Integration of Technology Enhanced Learning within Business Organizations: Which Strategy to Choose?

Lina Kaminskienė
Vytautas Magnus University, Department of Education Sciences, Kaunas, Lithuania
l.kaminskiene@pvt.vdu.lt

Aušra Rutkienė
Vytautas Magnus University, Department of Education Sciences, Kaunas, Lithuania

Elena Trepulė
Vytautas Magnus University, Department of Education Sciences, Kaunas, Lithuania

ABSTRACT
The article discusses a responsible and a responsive strategic organizational approach for a smooth integration of technology enhanced learning (TEL). A response to external and internal contingencies and an involvement of different stakeholders into the development and implementation of the so-called eLearning strategies is one of the approaches which may facilitate TEL integration within different types of organizations. A survey carried out in 2014 in sought to investigate how employees perceive and accept organizational strategies and organizational approaches to TEL integration. Research results helped to identify the most sensible areas for eLearning strategies developers and to highlight responsible and responsive approaches for TEL integration. The framework parameters for TEL integration discussed and analysed in the article may serve as a scientifically approved benchmarking tool for organisations which are in the process or planning to integrate TEL.

INTRODUCTION
Technology enhanced learning (TEL) does not have a commonly accepted precise definition. According to Kirkwood and Price (2014) the term Technology Enhanced Learning is used to describe the application of information and communication technologies to teaching and learning, also to describe the broad approach to using technology to support teaching and learning processes, design and delivery, to enhance learning. These authors argue that explicit statements about what the term is understood to mean are rare and it is not evident that a shared understanding of what constitutes an enhancement of the student learning experience has been developed in higher education. Lucas (2013) states that technology enhanced learning has the potential to transform education and to raise the level of education globally. TEL is inclusive of and is broadly synonymous with e-learning, distance learning, online learning, multimedia learning, internet based training, web based training and etc. However, TEL is a broader concept than e-learning, and it refers to the use of electronic media and information communication technologies (ICT) in and for education.

The level of the application of technology enhanced learning in various organizations is a result of many multidimensional external and internal factors. Researchers analyse these factors from different perspectives: environmental challenges (Bottomley, 2000; Schneckenberg, 2010; Wagner, Hassanein, Head, 2008), which include changes in society, economy and social sphere; changes which might be classified as learners' level challenges, such as intrinsic and extrinsic motivation (Ellis, Hubble, Applebee, Peat, 2006; Robles, 2013); challenges related to institutional (organizational) infrastructure, support, policy (Bottomley, Spratt, Rice, 1999; Boezerooij, 2006; Schneckenberg, 2010), etc. Accordingly, researchers analyse these factors from different theoretical paradigms: connectivism, social cognitive theory, constructivism theory, motivation theory, contingency theory, stakeholders' theory and many others.

Boezerooij (2006) suggests that one of the theories dealing with the explanation of the relationships between organisations and their environments is contingency theory. According to Donaldson (1995) the contingency theory holds that the most effective organizational structural design is in those cases when the structure fits the contingencies. A similar approach is suggested by Bottomley (1999) and others who consider external factors or contingencies should be taken into consideration, therefore visions how organizations should cope and meet with these contingencies should be reflected in their strategies. External factors affecting changes in private enterprises are related to the development of communication technologies, thus exhibiting stronger reliance on the use of technology in everyday activities. Global processes such as globalisation of economic systems, globalisation of high skilled force, expansion of ICT, digital taylorism (Brown, Lauder, Ashton, 2011) make organizations reconsider their strategies.

In line with these discussions, two key research questions were raised: 1) what is a responsive and a responsible organizational approach to integrate TEL into an organization? and 2) what are the main parameters for a successful TEL integration into business organisations? To answer these questions, the following tasks were formulated:
1. To analyse various TEL integration approaches into business organisations.
2. To identify how TEL integration framework parameters are perceived by companies' employees.
In this research paper the authors argue for a responsive and responsible strategy of TEL integration into business organisations, which is based on seven quality parameters.

TEL STRATEGIES

Many TEL (or eStrategies, eLearning strategies) integration approaches refer to Rogers' (2003) model for the diffusion and adoption of innovations (Schneckenberg, 2010). However, other models for a more effective integration of technology enhanced learning could be explored. These models or approaches are not necessarily linked with the development of specific eStrategies but rather with a deeper understanding of e-learning processes. For example, Chang & Guetl (2007) discuss the development of an eLearning ecosystem. Following the idea of an ecosystem, they elaborate the concept named a "learning ecosystem" (later the concept narrowed down to eLearning ecosystem), which consists of three basic components: 1) specifics of the learning communities and other stakeholders in an eLearning ecosystem, 2) restricted learning conditions of e-learning ecosystem; 3) specifics of the learning utilities in an eLearning ecosystem. By taking the holistic approach this has allowed to assess and/or develop learning strategies in small and medium-sized enterprises (SMEs).

Five elements of successful TEL strategy were defined by Young (2007) and these elements involve Tools, Training, Processes, Supports, and People. It is necessary to choose the right tools that help design, develop, and solve eLearning solutions. Learning content depends on learners' demands and levels of knowledge, thus learning providers must be well prepared methodologically and be able to apply the learning organization procedures.

While developing an organizational learning strategy, a company should closely connect learning to and align it with work tasks specific to job roles and should relate to business objectives, processes, and workflows (Trondsen, 2004). The main advantages of this connection can be measured by improved productivity and business outcome, improved relevance and use of learning content and resources, and a greater focus on learner and work context, improving worker satisfaction. According to Moore (2007) any eLearning strategy must include methods for designing and deploying learning solutions, change management, communication planning, performance support solutions, and knowledge management services and technologies.

