusable, interoperable and absolutely manageable. This approach leads to personalized learning development (Seufert n.d., pp. 15-17).

4. Augmented Reality (AR) and Virtual Reality (VR) applications
- In terms of AR, information is simulated in three dimensions (3D), visible in realistic way. This approach can help to transfer from what has been learned to real work situation (Berger 2014, p.13).
- AR learning environment is more inserted in reality than VR learning programs. In spite of the fact that VR devices and apps are more spread out than AR programs, AR is cheaper and practical in education process (Andriotis 2016).

5. Gamification/ Simulation
- Transforming tasks into exciting challenges. Well-prepared games or simulations develop critical thinking and problem solving skills and teamwork;
- Creating and improving of reward system for participants’ efficiency that will be stimulating to be actively engaged in learning process (Berger 2014, p.13).

6. **Mobile, social and collaborative learning**
- Mobile devices allow learners to interact with learning system anywhere and anytime;
- Social and collaborative tools apply to informal learning. However, these tools within learning technologies allow companies to promote and leverage learning model (Brandon Hall Group 2016, p.12).

7. **Microlearning**
- Focus on design micro-learning activities that are inserted into daily routine of employees. It means that education process is separated into micro-steps in digital media environment. In addition, this technology is more suitable for mobile learning (m-learning) (TalentLMS 2014, p.30).

8. **Learning Analytics**
- The main goal is to analyze, store, and visualize all current materials and information about employee’s learning process. Then, refurbish these materials suitable for the learner (Andriotis 2016).

**2.3 Corporate e-learning platforms**

**2.3.1 Learning Management System (LMS): concept and trends**

A learning management system (LMS) is a digital learning environment that enables employees and employers to record, manage and estimate value of a learning process (Rosenberg 2001, p. 161). In other words, the learning management system (LMS) is a worldwide term for interactive software specifically evolved for distributing and managing courses. In a corporate environment such system allows employees to collaborate with teachers or coaches and accept assignments digitally. In addition, the LMS is utilized to monitor staff and keep test results and records of training over all period of learning (TalentLMS 2014, pp. 34-35). In other words, the learning
management system helps to supply learners through the education process in a visual form (Abdullah & Aziz Ali 2017, p. 644).

According to Westfall (2018), there are four key functionalities of LMS:
- Creating of learning programs to teach employees in specific knowledge area or improve their skills;
- Tracking the completion of programs and helping for employees to meet a deadline;
- Demonstrating employees’ competencies and gaining certifications;
- Providing analytics for organizations to get information about successfullness of training and learning courses.

The learning management system (LMS) marketplace comprises many platforms to help companies manage all aspects of their employee education (TalentLMS 2014, pp.34-35).

The LMS marketplace was estimated at over 3 billion dollars in 2016. The learning management system market is anticipated to increase at a compound annual growth rate (CAGR) of 24% between 2016 and 2020. Moreover, IT market steadily shifts from traditional IT offerings to cloud services. Therefore, SAAS and Cloud computing LMSs are beginning to prevail (Docebo 2016, pp. 10-11). Regarding Software Advice survey, more than 55% of corporate clients prefer cloud-based LMSs, because they are easy and quickly to deploy and manage the system (Westfall 2016).

In addition, based on essential information discovered in the recent Software Advice employees’ survey interconnection between corporate learning management systems and employees’ involvement was found. First of all, only 39% of employees are satisfied with their LMSs and highly estimate the set of features. About 58% of employees want to split up long-time digital content into sets of micro blocks and 35% of employees want to gain benefits for their learning progress in real life. In addition, 24% of employees prefer social networking in the process of education. In other words, participants distinguish
such key trends in LMS features as microlearning, gamification and social e-learning (Mindflash 2018).

Regarding Brandon Hall Group (2016) survey the analysis of learning technologies in LMS was provided. It turns out that 44% of companies in the world are ready to replace the current LMS. This trend is growing year to year.

The Top 5 reasons why companies switch LMS are presented in Figure 4.

![Figure 4. Top 5 reasons for switching LMS (Brandon Hall Group 2016).](image)

About 88% of companies argue that the user experience is the most important reason for switching LMS. This result is not surprising, because participants are engaged in the learning process and user experience is really significant for them. And, as well it indicates how friendly, time consuming and simple to use. In addition, about 40% of organizations realize that user experience is absolutely critical for their business. The next chart indicates that 74% of administrative experience needs to be improved. Also, it was found, that integration with different platforms and system is important for organization. More than 77% of companies see integration is as one of the meaningful technologies of LMS. Integration with Talent Management System and
Workplace Management System are crucial for business (Brandon Hall Group 2016, pp.18-33).

New social learning systems have emerged regarding trends in e-learning and development of informal learning tools. Content Management System (CMS) and Learning Record Store (LRS) are the most recent trend words in e-learning. Therefore, these systems should be integrated with the LMS in future (SHAREKnowledge 2018).

CMS supports the creation and modification of digital content. Also, this system supports all participants working in collaborative environment. Integration of LMS and CMS enable learners to derive content easier and faster. LRS is responsible for record all information from social resources. Currently, about 70% learning is happened outside of the LMS. Therefore, according to integration of the LMS and the LRS, information about learners will be more comprehensive (SHAREKnowledge 2018).

2.3.2 Types and common features of LMS

All learning management systems (LMSs) are different from each other. It means that each LMS has a specific set of features. When companies choose LMS they need to estimate and analyze business demands and LMS technical features.

Consider types of LMSs. On the one hand, there are free (open source software) and commercial learning management systems. Open source LMSs allow companies to freely use the system and adapt this for business needs. Nowadays, open source LMSs have an increasing interest on the business market. However, some difficulties may occur with official support. In commercial LMS the list of products and services is more comprehensive (TalentLMS 2014, pp. 39-40).

On the other hand, LMS can be “deployed solution” or “hosted system”. A deployed solution is installed on computer as an internal system. This system
has such drawbacks as additional costs to install, manage and maintain remotely. However, in a long-time perspective a deployed solution can be more cost effective. A hosted solution is a Software as a Service (SaaS) LMS. In this case, the solution is located on the provider’s servers or in Cloud. Therefore, all questions about backups and updates are on the provider’s side. A hosted solution is cost effective initially, because additional cost for install and backup are absent (TalentLMS 2014, pp. 40-41).

According to above mentioned, first of all company needs to estimate their demands and their budget, then weight pros and cons of different types of LMSs and their features, and after that choose an accurate solution.

Stemming from the high growing e-learning market the number of LMSs is increasing too. There are common features that good LMSs must have. According to the analysis of ProProfs (2012), TalentLMS (2014, pp. 35-38), and Westfall (2018), the main features are collected and presented in Table 6.

<table>
<thead>
<tr>
<th>Features</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated Grading</td>
<td>Helps to instantly grade many assessments.</td>
</tr>
<tr>
<td></td>
<td>Automated grading assessment tools can comprise self-tests, quizzes, assignments and other tools.</td>
</tr>
<tr>
<td>Branding</td>
<td>Allows companies to fully brand their courses and training programs</td>
</tr>
<tr>
<td>Certification and compliance management</td>
<td>Allows to install, track and manage certification programs and compliance training if it needs for industry.</td>
</tr>
<tr>
<td>Communication</td>
<td>The LMS’s functionality must have opportunity to communicate with employees in groups and personally. For example, it needs to inform automatically about the upcoming test or the virtual classroom. There are different tools for communication and notification: e-mail, chat rooms, forums and others.</td>
</tr>
<tr>
<td>Content authoring</td>
<td>Gives LMS users the ability to create and package</td>
</tr>
</tbody>
</table>
own e-learning content, and delivery courses to end learner with LMS. There are two ways to author content:

1. Many e-learning authoring tools are a part of LMS.
2. There are learning content management systems (LCMSs), where content are created and stored. The LCMS can be integrated with LMS.

Moreover, interface has to be user-friendly. It is important that LMS has a set of samples of courses to understand how to manage and distribute content.

<table>
<thead>
<tr>
<th>Course library</th>
<th>Provide a pre-made library of training courses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customization</td>
<td>In terms of customization, there are different options to tailor LMS to organizations’ needs. It means that there are important options (e.g. language, notification, and others) that must be changed regarding unique preferences of employees.</td>
</tr>
<tr>
<td>E-commerce</td>
<td>Companies can teach external learners by means of selling courses.</td>
</tr>
<tr>
<td>Gamification</td>
<td>Learners can be motivated to engage and complete courses. Competition is based on collecting of points and badges. Results and ratings are presented in leaderboards.</td>
</tr>
<tr>
<td>Learning environment</td>
<td>Help in training organization or learning administration. Namely, distributing of content, managing information about learners, their scheduler, and course enrollment. In addition, it allows keeping a track of course progresses and results for employees.</td>
</tr>
<tr>
<td>Mobile learning</td>
<td>This feature allows learners to complete their training or tests on mobile devices (smartphones or tablets).</td>
</tr>
<tr>
<td>Reporting</td>
<td>Reporting system is a significant feature for the LMS.</td>
</tr>
</tbody>
</table>
In terms of this functionality generation reports, export information into Excel, graphical performance of data and other approaches are presented. Analytics and reporting help to determine expertise and find learning gaps.