Numerous theories and models serve as a basis for organisations to develop their strategies responding to ICT innovations and technology enhanced learning integration to their practices. One of widely applied approaches is a stakeholders' analysis. A stakeholders' analysis was originally introduced by Freeman (1984) as a tool for managers to proactively engage their external environment in view of the rapidly changing global marketplace (Moustakas & Oliveira, 2012). Other researchers (Bhuasiria, Xaymoungkhoun, et al., 2011) try to identify critical success factors for eLearning in developing countries. In their research they try to combine several theories such as social cognitive theory, information system success model, technology acceptance model (which is adopted from the theory of reasoned action). The latter theory (or model) is one of the widely applied theories for technology enhanced learning integration within an organisation (Davis, 1989; Bhuasiria, Xaymoungkhoun, et al., 2011). The technology acceptance model has four main constructs such as perceived usefulness, perceived ease of use, behavioural intention to use, and actual system use). Attempts to find strategic approaches for technology-driven educational innovation within organizations have been widely discussed in recent years (Bottomley, Spratt, Rice, 1999; Boezerooij, 2006; Schneckenberg, 2010). Nonetheless, all authors finally argue for one common objective: to develop strategies, or the so-called eStrategies (Schneckenberg, 2010), as institutional innovation frameworks which guide organizations to undertake measures to sustainably integrate ICT into their activity processes.

All these approaches to TEL strategies are mainly based on the effectiveness of eLearning, however, a new approach based on responsiveness to internal and external contingencies and responsibility to the company's employees (learners) allows researchers and practitioners to introduce more elements which should be taken into consideration while integrating TEL:
1. Strategy and governance implies that an organization should assess its vision and mission.
2. The strategy of organization should be oriented towards TEL of different target groups and stakeholders and supported with action plans of integrating TEL into institutional activities.

3. The strategy of organization should be supported with resources of integrating TEL into institutional activities.
4. There are existing monitoring processes of TEL integration within an organization.
5. Management decisions are made to assure TEL integration (technical staff support, processes, funding, etc.).
6. Development of TEL policy is learner centered and personalized in terms of existing knowledge, skills and competences.
7. There is a plan for continuous revision of staff teaching/learning plans.
8. And finally, top management is responsive to bottom-up initiatives.
These aspects fall into the following seven categories and they make the so-called TEL integration framework parameters: 1) Strategy and management; 2) IT Infrastructure; 3) Curriculum and didactics (or learning enablers); 4) Staff continuous professional development; 5) Support system; 6) TEL Quality assurance; 7) Marketing and business.

METHODOLOGY
In 2014 a national survey on technology enhanced learning approaches in Lithuanian business organizations was carried out. The research methodology was based on the contingency theory and stakeholders' theory, which deal with organizations' needs to respond to internal and external challenges and learning demands through developing TEL strategies, which should be implemented with active involvement of the main stakeholders. The research was limited to one group of the organizations' stakeholders – employees.

Research data was collected using quantitative research method – an online questionnaire. This type of research method was chosen due to the fact that it was intended to collect as much as possible information about organizations' employees while securing anonymous relation and avoiding influence for the respondents. In total 348 respondents participated in the survey.

A quantitative questionnaire was constructed distinguishing variables from the theoretical analysis. Data was collected in May-June 2014. The collected responses were coded and input into SPSS program for further analysis. The analysis was performed using an appropriate method of statistical analysis, employing MS Excel and SPSS (Statistical Package for Social Sciences) version 22. The data was summarized using descriptive statistics, parametric and non-parametric tests and reliability counting. Hypothesis were tested using significance level $\alpha=0,05$. Data analysis was performed using descriptive statistics (frequencies, percentages, graphical representation), parametric statistics (analysis of variance ANOVA), counting of reliability (Cronbach α, Guttman split-half coefficient).

For the analysis of research data, a response index was counted. For each block (criteria groups) of questions a summative index was counted as a sum of respondent's responses to seven criterions groups. As each respondent answered 10 questions with values 1-5, the boundaries of index change 10-50 were assessed. For each respondent seven indexes were counted that reflected each respondent's responses. In further analysis the following constructed indexes were used.

Research instrument was designed to have 7 blocks with 10 questions in each. Each block corresponds to the framework parameter for TEL integration discussed earlier:
– Strategy and management;
– IT Infrastructure;
– Curriculum and didactics;
– Staff continuous professional development;
– Support system;
– TEL Quality assurance;
– Marketing and business.
To comply with the research validity all research directions are based on theoretic analysis. The inner compatibility is secured through Cronbach α value. A Cronbach α value for the whole questionnaire is 0,978 – a very high inner compatibility index, acceptable for analysis. Inner compatibility of the separate parts of the questionnaire is presented in Table 1.