<table>
<thead>
<tr>
<th>Social Networking</th>
<th>If LMS is integrated with social media content or news issues can be shared through Facebook, Vkontakte and other societies at the click.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing</td>
<td>Tests and quizzes are a meaningful part of e-learning. Moreover, test environments must be secure. LMS should have opportunity to create multiple choice tests, ability to randomize test questions.</td>
</tr>
<tr>
<td>Virtual Classroom</td>
<td>Many platforms include a video conferencing functionality. If LMS is integrated with the whiteboard system it helps to plan and schedule sessions in the virtual classroom.</td>
</tr>
<tr>
<td>Webinars</td>
<td>Web-based seminars or conferences that are hosted in real time over the Internet. Connection of many learners located geographic remotely to participate, listen, and ask questions in real time.</td>
</tr>
</tbody>
</table>

Table 6. Common LMS’s features (ProProfs 2012), (TalentLMS 2014, pp. 35-38) and (Westfall 2018).

Many different features listed in Table 6 can be implemented in learning management systems (LMSs). These features help and motivate learners to study. Each feature has a specific function in LMS. Therefore, all LMSs differ in the number of features and functionalities.

2.3.3 Review of current LMS

Currently, there are hundreds of different learning management systems (LMSs). All of them have a different set of features and value for clients. Many
worldwide surveys and reports have the Top list of the best platforms. However, it is difficult to find the rating of LMSs relevant for the Russian market.

Regarding last edition of Russian legislation about data protection, all operators that collect and process the personal data of Russian citizens need to use databases are located in Russian Federation (Kukushkina, Mzhavanadze, & Perevalov 2017). This factor can be a big restriction for foreign e-learning companies operating in Russia, especially in the corporate market. In Table 7 comparison analysis of many popular LMSs relevant for the Russian corporate market are presented.

<table>
<thead>
<tr>
<th>Teachbase</th>
<th>Success Factors</th>
<th>iSpring</th>
<th>GetCourse</th>
<th>Mirapolis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Features</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asynchronous Learning</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Blended Learning</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Built-In Course Authoring</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Certification Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>E-commerce</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Gamification</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mobile Learning</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Skills Tracking</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Social Learning</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Synchronous Learning</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Testing/Assessments</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Training Companies</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Video Conferencing</td>
<td>Pricing</td>
<td>Product Details</td>
<td>System requirements</td>
<td>SaaS, Android, IOS</td>
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<tr>
<td>--------------------</td>
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<tr>
<td>✔️</td>
<td>✗</td>
<td>✔️</td>
<td>SaaS, Android, IOS</td>
<td>✔️</td>
</tr>
<tr>
<td>✗</td>
<td>✔️</td>
<td>✔️</td>
<td>Windows</td>
<td>✗</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Free Version</th>
<th>Free Trial</th>
<th>Pricing</th>
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<tbody>
<tr>
<td>✔️</td>
<td>✗</td>
<td>✔️</td>
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<td>✗</td>
<td>✔️</td>
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<td>✔️</td>
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<td>✗</td>
<td>✔️</td>
<td>✗</td>
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<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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<table>
<thead>
<tr>
<th>Product Details</th>
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</thead>
<tbody>
<tr>
<td><strong>Training</strong></td>
</tr>
<tr>
<td>Documentation Webinars</td>
</tr>
<tr>
<td><strong>Support</strong></td>
</tr>
<tr>
<td>Online, Business Hours</td>
</tr>
<tr>
<td><strong>Automatization of HR business processes</strong></td>
</tr>
<tr>
<td>✗</td>
</tr>
<tr>
<td>Career development, Goal settings, Performance appraisal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Company Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country</strong></td>
</tr>
<tr>
<td>Russian Federation</td>
</tr>
<tr>
<td>Data servers are located in Russia</td>
</tr>
</tbody>
</table>

Table 7. Comparison analysis of LMSs (SOURCEFORGE 2018), (Startpack 2018), and (LMSLIST 2017).

Taking into account the information in Table 7 each learning management system has pros and cons. Many Russian companies have their own
experience to utilize these platforms. Feedback about several platforms will be considered in the empirical part of this thesis.

Analyzing the worldwide market of corporate learning management systems the Top list is different. According to the recent survey Software Advise (2018), the frontrunners for learning management were revealed. The rating was scored in two areas: capability and value. Data were formed based on published user reviews in two dimensions: usability and user recommended. Information was acquired in such web properties as capterra.com, softwareadvise.com, and getapp.com during 18 months. The result of this survey is presented in Figure 5.

Figure 5. Frontrunners for learning management system (Westfall 2018).

Four key blocks are distinguished in the figure. “Leaders” offer more features and functionalities for their clients and have the strong and highly valuable product for clients. “Masters” focus on some specific features and have high value for clients. “Pacesetters” have many features but are not valuable for clients (e.g. cost is high). “Contenders” are good for companies who can pay
more for the specialized set of capabilities (Westfall 2018). According to this analysis on the corporate market three popular LMSs may be regarded: Litmos, TalentLMS, and iSpring Learn. In addition, Mindflash, Bridge, and SkyPrep are used and developed in corporate e-learning worldwide. All these companies have restrictions against operating in Russia because of legislation about data protection.

2.4 Key aspects of adult learning

In 1926 year Lindeman explored meaning of adult education. He states, that adult learning represents a process by which learners become aware of considerable experiences. However, the great majority of adults are not motivated to learn by themselves continually. An adult learner needs an internal or external incentive to begin studying. In other words, adults begin to learn something if they understand that this knowledge helps them to fulfill a task or solve a problem (Knowles, Holton III, and Swanson 2005, pp. 37-38).

In addition, Lindeman (1926, cited Knowles et al 2005, pp. 39-40) made a summary of key assumptions about adult learners:

- Adults are motivated to learn if new knowledge and experience could satisfy learner’s needs.
- Adult education is lifelong and life-centered.
- The analysis of experience is a core methodology for adult’s learning.
- Adult learners want to be self-directing.
- Individual differences among people enhance with age.

In addition, many psychiatrists explored adult learning. Rogers (1951, cited in Knowles et al 2005, pp. 48-50) states that teachers or tutors cannot teach adults directly; they can only facilitate their learning. Moreover, he argues that adults must be engaged in the learning process.

Recognizing the psychological aspects and some principles of adult learning in e-learning environment is a significant task to improve effectiveness of a learning process and business results.
2.4.1 Andragogy as a science of adult learning

American educator Malcolm Shepherd Knowles made a powerful contribution in adult learning development in 20th century (eLearning INDUSTRY 2013). According to Knowles (1988, pp. 40-43), differences in approaches of adult and youth education stemmed from distinguishing a new theory about adult education. This theory is being given a new name andragogy.

Knowles (1988) states that pedagogy is art of teaching people. In this case, the teacher is in charge of making all decisions about subjects and process of education. However, andragogy is art of helping adults to learn. Therefore, the main goal of andragogy science is to explore adult education and any changes in this process (Knowles et al 2005, pp. 58-63).

Knowles et al (2005, pp. 64-203) made the andragogical model that is based on six core adult learning assumptions and that are different from the pedagogical model:

1. The learner’s need to know. It means that adults should be involved in a collaborative planning process for their learning. Engaging in the learning process adults need to know how learning will be conducted, what learning will take place, and why learning is significant for them.

2. The learners’ self-concept. This concept is about adult learner’s need to have a high degree of autonomy in the education process. However, according to psychological aspects people need to interact with others and be monitored by managers. In spite of this fact, adult learners resist situations when others impose their wills on them.

3. Prior experience of the learner. The role of adult learner’s experience is meaningful. First of all, experience creates a board range of individual experience. Moreover, it provides a rich resource for learning. In addition, experience creates biases that shape new learning. Finally, it provides foundation for self-identity of learners. In other words, adults’ experience defines who they are.

4. Readiness to learn. Adults become ready to learn something when they face new problems in real life and they need to know some information to
solve problems. Readiness to learn is like a development of skills and transfers from one stage of knowledge to the next.

5. Orientation to learning and problem solving. Adults prefer a problem-centered orientation in learning. In other words, adults need to perceive that new knowledge can help them to cope with problems.

6. Motivation to learn. There are many external and internal motivators (e.g. better job, salary increase, promotion, self-esteem, quality of life and others). Adults need to know why they need to learn. Only in this case learning effectiveness will be high (Knowles et al 2005, pp. 64-203).

A practical model of adult education embraces three dimensions that play an important role in adult learning. The first concerns goals and purposes for learning. It applies to the shaping of learning experience. The second dimension is about individual and situational differences. In other words, it concerns variables that impact on adult learning. The third direction comprises andragogical adults learning principles. Above mentioned dimensions interact each other and mold a comprehensive approach to adult learning in practice (Knowles et al 2005, pp. 148-158).

In Figure 6 the conceptual model of Knowles in practice is depicted.
Within the framework of this practical model the outer ring demonstrates developmental outcomes. The goal and purposes may fit in three directions: individual, institutional, or societal growth. These directions describe the mission of adult learning. The middle ring individual and situational differences demonstrates three types of variables that impact adult learner to continue to learn. These types are subject-matter differences, situational differences, and individual learner differences. The core adult learning principles are presented in the center of this model. Teachers or coaches should follow these principles to increase the education effectiveness (Knowles et al 2005, pp.150-156).
2.4.2 Andragogy in e-learning and e-learning behavior

There are six assumptions regarding adult learning (andragogy) that were created by American educator Knowles. They should be applied in online education to improve e-learning effectiveness. Based on the andragogical model by Knowles five assumptions and four principles for e-learning were designed (eLearning INDUSTRY 2014).

Assumptions:

1. Create learning experience to offer high autonomy. It means that the e-learning support system should give learners an opportunity to follow regarding their own terms. Adult learners have to find and accept help if they need it.

2. Comprise a variety of instructional design models and theories into e-learning courses. The experience level of adult learners is wide and different. Thus, it is important to analyze a target audience and create e-learning experience more informative and involving for learners.

3. Utilize social media and online collaboration tools. This approach encourages adult learners to use valuable sites to find necessary information and people with the same interests.