Table 1. Cronbach α indexes for different parts of the questionnaire

Parts	Cronbach α
Strategy and management	0,913
IT Infrastructure	0,920
Curriculum and didactics	0,923
Staff continuous professional development	0,901
Support system	0,932

Quality assurance	0,932
Marketing and business	0,834

High Cronbach α values of separate parts of the questionnaire indicate that there is a good inner compatibility of the questionnaire. Additional questionnaire compatibility was tested using split-half method: first part Cronbach α = 0.961, second part - Cronbach α = 0.958. The correlation of the two parts is 0.869, Guttman split-half coefficient is 0.930 (good compatibility is indicated by value higher than 0,8). [Table 2]

Table 2. Division by sex, age, work experience and education

	Value	Percent
Sex		
Women	81	52,3
Men	74	47,7
Age		
18-31 years	65	41,9
32-42 years	60	38,7
43 +	30	19,4
Work experience		
Up to 4 years	63	40,6
4-9 years	58	37,4
10 + years	34	21,9
Education		
University	152	98,1
College	3	1,9

More than half of the respondents were women (81 respondents or 52.3 %). The youngest respondent was 23, the oldest – 62, mean - 35,28 (standard diversion 7,87), lowest job experience – 1 year, highest – 22 years, mean – 6,21(standard diversion 5,11). Absolute majority of the respondents had higher education (153 respondents out of 155).

FINDINGS
General intentions to implement TEL should be first reflected in organization's strategic goals and documents, while the top management as well as all other levels of employees should have a clear vision.
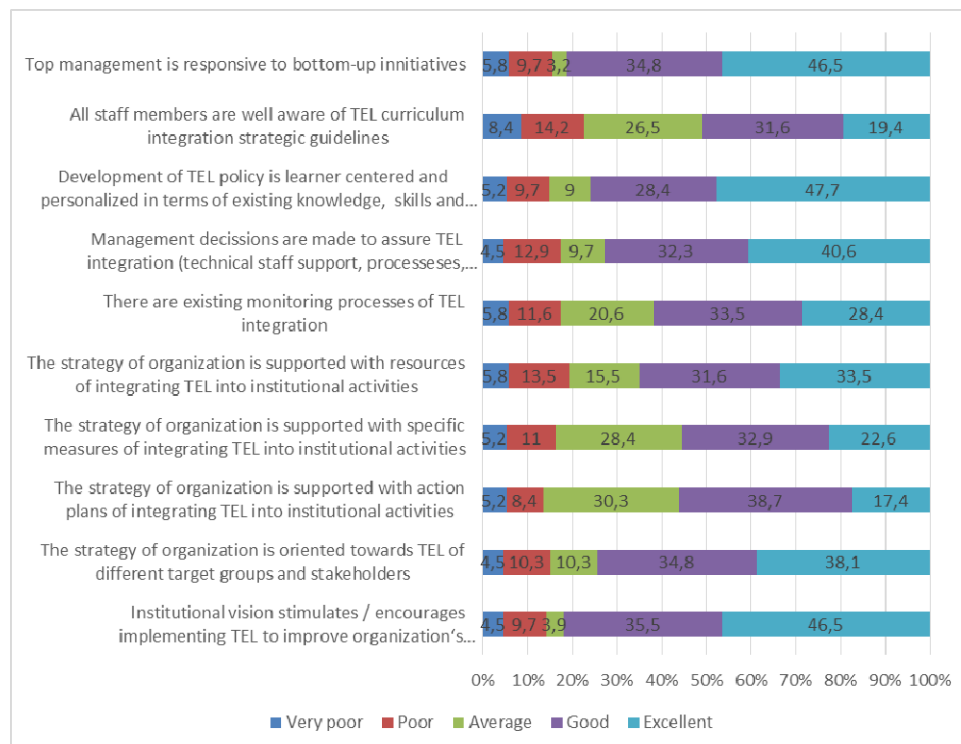

Figure 1. Percentage distribution answers on strategy and management

Research has shown that not all strategic statements are valued evenly. Responses indicated that top management do react to employee initiatives and that TEL policy in organizations is oriented towards individual learner knowledge and skills - about 70% of respondents agree with this (Picture 1). Over 60% indicate, that institution's vision supports implementation of TEL.
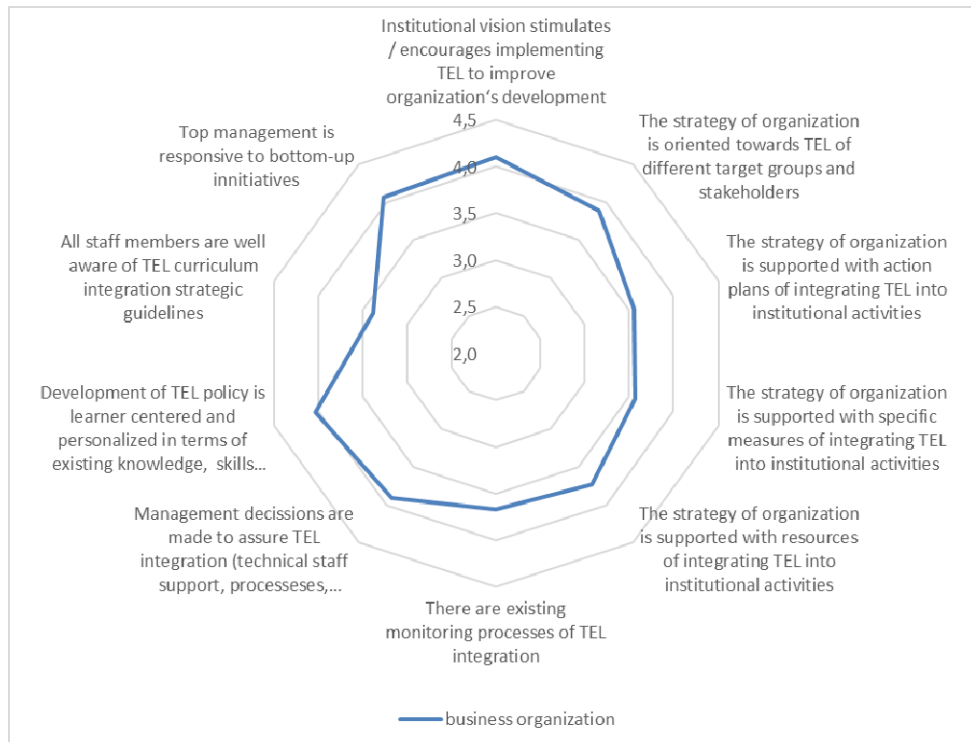

Figure 2. Mean of responses on strategy and management statements compared

However, the respondents are not sure that TEL implementation processes are foreseen and that organizational strategy includes action plan to implement TEL – a mean of 3,39 - 4,10 relating to different statements was expressed in business organizations.