4. Emphasize how the subject matter could help adult learners to solve their problems immediately focusing on real-life examples.

5. There must be a valid reason to choose and complete e-learning courses or modules. Motivation is a significant attribute for adult learning (eLearning INDUSTRY 2014).

Principles:

1. Adults must be involved in design and development of their learning experience. Feedback from adult learners should be a reason for adaptation of courses regarding learners’ needs.

2. All e-learning tasks and activities should be made based on learner’s experience. Projects and exercises must encourage learner to explore problems and find decisions.

3. E-learning courses must be designed based on real-life examples. Adult learners have to understand connections to e-learning tasks and how it will be useful in the real world.

40
4. The content in e-learning should be problem-centered. Give an adult learner the opportunity to absorb information (eLearning INDUSTRY 2014).

In addition, in creating e-learning courses online behavior of a learner plays a crucial role. According to Codreanu & Vasilescu (2013), online behavior embraces three dimensions: sociability (willingness to socialize), utility (if a learner has a high instrumental orientation online behavior is more accurate), and reciprocity (necessity of perceptive motivation and active engagement using the Internet). Moreover, learner’s needs and goals must be in the center of the learning behavior model.

2.4.3 Experiential learning and Kolb’s model of adult learning

According to Knowles et al (2005, p.197), adults prefer problem-solving orientation learning in real-life context. The experiential approach is the main focus in adult learning. The leader of experiential learning psychologist David Kolb defines learning as the process where knowledge is formed through experience’s transformation.

Kolb has built his theory based on personal capabilities and individual preferences to integrate and adjust to the world. He suggested that his theory is similar to Jung’s theory of personality (Cherry 2018). Cherry (2018) states that regarding Kolb’s theory, learning happens due to real-world experience that can be depicted as a four-step cycle:

1. *Concrete experience.* The basis for observation is created based on concrete experience.
2. *Observations and reflections.* Reflections on these observations and a general theory based on this information begins to be built.
3. *Formation of abstract concepts and generalization.* The concept is made based on the learner’s hypothesis that stem from the integration of the learner’s observation into the some theory.
After the fourth step the first stage of experiential learning follows (Cherry 2018).

In addition, Kolb suggested different approaches in the learning strategy to each step of this model. For example, for the stage *Concrete Experience* simulations, the demonstration of case studies is better to use. However, for the stage *Observe and Reflect* group discussions and observations should be utilized. For the stage *Abstract Conceptualization* sharing content is the best approach. Thus, for the last stage *Active Experimentation* on-the job experience, practice sessions and laboratory experiences must be used (Knowles et al 2005, p.198).

Kolb suggests that not all learners use four stages. He believes that the personal learning style is a product of two choice decisions. Therefore, he created four learning styles based on two activities that people prefer doing (eLearning INDUSTRY 2018).

In Figure 7 the Kolb’s learning styles are presented.

![Figure 7. Kolb’s learning styles (McLeod 2017).](image)
Taking into account Kolb’s learning styles and integrating these recommendations in e-learning courses can help adult learners to be engaged in the education process more effectively (eLearning INDUSTRY 2018).

3 Methodology

3.1 Research methods

In terms of the thesis, the current state of corporate learning and e-learning in a real-life context is investigated. According to Yin (1994, p.13), a case study research methodology is more appropriate in this kind of empirical inquiry. Therefore, this method was applied in terms of this study.

Gillham (2010, p.13) states that case study is a key method that is used within following sub-methods: interviews, observations, document or record analysis and so on. In the process of data acquiring, a multi-method approach was applied. According to Creswell (2003, p. 15, sited in Stake 1995), case study is limited by time and activities. Meanwhile, researchers acquire data using a variety of data collection procedures.

Based on scientific paradigms, realism is preferred for a case study research. There are several reasons explaining this. Firstly, a research area is usually contemporary. Then, research problems are more descriptive than prescriptive. In addition, researchers’ knowledge claims can be evaluated via some common measures like a validity or reliability (Perry 1998, p. 787).

Particularly, the following sub-methods have been utilized: analysis of data about e-learning process and technical features of e-learning platforms on the Internet, analysis of current corporate e-learning platforms based on the clients’ feedback (interview method with TOP managers or HR managers), an online questionnaire with HR experts of geographically distant Russian companies, and a focus group interview with HR managers or TOP managers of all-sized business companies.
Gillham (2010, p. 59) argues that questionnaires are not usually utilized in the case study research. Semi-structured questionnaires were utilized to collect information from geographically distant Russian companies in order to improve validity of results.

Accumulating all types of data acquiring, about 40 differently sized companies from different business fields in Russia took part. In other words, the multiple case study research has been used.

According to Perry (1998, p.793), there are no accurate rules how many cases must be comprised in the qualitative research. The accepted range can be from two till fifteen cases (Perry 1998, p.794). In addition, Bengtsson (1999, p.3) states that the number of cases can increase the statistical strength.

In terms of multiple case studies only two types of cases’ selection can be distinguished: literal replication (similar cases and predictable results) and theoretical replication (the choice is based on assumption of inconsistent results) (Bengtsson 1999, p.3). Therefore, based on above mentioned, the theoretical replication approach is applied to select cases for this study.

In order to avoid biases and increase reliability of results a triangulation approach is applied. It means that different methods are used in terms of the research. If advantages and disadvantages of all methods converge, the validity of results is increasing (Gillham 2010, p.13). Triangulation approach applied in this study is represented in Figure 8.

![Triangulation approach](image)

Figure 8. Triangulation approach in the research.
In other words, three key approaches: analysis, interviews, and questionnaire were applied to reply on research questions.

### 3.2 Data collection

There are many data collection methods for research. According to Krishnaswami & Satyaprasad (2010, p.90), the main data collection methods are an observation, an interview, a mail survey, a questionnaire, an experimentation, a simulation, and a projective technique. Gillham (2010, pp. 59-60) states that all types of interviews are essential in the case study research.

Taking into account the nature of this research, investigation of something little known is needed, in order to derive the informal reality. Gillham (2010, p.11) states that other methods besides qualitative approaches are not practicable or not ethically justifiable. Particularly, three methods were applied to acquire data: semi-structured interviews, focus group interviews, and the semi-structured questionnaire.

Companies participating in this research and data acquiring are corporate clients of the MTS company.

#### 3.2.1 Semi-structured interviews

The main task of semi-structured interviews was to have more information about current situation in companies with corporate education, e-learning development, business tasks, and difficulties with e-learning process. The list of questions was created based on research questions of this study (see Appendix 1 for the complete interview structure).

The semi-structured interview was chosen because it is the best approach allowing the flexible process of conversation between an interviewer and a respondent. It means that there is a variation in wording and in the order of questions. In addition, semi-structured interviews allow focusing on discussion about actual effects of a given experience to which the respondents have been
exposed. Essentially, semi-structured interviews are more appropriate in case study exploratory research (Krishnaswami & Satyaprasad 2010, pp.104-105).

Four companies took part in personal interviews. According to high confidentiality of this study, the name of companies will be encrypted. Three main goals were pursued when the list of companies was creating. First of all, companies must be from different business industries. In addition, for the interview companies from different size classes have been taken. It means that all companies have size classification based on the number of employees and annual revenue. Based on European classification, there are three classes: Large Enterprises (more than 1000 employees), Small and Medium Enterprises (SME, from 101 to 999 employees), and Small and Medium-Sized businesses (SMB, from 0 to 100 employees) (Digium 2016). In addition, all respondents of these companies must be involved in the development of online education in their companies. Personal interviews were conducted in Saint Petersburg in the summer of 2018. Every interview lasted about one hour. Acquired information was fixed and then analyzed.

The table below represents the list of companies that were chosen for the semi-structured interview.

<table>
<thead>
<tr>
<th>Position of respondent</th>
<th>Company</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of HR Department</td>
<td>Large Enterprise #1</td>
<td>Oil company</td>
</tr>
<tr>
<td>Head of Training</td>
<td>Large Enterprise #2</td>
<td>Logistic</td>
</tr>
<tr>
<td>Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head of HR Department</td>
<td>SME #3</td>
<td>Public catering</td>
</tr>
<tr>
<td>CEO</td>
<td>SMB #4</td>
<td>Wholesale</td>
</tr>
</tbody>
</table>

Table 8 The list of companies for the semi-structured interview.

According to Table 8, companies of different sizes and from different industries took part.
3.2.2 Focus group interview

The next approach to acquire data was a focus group interview. This technique is a popular method in marketing research to estimate new product or service. It is a good approach to gather people with a common interest and interact with each other. High flexibility is the main advantage of this method. Respondents are more articulate in the group than in terms of the personal interview (Krishnaswami & Satyaprasad 2010, p.116).

The focus group interview was organized and conducted in June 2017 in Saint Petersburg. The electronic invitation was sent by e-mail and was posted in social networks in advance. Therefore, very active companies could register. Registered companies have their decision making center in Saint Petersburg. Respondents taking part in the discussion are involved in the process of education in their companies and have an experience with online education systems.

Finally, 12 companies of different sizes were invited: Large Enterprises, SME, and SMB companies. CEO of the MTS University Oksana Kuharchuk moderated and facilitated this focus group. Within the framework of this discussion, three main topics were embraced:

- pros and cons of the appropriate learning management systems (LMSs);
- benefits and drawbacks of current LMSs based on experience;
- the online content effectiveness and methods how to improve this.

Above mentioned directions were chosen for collection of relevant information in order to answer the main research question and sub-questions. The audio tapes and flipcharts were used to record and safe information.

The table below introduces the list of companies that participated in the focus group interview. According to high confidentiality, names of companies and respondents are encrypted.
<table>
<thead>
<tr>
<th>Position of respondent</th>
<th>Company</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of HR Department</td>
<td>Large Enterprise *1</td>
<td>Retail (apparel)</td>
</tr>
<tr>
<td>Expert of Training Department</td>
<td>Large Enterprise *2</td>
<td>Industrial production</td>
</tr>
<tr>
<td>Head of Training Department</td>
<td>Large Enterprise *3</td>
<td>Logistic and distribution</td>
</tr>
<tr>
<td>Head of Training Department</td>
<td>Large Enterprise *4</td>
<td>Oil company</td>
</tr>
<tr>
<td>Head of HR Department</td>
<td>SME *1</td>
<td>Public catering</td>
</tr>
<tr>
<td>Head of HR Department</td>
<td>SME*2</td>
<td>Public catering</td>
</tr>
<tr>
<td>Expert of Training Department</td>
<td>SME*3</td>
<td>Industrial production</td>
</tr>
<tr>
<td>Expert of Training Department</td>
<td>SME*4</td>
<td>Retail (Digital Techniques and household appliances)</td>
</tr>
<tr>
<td>Head of Training Department</td>
<td>SMB *1</td>
<td>Information technology</td>
</tr>
<tr>
<td>CEO</td>
<td>SMB*2</td>
<td>Sport equipment</td>
</tr>
<tr>
<td>Head of Training Department</td>
<td>SMB*3</td>
<td>Education</td>
</tr>
<tr>
<td>Hotel manager</td>
<td>SMB*4</td>
<td>Hotel</td>
</tr>
</tbody>
</table>

Table 9. The list of companies for the focus group interview.

According to Table 9, companies of different sizes and from different industries participated in the focus group interview. Only involved in e-learning development participants took part.

### 3.2.3 Semi-structured questionnaire

Interviews and focus group methods have some significant restrictions. Firstly, these methods are time and cost consuming. Thus, located in Saint Petersburg companies could take part in personal interviews and focus groups. In order to acquire information from geographical distant companies, a semi-structured questionnaire has been developed. In addition, other companies from Saint
Petersburg that could not visit the focus group participated in this inquiry. This method allowed reaching geographical distant companies and increasing the validity of results.

Making the list of questions three key goals were pursued. Firstly, the inquiry must be simple and take less than 10 minutes to answer it. Questions must be directly related to the research purpose. Respondents can have multi-choices responses and opportunity to write their appropriate versions. Taking into account the above mentioned information, the questionnaire consists of 15 questions which were similar in semi-structured interviews and the focus group interview. The list of features was developed based on the current opportunities of LMSs. In addition, opinions of HR Directors and CEO of companies participated in the semi-structured interview took into account. See Appendix 2 for the complete inquiry structure.

The questionnaire was placed on the Russian social online system for personal and professional development https://talentedme.ru/votes/. The link was sent to ninety HR managers of corporate clients MTS of some Central regions, Ural and North-West regions. The process of data acquiring had been conducted between August 2017 and December 2017. In terms of this inquiry, 25 companies (27.8% of the total number of respondents) of different sizes have been participated. When questionnaires were collected, the rating of the features’ popularity was created. After that an occurrence frequency of every feature was calculated. Thus, four groups of features were distinguished: 0%-25% - Insignificant, 26% - 50% - Middle priority, 51% - 75% - Above average priority, 76% - 100% - Significant.

3.3 Data analysis

Within the framework of data analysis, raw data are arranged in order to extract useful information and answer research questions. Perry (1998, p.788) states that the case study research embraces mixture of inductive and deductive approaches of the data analysis. However, inductive theory building is more noticeable than deductive approach in the case study research.
Carson et al (2001, p.22) state that induction is a method of the new theory generalization based on reflection of past experiences (from particular to general). On the other hand, the deductive approach entails the evolvement of a conceptual and theoretical structure before its testing through empirical research methods (from general to particular) (Carson, et al., 2001, p.22). Patton (2002, p.453) states that the qualitative research is typically inductive where the researcher strives to discover an ideal model, subjects or categories from the data.

In the first part of the study, a prior theory has been developed based on the literature analysis and feedbacks of responders, regarding their past experience. Perry (1998, pp.789-790) argues that a pivotal function of the prior theory is a data collection. Further, this information has been applied to design the appropriate solution. Designing and creating of the corporate e-learning platform for MTS is a new case. In the Russian telecom market there are no appropriate cases. Therefore, based on data new issues about essential criteria for the corporate e-learning platform can be generated. Based on above mentioned, within the framework of the study, an inductive approach of the data analysis has been applied.

4 Research findings

This section presents results of the empirical analysis. Due to data collection by means of three methods the reliability of results increases.

4.1 Semi-structured interview findings

Within the framework of the semi-structured interview, respondents were open-minded and revealed information about learning processes in their companies. Despite a company’s size all of them operate on the Russian Federation and have branches in different cities. Respondents noticed that they develop online learning in their companies to reach employees everywhere and to give them a complex of courses regarding the HR strategy. In addition, Head of HR
Department of public catering company (SME#3) said that the number of training managers is decreasing. Interviewees of Large Enterprise#1 and Large Enterprise#2 noted that training budgets are reduced every year and they need to find more effective ways to educate personnel. Thus, interviewees admitted that the trend in education goes towards online. However, each of them has their understanding about the e-learning process.

CEO of the wholesale company (SMB#4) states that online learning for him it is a complex of actual courses and knowledge tests. He thinks that e-learning is more effective to train applied skills, such as Excel tools, presentation skills, and specific hard skills according to company’s activity. In addition, he explains that online learning is more flexible and faster compared to traditional education in terms of information spread. Nevertheless, he believes in more effectiveness of the traditional classroom approach with external well-known coaches for soft skills and sales skills training. He says that it is expensive but it worth doing it. In addition, he agrees that the blended education (mix of online and traditional) for soft skills and sales may be a good solution to reduce education costs. He needs additional tools of the e-learning effectiveness measurement.

Head of Training Department of the logistic company (Large Enterprise#2) states that she has a task to improve effectiveness of education and launch the e-learning process in the company. Therefore, in the company e-learning is about 50% of all training.

*We use a Web Tutor learning management system. In other words, we buy licenses to use some appropriate modules, for example learning center, personnel assessment, staff development management and others. Also, we pay for the technical support. However, we use own content and prepare it based on business tasks. Currently, we have many courses for soft and hard skills improvement. More than 75% of employees study in the online system.* (Head of Training Department of Large Enterprise#2, 2018)
In terms of the discussion about the Web Tutor solution Head of Training Department of the logistic company (Large Enterprise#2) explains that she is satisfied in general. However, there are some drawbacks of this platform. According to her, a technical support is bad organized. There are many incomplete updates. The significant part of requests is suspended. Moreover, she stated that they explored the Mirapolis LMS and decided to keep the current solution. She emphasized key drawbacks of the Mirapolis system versus Web Tutor:

- the system of reports is vague;
- integration with current systems is unclear and inflexible;
- customization of the learning portal must be realized strictly via the Mirapolis company (it is uncomfortable).

Head of HR Department of the oil company (Large Enterprise#1) says that the company uses online learning for all levels of employees. Also, they have a task to improve effectiveness of online education.

_We’ve tested many learning management systems. Meanwhile, we buy licenses for some modules and the technical support in the Web Tutor system. On the one hand, the modular system is a convenient approach to take what you need. However, customization of this LMS for our needs is time consuming. System settings and the interface for an administrator are opaque. Therefore, Web Tutor is not suitable for us. We need to have IT specialists with programming skills to adapt this system to our tasks. Therefore, we are thinking to create own LMS. In addition, we are exploring SAP e-learning solution. Maybe it will be better for us._ (Head of HR Department of Large Enterprise#1, 2018)

Discussing e-learning effectiveness, interviewees noted that they need to push employees to attend online courses and fulfill tasks. In addition, Head of HR Department of the public catering company (SME#3) states that there are difficulties to control the personal work of everyone. She explains that young people can use ready answers for tests of their friends without watching courses. Head of Training Department of the logistic company (Large
Enterprise#2) says that courses must be attractive and useful for employees to stimulate them to study. In addition, she emphasizes that short courses and the mobile version of courses motivate employees to study in a public transport or in a car.

*However, we have a deficit of personnel resources to adapt content for mobile devices and launch mobile learning at this moment.* (Head of Training Department of Large Enterprise#2, 2018)

Meanwhile, Head of HR Department of the oil company (Large Enterprise#1) admits that visible courses-instructions of some equipment usefulness can be helpful for employees. Such new technologies as VR or AR can make courses more realistic and increase the effectiveness of e-learning in production for instance.

All participants argue that the content must be well organized and comprehensive for employees. Also, they suggested having an open chat in social networks or in the learning system to ask questions and get recommendations. According to their experience, *blended learning* is a better way of the education process.

Interviewees of Large Enterprise#2 and SMB#4 state that *asynchronous learning* is better than *synchronous* because each employee has different pace to learn a new material. However, Head of HR Department of the public catering company (SME#3) argues that regarding her experience synchronous learning is better for operating personnel.

All respondents state that personal ratings of employees and some achievements can stimulate them to compare with each other in the education field. Also, Head of HR Department of the public catering company (SME#3) states that in the end of the year they appraise most active and resulted employees based on the learning rating. In addition, she mentioned that they
have a career development system that is tough correlated with the e-learning system.

*Every employee knows what he or she has to learn to be got promoted.* (Head of HR Department of SME#3, 2018)

According to Head of Training Department of Large Enterprise#2, webinars are similar to traditional classroom education due to interaction of employees and coaches during the course. She noted that to have a staff of coaches can be expensive for company. CEO of the wholesale company (SMB#4) solved this task.