All statements related to ICT and TEL infrastructure were assessed positively; 8 out of 10 statements were assessed as „good" and „excellent" by over 50% (Picture 3), but there is no statement with over 60% assessment.
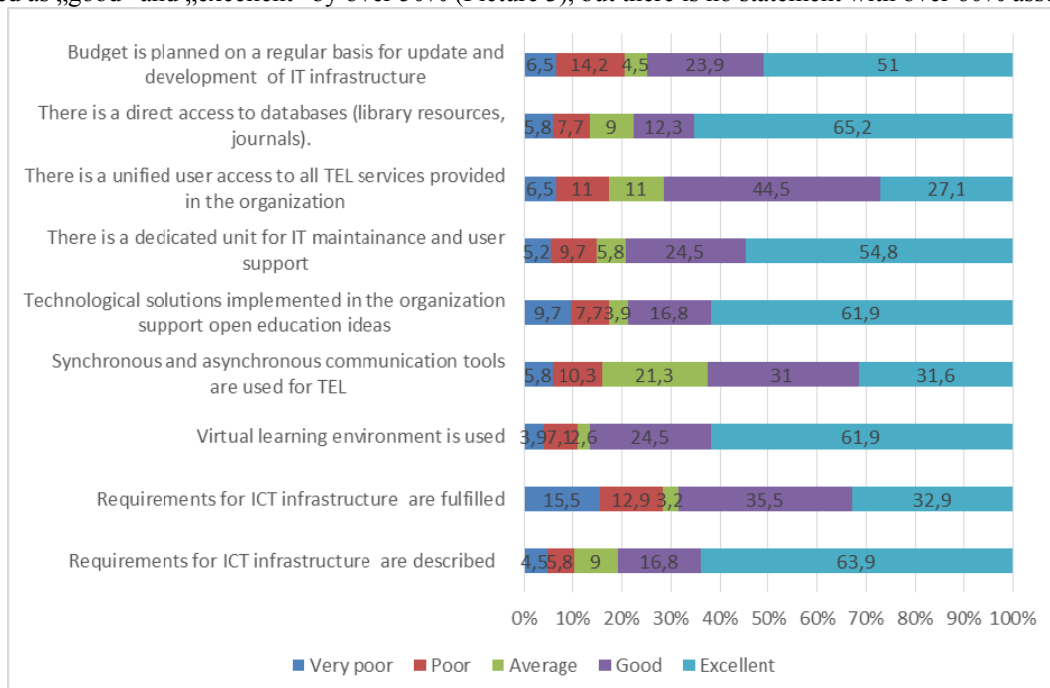
Figure 3. Percentage distribution answers on IT Infrastructure

The statements about clear requirements for ICT infrastructure and virtual training environment links to data bases are assessed positively. The lowest assessments are for the questions regarding ICT and user support unit in the organization.
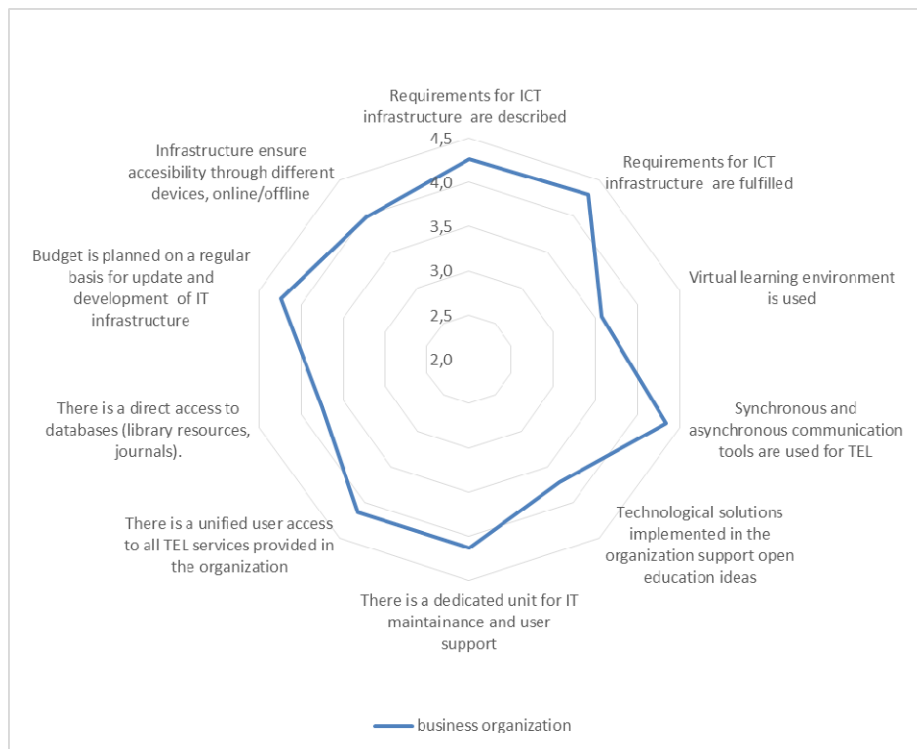

Figure 4. Mean of responses on IT infrastructure

As participating business organizations work in IT sector, their assessments are naturally the highest in all statements (Picture 4). However, these organizations gave the lowest assessment for the employment of virtual learning environment. The assessments of business organizations vary from 3,57 to 4,34. Therefore, this is an indication that additional attention should be paid to implementation and application of virtual learning environments.

Learning enablers are very important in TEL. This group of criterions is understandable for the respondents and is assessed the most positively.
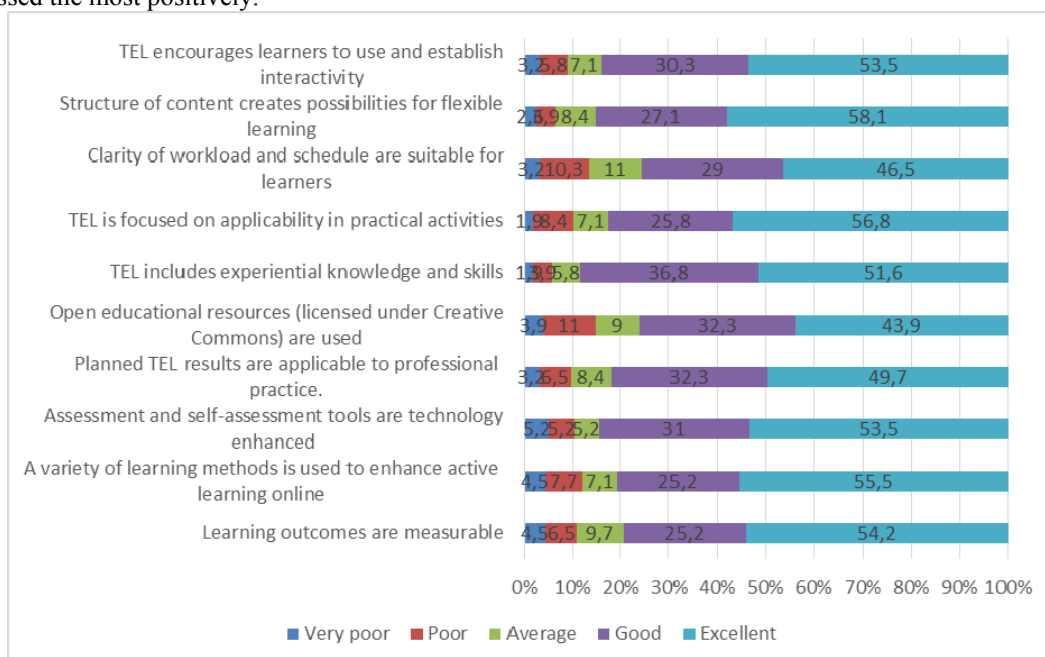

Figure 5. Percentage distribution answers on learning enablers

The analysis of respondents' assessments for the statements of learning enablers demonstrates that positive assessments exceed 70% (Picture 5). 88.4% of respondents agree that experiential knowledge and skills are important in TEL process. Over 70% of respondents also agree that TEL fosters application of various learning methods, inclusion of Open education resources (OER – free access textbooks, documents, video materials), that TEL is concentrating towards practical learning results, that TEL curriculum opens possibilities for open and flexible learning and supports learner cooperation.
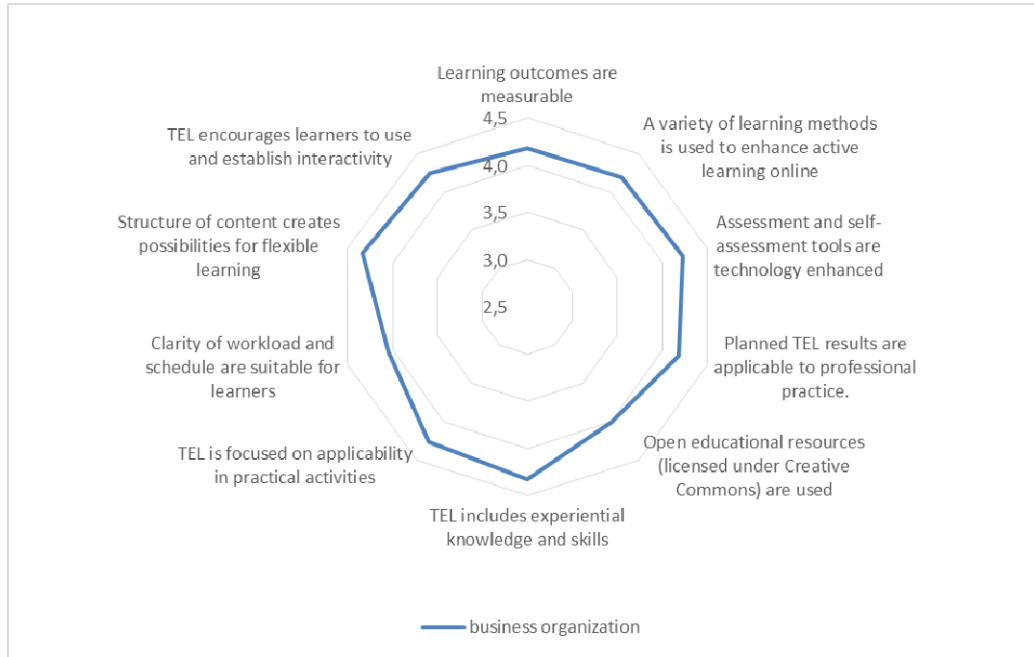
Figure 6. Mean of responses on learning enablers

Assessment of learning enablers demonstrate that business organizations are more inclined towards experiential learning approaches (Picture 6), which tends towards using variety of learning methods and interactivity. The most problematic area is related to assessment, particularly using assessment tools in TEL, clarity of workload and schedule.