*In terms of coaches, we use experts from our company. So, it is a good motivation for employees to study and become experts.* (CEO of the SMB#4, 2018)

In order to improve e-learning effectiveness respondents state that learning analytics must be realized based on Big Data. It means that the course assignment and refurbishment of materials must be suitable for employee’s needs.

In addition, the Top list of most important features for the e-learning system has been created based on interviews. In addition, the list of preferable training has been collected. Table 10 represents the Top list of significant features for the e-learning platform and the Top list of trainings.

<table>
<thead>
<tr>
<th>Company</th>
<th>Top list of technical features</th>
<th>Top lists of trainings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Enterprise #1</td>
<td>Integration e-learning platform with social networks and different HR systems, high level support, flexible and fast creation of courses, mobile-learning, motivated tools to involve in study, VR/AR, automated</td>
<td>Constructive business communication, Emotional Intelligence, Self-motivation, Design thinking, Conflict management</td>
</tr>
<tr>
<td>Large Enterprise #2</td>
<td>Analytics (reports, forecasts, charts, etc.), adaptable education forms, micro-courses (including sms learning), good technical support in Russia, customization and modularization of courses, clear system of course management, online library</td>
<td>Leadership in change management, Stress management, Agile, Sales skills for B2B, Removal of emotional burning out</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SME #3</td>
<td>Webinars, simulations, short and well visualized courses, rating charts, reports and analysis, testing, personnel assessment, online library</td>
<td>MS Excel tools, Stress management, self-motivation, sales skills improvement, Confidence in communication</td>
</tr>
<tr>
<td>SMB #4</td>
<td>Testing of employees, self-development of courses, reports and assessment of personnel, integration online system with personnel assessment system, webinars</td>
<td>MS Excel and MS Project tools, Time-management, digital approaches in business, the principles of work with data</td>
</tr>
</tbody>
</table>

Table 10. The Top list of significant features for the e-learning platform and the Top list of trainings.

Based on information in Table 10 some trends can be revealed. All interviewees found that soft skills training can be realized by means of online courses. Moreover, IT and sales skills were chosen by 50% of interviewees. It means that popularity of IT training and soft skills training in e-learning remains relevant in our days. Based on the analysis of most important features, Large Enterprises are more demanding than SMB and SME companies. However, the learning analytics is relevant for all companies.
4.2 Focus group interview findings

In the process of discussion about advantages and disadvantages of current Learning Management Systems (LMSs) some interesting issues have been found. According to Head of HR Department of the retail company (Large Enterprise*1), many Russian e-learning platforms are not satisfied all their needs. She tells that in their company online education system RUBILIX from the Active Learning company have been implemented. Regarding her it is not the perfect solution but it is profitable for them today. In addition, she has depicted main benefits of RUBILIX in the order of their importance:

- a good price for value;
- a high level of the technical support;
- integration with companies news;
- a friendly interface (looks like a social network);
- an opportunity to involve sales managers in sale battles (there are no other companies that provide this solution);
- a clear badge assignment system (appraisal).

However, she says, that this solution has meaningful drawbacks:

- the webinar platform is absent, but it is a significant service because of the branched structure of the company;
- the system does not include the personnel assessment system.

Finally, she explains that they monitor the market of e-learning solutions in Russia because they understand usefulness and effectiveness of e-learning for their business.

Then, in terms of the discussion the Web Tutor platform was considered. Head of Training Department of the logistic company (Large Enterprise*3) says that the platform is uncomfortable for usage. Technical documents about this system are unclear and complicated. Moreover, he sees that this platform works incorrectly if the load on the platform begins to increase. In addition, he has explained, that this platform should be improved and customized for own business tasks and integration with companies resources. Also, Head of
Training Department of the oil company (Large Enterprise*4) agrees with the last statement and emphasizes that Web Tutor is expensive and time consuming solution for adaptation. For newcomers Web Tutor is a very complicated system and programming skills are needed to work in this. Moreover, he says that in Russia there are no appropriate e-learning platforms satisfied to their needs. So, they have two options. The first is to find the e-learning solution that will be easy to improve and customize for company. The second approach is to create own e-learning solution.

Head of Training Department of the oil company (Large Enterprise*4) has depicted additional important criteria for the e-learning platform.

Firstly, the detailed analysis about online passing and attending courses is important (geo-location, time, etc.). In addition, an adaptable player is needed to develop materials of different formats. Thirdly, the download speed test is meaningful. (Head of Training Department of the oil company Large Enterprise*4, 2017)

Within the framework of the pros and cons analysis of the Mirapolis LMS solution, the Expert of Training Department of the retail company (SME*4) says, that they have tested this solution and they are disappointed with the paid introductory education and a lack of the necessary technical support. In his opinion, the introductory training must be free of charge. Other respondents have supported his statement.

In addition, Head of Training Department of the logistic company (Large Enterprise*3) has noted that integration of LMS with different HR systems as a recruitment system, a compensation system, an assessment system, a career development system, and others is helpful and comfortable for HR managers. Moreover, this comprehensive approach can allow evaluation of the full path of the employee development. Meanwhile, Head of HR Department of the public catering company (SME*2) has emphasized that LMS should be connected with the partners’ e-learning education system. In other words, franchise companies
should have access to the same e-learning platform. However, the main organization must have administrative rights to manage online courses for franchisee.

Head of Training Department of the education company (SMB*3) has told that they use the GetCourse platform to develop practical seminars in mini-groups. In addition, Skype is used to check homework. He thinks that for their business tasks a webinar and Skype are effective solutions in the personal education or in mini-groups. Participants from Large Enterprises support usefulness of the webinar system in the e-learning process.

Finally, Success Factor (SAP) Learning Management System was considered. This solution is used in MTS currently. CEO of the MTS University, Oksana Kuharchuk has outlined key advantages and disadvantaged of this platform.

On the one hand, SAP is a well-known international provider. Many useful features are included in. Moreover, integration with current HR systems is possible. In addition, this company has their Data center in the Russian Federation. It is a big benefit compared to other international LMSs. However, SAP solution is very expensive and inflexible. Usability of this LMS is poor because a support center is absent in Russia. As a result, the process of improvement and customization of some systems is really time consuming and very complicated. (CEO of the MTS University Oksana Kuharchuk, 2017)

Also, she has emphasized that SAP Success Factor LMS could be changed when the best e-learning solution will be found.

The next important issue in terms of the focus group was a discussion of e-learning courses effectiveness and methods of their increase.

Head of HR Department of the catering public company (SME*2) has argued that a new generation does not want to memorize much information and prefer watching small videos or interactive courses. He has emphasized that now
young people prefer to watch videos on YouTube. Therefore, the format of training courses should be adapted to the YouTube format. Moreover, he mentioned that the length of videos should be about 2 minutes and these courses must be acceptable from different devices (laptop, tablet, smartphone, etc.).

In addition, CEO of the MTS University Oksana Kuharchuk has shared some life-hacks that allowed her to increase e-learning course effectiveness in MTS.

- Firstly, the length of training video should be no more than 8 minutes. However, the trend is 3-5 minutes per one video;
- In the beginning of the course it’s important to explain the goal of this video and tell people what they can learn in terms of the course;
- Short tests after the course are a good way to check knowledge;
- Every e-learning course should be an off-the-shelf bundle of life webinars, homework, tests, and useful links with articles or books.

In addition, Oksana Kuharchuk states, that more than 25% of online learners in the MTS company complete courses. However, only 7% of all learners complete courses on the well-known education platform Coursera.

Finally, focus group respondents have noted, that involvement of people in online education is a better way than push. It means that training courses must be customized for learner’s needs. Systems of competitions and rewards could encourage people to complete online courses. In other words, gamification is a trend of people involvement to learn online. Moreover, the system of online courses must encompass many fields and learner's interests at work and real life.

According to CEO of the sport equipment company (SMB*3), usage of Virtual reality (VR) or Augmented reality (AR) in e-learning is a good trend of e-learning effectiveness increase at the working place in factories or in medicine for example.
As a result of the focus group interview, a list of essential services and important criteria for corporate e-learning platforms was created and arranged. Respondents have agreed with these criteria. Table 11 illustrates above mentioned criteria for the e-learning platform and content organizing.

<table>
<thead>
<tr>
<th>Types of courses</th>
<th>Involvement of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Live webinars</td>
<td>- Customized and tailored in-demand courses.</td>
</tr>
<tr>
<td>- SPOCs (small private online courses)</td>
<td>- Sales battles</td>
</tr>
<tr>
<td>- SOOCs (selective open online courses)</td>
<td>- VR/AR</td>
</tr>
<tr>
<td>- Individual trainings</td>
<td>- Gamification (competitions, reward system, badges, etc.)</td>
</tr>
<tr>
<td>- Practical tasks/ homeworks (Skype, e-mail, social groups)</td>
<td>- Short video (3-5 minutes)</td>
</tr>
<tr>
<td>- Introductive training (about platform and opportunities)</td>
<td>- Useful links between education modules (articles, books)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical features and analytical tools</th>
<th>Integration with</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Reporting and detail statistics of learning tracks (web hosting, geo-location, time)</td>
<td>- Corporate portal</td>
</tr>
<tr>
<td>- Different administrative rights.</td>
<td>- 1C (position, organization structure, etc.)</td>
</tr>
<tr>
<td>- One e-learning system of education for the main organization and franchisee</td>
<td>- Recruitment system</td>
</tr>
<tr>
<td>- Education forecasting model is based on Big Data</td>
<td>- Compensation system</td>
</tr>
<tr>
<td>- Certificates in the end of the study</td>
<td>- Staff assessment system</td>
</tr>
<tr>
<td>- User-friendly interface</td>
<td>- Career development system</td>
</tr>
<tr>
<td>- Flexible to adapt system</td>
<td>- The management system for traditional classroom trainings (how to register, where to arrive)</td>
</tr>
<tr>
<td>- Simple customization (+ capability of independent settings)</td>
<td>- Social networks</td>
</tr>
<tr>
<td>- Online library (useful content)</td>
<td></td>
</tr>
<tr>
<td>- Forums, social network (groups, communities)</td>
<td></td>
</tr>
</tbody>
</table>
- Adaptive players
- Omnichannels
- Demo access (free of charge)

<table>
<thead>
<tr>
<th>Support</th>
<th>Legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Live support in Russia</td>
<td>- Data servers of e-learning platform is located in the Russian Federation</td>
</tr>
<tr>
<td>- Online service 24/7</td>
<td></td>
</tr>
<tr>
<td>- Download speed test</td>
<td></td>
</tr>
<tr>
<td>- High speed of reaction (helpdesk)</td>
<td></td>
</tr>
</tbody>
</table>

Table 11. Essential criteria for the e-learning platform and content organizing.