In the context of new emerging technologies and their integration in organizations, continuous staff development is one of the crucial aspects when implementing TEL.
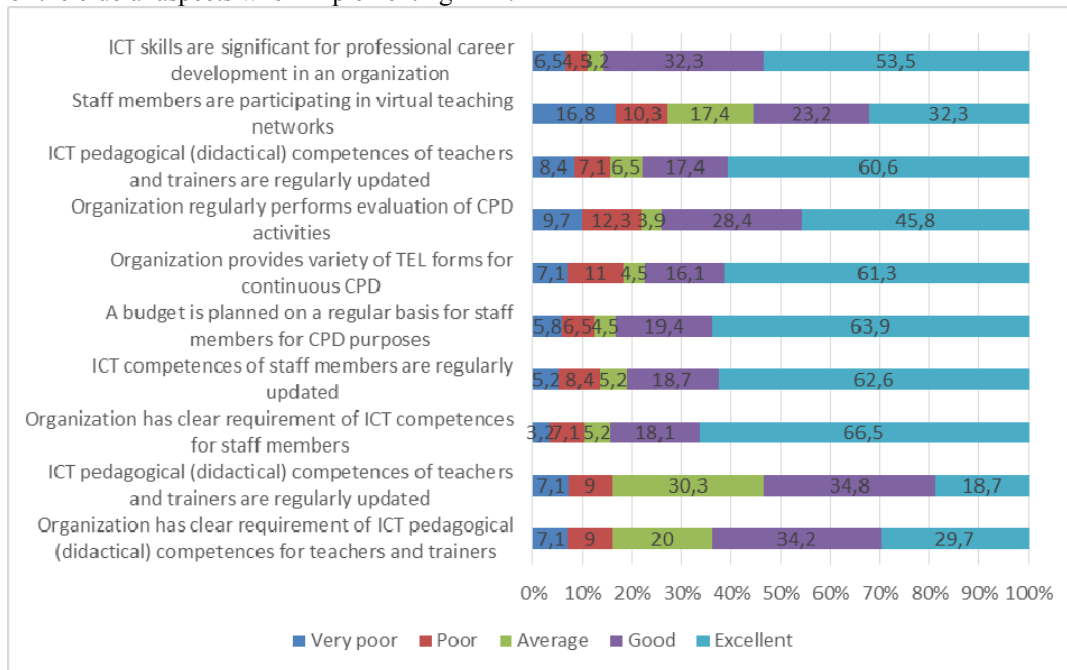

Figure 7. Percentage distribution answers on staff continuous professional development

It is expected that employees would know their possibilities in order to keep the process under control. There are also high requirements for trainer qualifications. The employees should have possibilities for development of their knowledge and skills in technologies. As illustrated in Picture 7 the process of professional development is active, and thus, the most positive assessments were given to the statements about ICT skills importance for employee career in the organization and that there is a variety of TEL curriculum forms for continuous professional development (workshops, workplace learning). It is also worth noticing that even though didactic competences were assessed rather high, quite many employees indicated that ICT didactical competences of the teaching staff are not regularly updated (53,5 proc.).
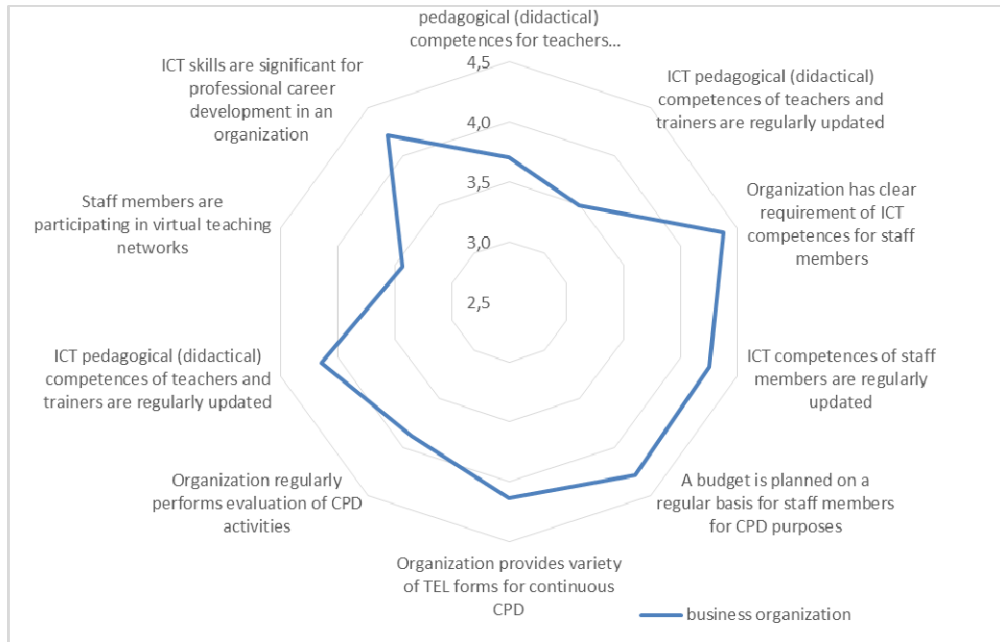

Figure 8. Mean of responses on staff continuous professional development

It is interesting to notice that the mean of business organizations' assessment of the existing requirements for didactic competencies differs insignificantly (Picture 8). The field that needs improvement is participation in virtual professional networks. Today's possibilities to improve one's competencies through joining virtual professional networks are very good, bet they are underestimated.

User support is necessary to all participants of the process in all phases of TEL. However, assessment of statements regarding TEL support systems varies.
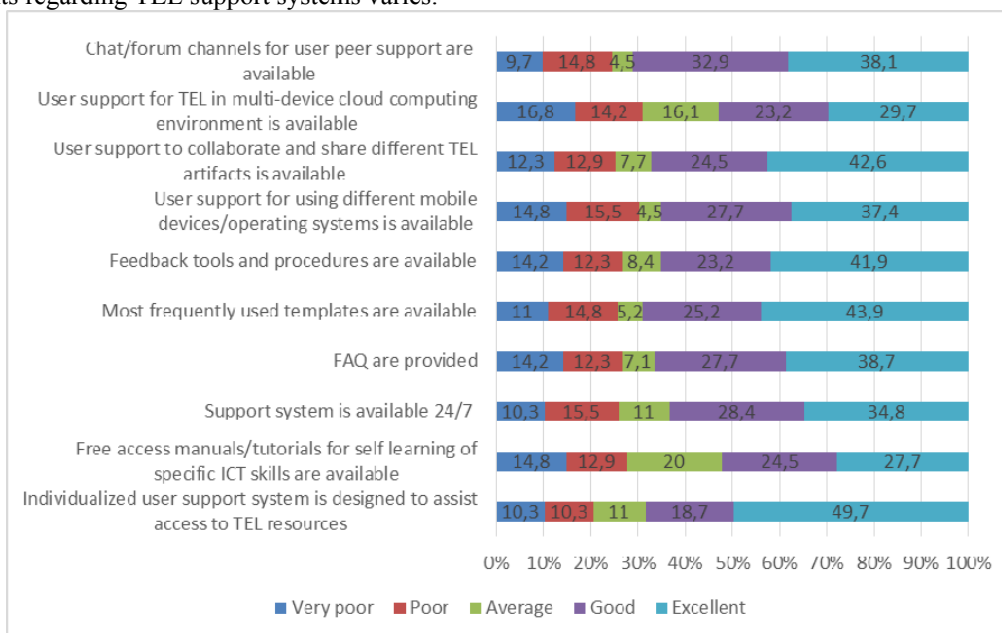

Figure 9. Percentage distribution answers on support systems

The statements regarding the existing e-forums for mutual support and prepared document templates for employee learning convenience are assessed very positively: about 70% of responses „good" and „excellent", whereas, the statement regarding support in learning through mobile devices and operating systems was positively assessed only by 50% of the respondents (Picture 9).
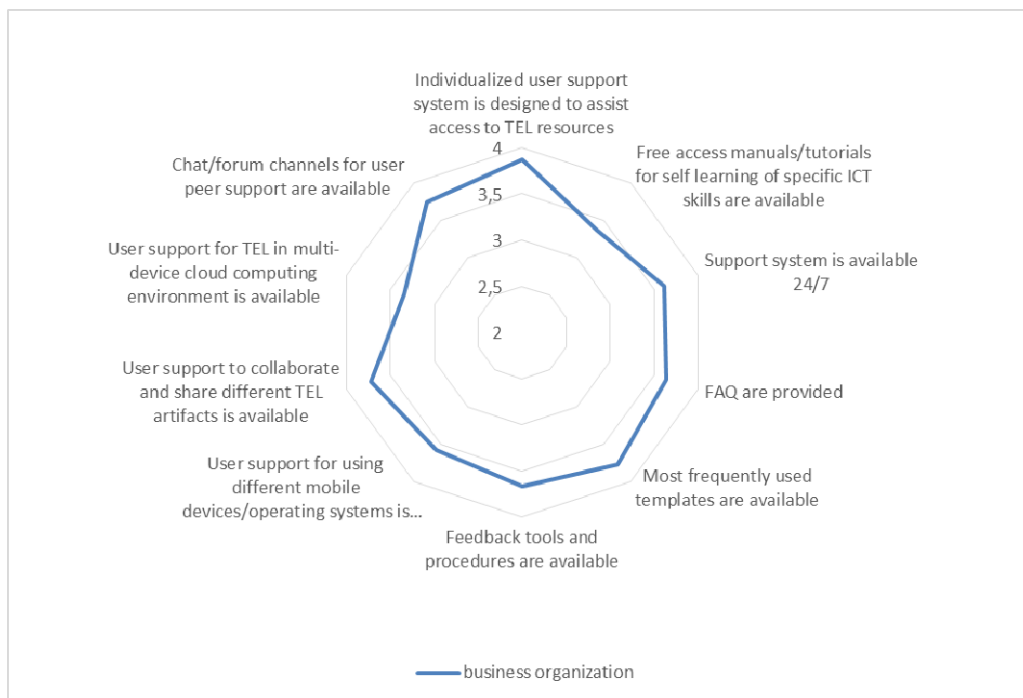

Figure 10. Mean of responses on support systems

The analysis of means demonstrates in time when technologies develop at very fast rates, users would like to employ different technological decisions in learning as well. Yet, the application of TEL is not as fast, so the assessment of the statements „ user support for TEL in multi-device cloud computing environment is available " as well as "free access manuals/tutorials for self -learning of specific ICT skills are available" were the lowest in relation to other statements.