According to the information in Table 11, many aspects have been discussed and arranged. Six significant directions are traced: online content particularities, features for motivation people to study deliberately, analytical tools, features for integration with different systems and networks, legislation, and real-life technical support.

4.3 Semi-structured questionnaire findings

According to the questionnaire, some interesting facts about the companies’ profiles, a current education process, e-learning development and preferable technical features have been found.

Companies of different industries and different sizes took parts in this inquiry. About 40% of companies were from regional branches (Moscow, Vladimir, Republic of Karelia, Arkhangelsk, Komi Republic, and Chelyabinsk). It means that the company’s decision center is located in above mentioned cities respectively. Some statistical data about the employees’ number in companies and activity’s fields are presented in Figure 9 and Figure 10 relatively.
In other words, companies of different sizes took part in the questionnaire. Moreover, 47% of Large Enterprises participated.

According to Figure 10, many different industries are involved in e-learning development. However, companies working in industrial production have shown a great activity in this inquiry.

Analyzing current education in companies and estimating training needs all companies emphasize that education is one of the key directions of staff
development and business results improvement. In spite of this fact about 35% of these companies educate only a half of their staff. Nevertheless, about 40% of companies use only traditional classroom education process. Many respondents note some barriers to transfer to the online education system. Figure 11 shows the main barriers of online education development in companies.

![Key barriers of online training development in companies](image)

Figure 11. Key barriers of online training development in companies.

A lack of appropriate corporate e-learning solutions in Russia nowadays is the biggest issue. The next point concerns big investments in order to develop own solutions. Especially, Small and Medium Businesses (SMB) cannot afford to invest in own platforms. Limited budgets for overall education and online education particularly is a key issue.

Results show that while Russian companies are ready to develop corporate online education for their employees, 32% lack the budget to do so, and 37% are willing to invest only 10% of their entire training budget. However, a quarter of companies develop online training, investing up to 50% of training budgets. HR managers of these companies realize e-learning perspectives right now.

Currently, about 80% of Russian regional companies (not located in Saint Petersburg or Moscow) prefer traditional classroom education and plan to
introduce online learning three years from now. Accumulating information about the preferable model of e-learning education, about 25% of companies are ready to consider a bundle of online services and training from the large companies (vendors) within a subscription (3 months, 6 months, 12 months.). More than 20% companies would like receive the e-learning platform from MTS as a service with possibility of the flexible approach depending on their requirements.

Analyzing the spectrum of essential training needs in companies the Top 5 list that encompasses such hard skills as Sales B2B, HR, and finance, and soft skills was found. In addition, it was discovered that regional companies prefer to develop hard skills and do not pay due attention to soft skills. Nevertheless, companies with a decision center in Saint Petersburg or in Moscow prefer to develop both of them.

About 90% of companies educate operating personnel as well as administrative board. Figure 12 presents the essential direction for staff training regarding respondents’ responses.

![Essential direction for staff training](image-url)

Figure 12. Essential directions for staff training.
According to this chart, soft skills, B2B sales skills and trainings for HR are the most popular directions for staff training. The next set of trainings concerns finance skills, B2C sales skills, IT and marketing skills. Combining B2C and B2B sales directions sales skills improvement becomes the most significant direction for online courses.

Finally, analyzing technical features of the e-learning platform the rating of popularity was created. The completed rating of technical features priorities is represented in Table 12.

<table>
<thead>
<tr>
<th>Technical features</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>The report on the level of staff training and level of passing tests</td>
<td>68%</td>
</tr>
<tr>
<td>The complete error analysis and further recommendations in the end of the course</td>
<td>68%</td>
</tr>
<tr>
<td>The assessment of employee’s potential</td>
<td>63%</td>
</tr>
<tr>
<td>A private user account for management and administration of training by system with different functional roles (the administrator, the head, the employee)</td>
<td>58%</td>
</tr>
<tr>
<td>Analysis and monitoring of course attendance</td>
<td>58%</td>
</tr>
<tr>
<td>Analysis of the impact of employee training on employee Key Performance Indicators (KPI)</td>
<td>53%</td>
</tr>
<tr>
<td>Organization of the online staff assessment (annual, 360 degree feedback) with providing reports and recommendations</td>
<td>53%</td>
</tr>
<tr>
<td>The automatic course assignment system depending on the functional role</td>
<td>47%</td>
</tr>
<tr>
<td>Self-development of courses and upload them on the platform (video, presentations)</td>
<td>42%</td>
</tr>
<tr>
<td>Self-selection and organization of employee testing</td>
<td>42%</td>
</tr>
<tr>
<td>The online library (subscription)</td>
<td>42%</td>
</tr>
<tr>
<td>The mobile version of the training system (omnichannels)</td>
<td>37%</td>
</tr>
<tr>
<td>Individual development of courses with involvement of specific trainers</td>
<td>32%</td>
</tr>
<tr>
<td>Receiving online certificate about the course completion</td>
<td>32%</td>
</tr>
<tr>
<td>The online conference (webinar)</td>
<td>32%</td>
</tr>
<tr>
<td>Organization of chat bots in order to promptly resolve operational HR issues</td>
<td>26%</td>
</tr>
</tbody>
</table>
Table 12. Completed rating of technical features priorities for clients.

According to Table 12, four groups of features based on the occurrence frequency can be distinguished. The learning analytics and the assessment of employee’s potential are more significant features for companies. On the other hand, additional services for staff recruitment or the scoring model for retail staff have low priority for respondents.

Analyzing data of differently sized companies, variation in needs between Large Enterprises, SME, and SMB companies was found. The separate analysis was conducted for Large Enterprises and SME/SMB companies respectively. Table 13 illustrates the rating of features in terms of Large Enterprises and SME/SMB separately.

<table>
<thead>
<tr>
<th>Technical features (Large Enterprises)</th>
<th>Frequency</th>
<th>Technical features for SME/SMB</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>A private user account for management and administration of training by system with different functional roles (the administrator, the head, the employee)</td>
<td>89%</td>
<td>The report on the level of staff training and level of passing tests</td>
<td>80%</td>
</tr>
<tr>
<td>The automatic course assignment system depending on the functional role</td>
<td>67%</td>
<td>The complete error analysis and further recommendations in the end of course</td>
<td>70%</td>
</tr>
<tr>
<td>The complete error analysis and further recommendations in the end of course</td>
<td>67%</td>
<td>Analysis and monitoring of the course attendance</td>
<td>60%</td>
</tr>
<tr>
<td>Self-development of courses and upload them on the platform (video, presentations)</td>
<td>67%</td>
<td>The assessment of employee’s potential</td>
<td>60%</td>
</tr>
<tr>
<td>Self-selection and organization of employee testing</td>
<td>67%</td>
<td>Analysis of the impact of employee training on employee performance (KPI)</td>
<td>50%</td>
</tr>
<tr>
<td>Feature</td>
<td>Rating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization of online staff assessment (annual, 360 degree feedback)</td>
<td>67%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The assessment of employee’s potential</td>
<td>67%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The mobile version of the training system (omnichannels)</td>
<td>56%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis and monitoring of the course attendance</td>
<td>56%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The report on the level of staff training and level of passing tests</td>
<td>56%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis of the impact of employee training on employee performance (KPI)</td>
<td>56%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual development of courses with involvement of specific trainers</td>
<td>44%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receiving online certificate about the course completion</td>
<td>44%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The online library (subscription)</td>
<td>44%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration online training platform with the recruitment system existing in the company</td>
<td>44%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The “video interview” service for internal interviews in the company, remote staff assessment</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization of chat bots in order to promptly resolve operational HR issues</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scoring of retail staff, the proposal for appointment</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The online conference (webinar)</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of courses from international coaches</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization of online staff assessment (annual, 360 degree feedback) with providing reports and recommendations</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A private user account for management and administration of training by system with different functional roles (the administrator, the head, the employee)</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The online library (subscription)</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The automatic course assignment system depending on the functional role</td>
<td>30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The online conference (webinar)</td>
<td>30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The mobile version of the training system (omnichannels)</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-development of courses and upload them on the platform (video, presentations)</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-selection and organization of employee testing</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual development of courses with involvement of specific trainers</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receiving online certificate about the course completion</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization of chat bots in order to promptly resolve operational HR issues</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of courses from international coaches</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration online training platform with the recruitment system existing in the company</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The “video interview” service for internal interviews in the company, remote staff assessment</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration online training platform with the recruitment system existing in the company</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scoring of retail staff, the proposal for appointment</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13. The rating of features in terms of Large Enterprises and SME/SMB companies separately.

As can be seen in the table, Large Enterprises expect from e-learning platform more functionalities than Small and Medium Businesses. Moreover, integration
of the learning management system (LMS) with different companies’ systems is less preferable for SMB companies. Furthermore, key features for SME and SMB companies embrace administrative and analytical functions. However, Large Enterprises want to have the complex system of online courses and employee’s management, connecting with other HR management systems.

Only 37% of all respondents choose omnichannels and mobile learning as key technical features. Mobile learning is insignificant for SME and SMB clients (only 20%). However, 56% of Large Enterprises have admitted mobile learning as a significant service. Despite digitalization traditional education approaches are more understandable for the Russian B2B market, especially for SME and SMB companies.

Analyzing Top features’ priority it was revealed that all participants realize the importance of the staff assessment prior to develop them. Therefore, such features as the assessment of employee’s potential and annual online assessment of competences (360 degree, for example) are significant. The educational approach when companies analyze the competence level of employees, understand their potential, and select appropriate courses has a similar to andragogy principles that were considered in theoretical part of this study.

5 Discussion and analysis

The main goal of this section is to summarize all findings, analyze their correlation with theoretical part, and make a conclusion taking into account research questions.

Within the framework of this study, a wide overview of different aspects and technical features of corporate e-learning based on the world trends, current solutions, and Russian business needs have been presented.
Stemming from the data research, the trend of corporate e-learning in Russia is developing and increasing. However, despite a huge market of corporate e-learning solutions, including LMSs, in Russia the choice is restricted by the legislation about data protection. In other words, databases of e-learning providers must be located in the Russian Federation (Kukushkina et al. 2017). This restriction leads to the situation when companies need to develop their own e-learning systems or use inefficient provider’s services. The first way is expensive and only Large Enterprises can afford to do it. Nevertheless, according to the research, 47% of companies are ready to consider e-learning as a service from the big providers, including MTS.

In addition, regarding questionnaire responds the knowledge level about pros and cons of e-learning is low nowadays. Particularly, it has been found that only 20% of regional corporate companies have budgets and develop online education in their companies. They have a branched structure predominantly. SMB and SME companies have a budget deficit for e-learning developing in Russia today. Therefore, the main target audience for corporate e-learning in Russia is Large Enterprises with branched structure and decision center’s location in Moscow or in Saint Petersburg. However, in perspective of three years this market will be extended. The regional corporate market will begin e-learning development properly.

Regarding data analysis of this study the e-learning system should be easy to use and flexible to change. Adaptation and customization of this system for client’s needs must be quickly deployed, easy managed, and cost effective. This task can be solved by means of the cloud-based solution. This issue is confirmed by the international analytical research that more than 55% of corporate clients prefer cloud-based LMSs (Westfall 2016).

In spite of Content Packaging and Communication standards above mentioned in literature review many clients told about difficulties with integration off-the-shelf courses into the e-learning platform. It means that these standards must
be improved. Content and platform vendors need to analyze current difficulties by means of issue’s exploration.

In addition, based on interviews and regarding information depicted in the tables (from Table 10 to Table 13), Large Enterprises and Small and Medium Businesses have different requests. On the one hand, Large Enterprises want the LMS to have a wide range of services such as deep analytical reports, the system of tests, integration with social networks and other companies’ systems, omnichannels, m-learning, gamification, and sales battles. Also, Large Enterprises need to have a flexible opportunity to create and manage courses and fast implement newly emerging features as Virtual Reality (VR) and Augmented Reality (AR) for instance. In other words, the e-learning system should be flexible and adaptive to new technologies. If the company has a chain of partners or franchisee this online system must be extended. Therefore, the learning management system (LMS) should have an opportunity to share suitable contents between the general company and partners or franchisee.

However, Small and Medium Business (SMB) and Small and Medium Enterprises (SME) need fewer features than Large Enterprises. According to study results, next basic services are significant for them: off-the-shelf content, the system of tests, learning reports, webinars, and e-library.

In other words, differences in needs of Large Enterprises, SME and SMB companies can be reflected in marketing approaches. Two ways how to suggest an appropriate solution to corporate clients can be considered. Firstly, it is an annual subscription to off-the-shelf video courses in the library. This approach can be more relevant for SME and SMB companies. Secondly, online courses are developed tailored to client’s needs. The latter is more suitable for Large Enterprises because of price. Nevertheless, the marketing approach is depends on customer needs.

However, there are some compulsory requests relevant for every company. LMS must have the user friendly interface, the transparent technical
documentation, the adaptable and relevant content, free demo access, and 24/7 high qualified support. Regarding interviews the poor usability and unprofessional support are the main factors to switch LMS provider. This insight correlates with information depicted in Figure 4 (Brandon Hall Group 2016).

Summarizing all above mentioned the comprehensive e-learning solution for corporate clients should encompass accurate technological features, well-organized and specific content variety, and 24/7 qualified services. Despite seventeen years ago this conclusion correlates with Henry vision (2001). In other words, an excellent user experience is the most burning topic nowadays!

According to the low level of e-learning penetration (only 50% of companies-participants have understanding about online education), in the corporate market in Russia many global trends are not so significant. For example, Adkins (2016) states that m-learning is a fast growing market. According to Brandon Hall Group (2016), m-learning and social tools are on the Top positions in overall ratings. Regarding research results presented in Table 13, m-learning has a second priority for Large Enterprises and fourth priority for SMB and SME companies. However, some Large Enterprises have a task to launch sms-learning. They leverage this channel in order to quickly inform about crucial changes or significant news. Nevertheless, m-learning and omnichannels in online education will increase in Russia when e-learning becomes a compulsory part of the HR strategy.

According to the focus group interview, integration of e-learning platforms with social tools goes slowly. Respondents believe that this integration can be helpful, but many of them have a lack of knowledge about benefits. The first step can be concluded in creation of education groups in Facebook, Vkontakte, WhatsUp, YouTube or other networks. These groups and learning content must be customized, administrated and managed by an employer via LMS. This way of education and collaboration with employees can be fast and effective, particularly with youth.
Such new technologies as VR and AR are considered by participants as potential and convenient services. Currently these technologies are rarely used in companies’ education processes. According to the focus group interview, VR and AR can be useful in learning at working places (doing a surgery in medicine, analyzing facilities of different hotels or restaurants in the hospitality business, and in other fields).

Based on interviews results meaningful approaches of content efficiency increase were revealed. First of all, most participants argue that *blended learning* is more effective compared to online learning. In addition, *asynchronous* and *synchronous* methods can be effective in different cases. Therefore, all methods should be introduced in the learning management system.

In addition, the length of video courses should be no more than 8 minutes (better 3-5 minutes). At the start, a short explanation of the course’s goals is critical, and a short quiz after completion should be included. Also, employees need to know what they can learn in terms of the course. In other words, micro-learning is a meaningful issue in the e-learning process. Referring to the study research off-the-shelf bundles of life webinars, homework, tests, and useful links with articles or books is the comprehensive approach to improve course effectiveness.

Furthermore, courses should have a vital necessity for employees in order to increase the level of the course attendance and completion. It means that employees must comprehend correlation of their career development with the education process. Also, they can leverage new information in their practice at work and this approach motivates employees to study. These conclusions correlate with the main principles of the andragogy theory (Figure 6) and Kolb’s learning model (Figure 7) discussed in the theoretical part of the study.

Additional motivated methods based on visual ratings and gamification tools should be implemented in the LMS. The best motivated and stimulated method
for employees is to visualize their positions in the rating. This approach could encourage the best one and motivate employees with low results to improve them.

According to the above mentioned, effectiveness of e-learning courses can reach high results. Also, it was found out that more popular e-learning courses comprise soft skills trainings and hard skills for B2B sales, HR, finance, and IT fields. Moreover, regarding the questionnaire most of respondents (23%) distinguish sales trainings (B2C+B2B) as significant. However, fifteen years ago only soft skills trainings and IT trainings were preferable (Faherty 2003). In addition, there are some applied skills that are relevant for many employees. It was revealed that courses devoted to Excel or Power Point skills improvement have more popularity in the corporate market.

Taking into account above mentioned information and recommendations, the prototype of one course was created in MTS. This course was devoted to Excel for experienced users. The name of course is the Fast Excel Program. The prototype of the course is presented in Appendix 3. Most useful and effective techniques were applied in this course. Employees of the MTS company tested this course and evaluated their good structure and usefulness.

**6 Conclusions**

Within the framework of this thesis the case study for the MTS company was presented. The research problem was to identify the appropriate group of technical features for corporate e-learning platforms and create a guideline for the organization of e-learning courses. This study was taken in order to help MTS to estimate how a new service “E-learning as a Service” for B2B clients should be launched.

The empirical work investigates corporate learning and e-learning in real-life context and includes the participation of about 40 differently sized companies from different business fields. A case study research methodology was
therefore applied. Data for the study have been acquired in three directions: analysis of the worldwide corporate e-learning market and trends, interviews with MTS corporate clients located in Saint Petersburg and the questionnaire with geographically distant MTS corporate clients. The triangulation approach was used in order to increase reliability and validity of results.

In a nutshell, the study was conducted into two main directions: literature review and empirical research. In the first part of the study e-learning environment including trends, segments, technical standards, corporate e-learning platforms and features were explored. In addition, adult learning theory and Kolb’s learning methods were represented. Semi-structured interviews, the focus group interview, and the semi-structured questionnaire were conducted in empirical research (see Appendix 1 and Appendix 2).

As a result a wide overview of different technical features of corporate e-learning based on the world trends, current solutions, and Russian business needs have been presented. Most of findings are correlated with the literature review. However, some legislative, technical and mental particularities of the Russian B2B market have been revealed. Therefore, there are some objective reasons why international e-learning providers have restrictions to work in Russia. According to this research, the corporate e-learning penetration is low. However, this trend in Russia is growing. Nevertheless, many highly evolved global trends as m-learning, social or collaborative tools, VR, and AR are late in development in Russia, particularly in regions. Currently, Moscow and Saint Petersburg have a big potential in the corporate e-learning development. In addition, some differences in features’ priorities were determined according to the company’s size.

In terms of the online course analysis, it was revealed that micro-learning, gamification tools, and carrier-related learning must be used to improve effectiveness of online education. Right motivated employees study effectively. In addition, content should follow the principals of adult learning and Kolb’s learning methods. And most importantly, employees must see a correlation
between the education process and their career development. Finally, a prototype of the online course was created and presented in Appendix 3.

Taking into account above mentioned information, the results of this thesis will be useful for MTS to understand B2B clients’ needs and design products relevant for the market. In addition, this study will be useful to companies who plan to launch e-learning businesses in the Russian market. Information about the improvement of courses’ effectiveness will be helpful for any company that develops e-learning for their employees.

Finally, this thesis can be evaluated highly because of five key points:
- the innovative and highly potential field has been taken for the study;
- the comprehensive data analysis of the research problem has been fulfilled;
- the literature review and the empirical study are relevant to the research object and research questions;
- high applicability of insides and recommendations for companies developing online education in the Russian corporate market (B2B clients or e-learning providers);
- thesis’s results are helpful for the MTS company’s case.

6.1 Limitations of the research findings and future research

In terms of this study, only a number of regions took part. Therefore, some risk of biases in conclusions about regional trends could be. However, financial analysis and profitability of this new service “E-learning as a Service” are beyond the scope of this study.

Also, the result of this research is a set of appropriate features, insides and recommendations that should be implemented in the process of e-learning management system realization and content creation. After launching of this service for B2B clients, the analysis of feedbacks and system’s usability needs to do. In a nutshell, this thesis has been devoted to the first exploration when a new service is planning to be launched.
The main idea for the future study can be focusing on the marketing approaches how to promote the corporate e-learning service in the B2B market. In addition, the effectiveness of e-learning programs launched in different companies can be explored.

According to the rapid changing market trends every service must be developed. Moreover, new technologies emerge that should be integrated regarding the market demand. In addition, it would be interesting to estimate how artificial intelligence and machine learning can influence on the corporate e-learning development.
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Appendices

Appendix 1 Questions for semi-structured interview

1. How the online learning process is organized in the company?
2. What tasks do you solve by means of online courses?
3. Do you satisfy with your current online solution?
4. What criteria are important for e-learning platform?
5. Do you satisfy with the education effectiveness in your company (online, traditional)?
6. What needs to be done to improve effectiveness of the e-learning process?
7. What kinds of online courses do you need first of all? Say Top 5 courses for online learning.
Appendix 2 Semi-structured inquirer

1 Name of the organization
___________________

2 A field of activity of the organization (It is possible to select some versions of answers)
- car business
- household services
- medicine
- information technologies
- education and art
- industrial production
- public catering
- retail
- construction
- tourism
- services
- financial services
Other …

3 The number of employees in the company
- up to 10 people
- from 10 to 50 people
- from 50 to 200 people
- from 200 to 1000 people
- more than 1000 people

4 The number of employees for whom trainings in the company are provided
- up to 10% of the number of the personnel
- from 10% to 25%
- from 25% to 50%
- from 50% to 75%
- more than 75%

5 How in the company training activity is organized?
- We use only an internal format of training with the invitation of external trainers
- We use only the internal staff or trainers for training
- We use both external and internal trainers, but use only traditional classroom based trainings
- We use only online courses for training
- We use also traditional classroom based trainings, and the online system of trainings with involvement of internal and external trainers
- We do not provide training

Other …

6 What directions are essential for staff training? (It is possible to select some versions of answers)
- sales of B2C
- sales of B2B
- marketing and PR
- IT and equipment
- safety and complains
- development R&D
- finance
- HR
- soft skills (leadership, presentation, time-management)

Other …

7 In the company trainings are provided for
- operating personnel
- an administrative board
- both for operating personnel, and for an administrative board
- trainings are not provided

8 Whether transition to the online education system and in what perspective it is considered in the company?
- yes, this process has been going
- perhaps, in the long term 3 years
- not considered

Other …
9 What barriers do you see to develop online trainings? (It is possible to select some versions of the answer)
- no barriers, we develop online trainings
- efficiency of the online training channel is lower, than the traditional classroom approach
- there is no provider who would completely satisfy our requirements
- big investments on start are required, and efficiency is not clear
Other …

10 What options of transition to online education system is more preferable?
- purchase online of a "turnkey" platform
- acquisition of licenses at the large companies offering online education services is considered
- readiness to implement testing tools and questionnaires in the online system only
- readiness to consider bundles of online services at the large companies within a subscription (3 months, 6 months, 12 months.)
- it would be interesting to receive an online training platform from the MTS company as a service with possibility of flexible approach depending on our requirements
- are not ready to consider online in any options
Other …

11 What budget in a year are you ready to spend for online education?
- are not ready, there is no budget
- no more than 10% of all budget for training
- no more than 20% of all budget for training
- up to 50% of all budget for training
- more than 50%

12 Imagine that the off-the-shelf product "the online corporate platform for staff education" is offered to you. What listed below services would be interesting to you? (It is possible to select some versions of the answer)
- a private user account for management and administration of trainings by system with different functional roles (the administrator, the head, the employee)
- integration online training platform with the recruitment system existing in the company
- the automatic course assignment system depending on the functional role
- the mobile version of the training system (omnichannels)
- the analysis and monitoring of the course attendance
- the report on the level of staff training and level of passing tests
- the complete error analysis and further recommendations in the end of the course
- the analysis of the impact of employee training on employee performance (KPI)
- self-development of courses and upload them on the platform (video, presentations)
- self-selection and organization of employee testing
- individual development of courses with involvement of specific trainers.
- receiving online certificate about the course completion

Other …

13 What additional services from below listed to you would be interesting within e-learning platform? (It is possible to select some versions of the answer)
- organization of online staff assessment (annual, 360 degree feedback) with providing reports and recommendations
- the "video interview" service for internal interviews in the company, the remote staff assessment
- organization of chat bots in order to promptly resolve operational HR issues
- scoring of retail staff, the proposal for appointment
- the assessment of employee’s potential
- the online library (subscription)
- the online conference (webinar)
- the availability of courses from international coaches

Other …
14 What is a key factor of a choice of the online education system’s provider?
- price
- popularity of the provider of the e-learning platform
- convenience of the organization of the online education platform and convenience of management
- presence of the personal manager within support of administration of the e-learning platform
- quality and uninterrupted operation of work of the e-learning platform
Other …

15 Are you ready to consider the MTS company as a provider on rendering online training?
- yes
- probably not
- I will think
Appendix 3 Online Fast Excel program

The program consists of 6 modules.

In each module for you:
- webinar with leading experts of Excel
- video course on the most important functions
- homework

Finalists of the program will be able to get a participation in the virtual Olympic Games where you should battle to your colleagues and prove that you the best in Excel

To whom the program will be interesting?
The program is expected for experienced users. You can pass lessons selectively.

Having registered on the program, you will timely receive all webinars invitations, and also assignments of video courses and homework.

Webinars and subjects
1. Basic skills of work in Excel about which do not know the pro
   - Automatic filling
   - All about formats (+ creation of own formats)
   - The dropping-out lists in cells of the sheet
   - Information protection (4 options)
   - 5 methods to connect tables
2. All secrets of a formula of VLOOKUP (and his colleagues)
   - Basics of VLOOKUP function
   - VLOOKUP with numbers and texts
   - Lookup with variable sheet name
3. All secrets of pivot tables
   - Creation bases
   - The pivot table with the text in values
   - Summary on several ranges from different sheets
   - Function RECEIVE. DATA. PIVOT. TABLES
4. Useful working methods with diagrams.
   - Multi-level signatures of axes
• Fast adding of data in the chart
• Binding of signatures to cells
• We learn to use the second axis (%)
• The second axis for display of sales on days off
  5. Non-standard diagrams in Excel
• Indicator charts
• Bubble charts
• Project charts
• Line chart of comparisons of the Tornado
• Cascade chart "falls"
  6. Live diagrams in Excel (an interactive without macros)
• Charts on the basis of the dynamic referred to as ranges
• The chart with automatic adding of data (table)
• The chart with automatic adding of data (formula)
• The chart with display of the last N elements
• The chart with a choice of the displayed row
• The chart comparison of competitors (2 from a set)
• Charts with controls
• The chart with a zoom and scrolling
• The chart with a choice of the displayed data checkboxes

**Video course on Excel**

Our video course is constructed in such a way that the experts of Excel will find for themselves something useful there.

Do not forget to click "table of contents" in the upper left corner to see the list of lessons. Each module contains 20+ short video lessons of functions of the program. The course includes tasks and materials for examination.

**Module 1. Part 1.**

Basic principles of work of Excel. Mathematical and statistical functions.

**Module 1. Part 2.**

Text formulas, work with a date and time, functions of links and substitution, logic functions, financial formulas, work with arrays.
Lists, sorting according to the most different parameters, autofilters simple and difficult, intermediate results.

Module 2. Part 2.
Consolidation of data, conditional formatting, summery tables.