Quality assurance factor in applying TEL is crucial and overlapping with many other earlier described factors – company's strategy, didactic skills of employees, infrastructure, etc. There are several statements in the research that help to determine the elements of quality assurance for TEL.
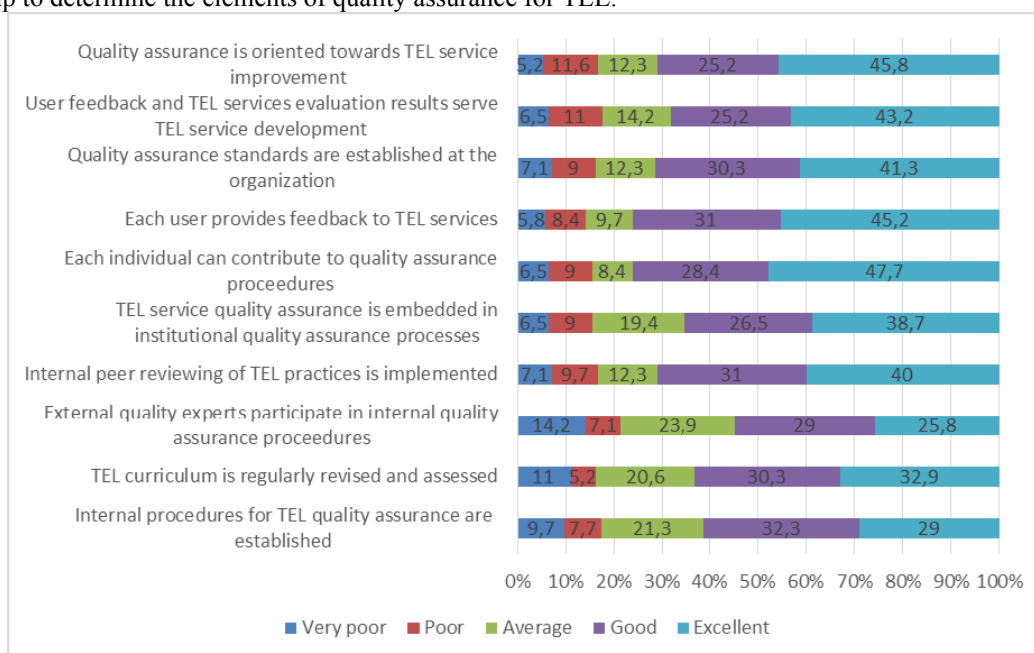

Figure 11. Percentage distribution answers on quality assurance

TEL quality assurance is one of the very crucial parts of TEL process. Only one statement assessment does not exceed 60% in „good" and „excellent": the lowest assessment belongs to the statement about external expert participating in quality assurance (Picture 11). The most of positive assessments belong to statement that each member of the organization may contribute to the quality assurance procedure and that TEL content is peer-reviewed. These statements were supported by over 70% of the respondents.
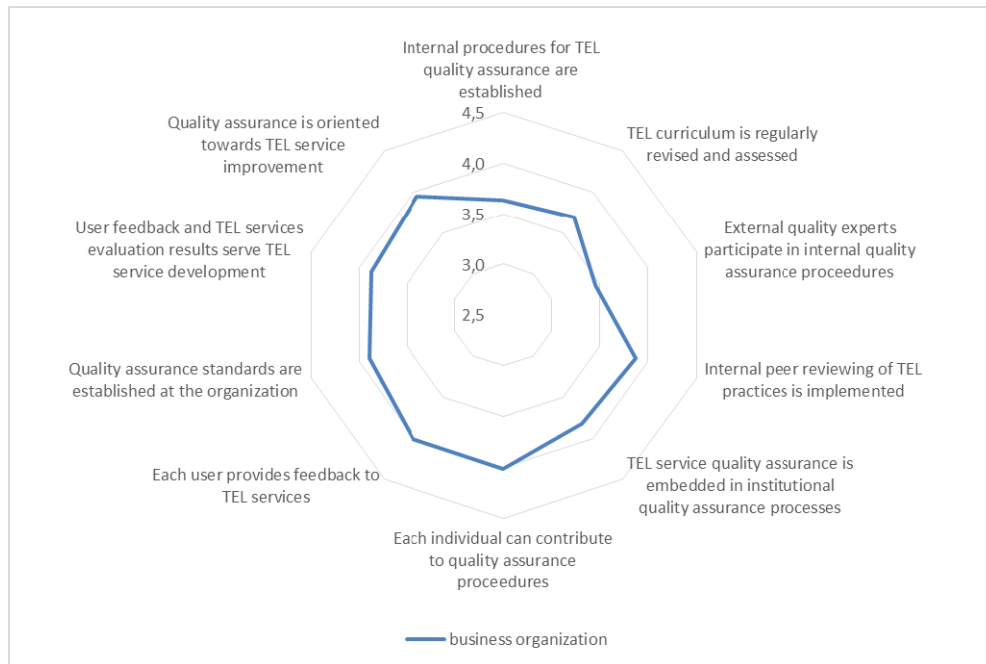

Figure 12. Mean of responses on quality assurance

Even though the general index shows that business organizations have very high quality assurance assessments, their quality assurance means are not exceeding 4 out of possible 5 (Picture 12). This indicates that there are high requirements for quality assurance, and it is not so simple to implement TEL in organizations. It is possible that differences appear due to the fact that in IT companies the result is client oriented and the other processes are less supervised.

Internal and external publicity of TEL processes management also belong to very important aspects of successful TEL integration into organizations.
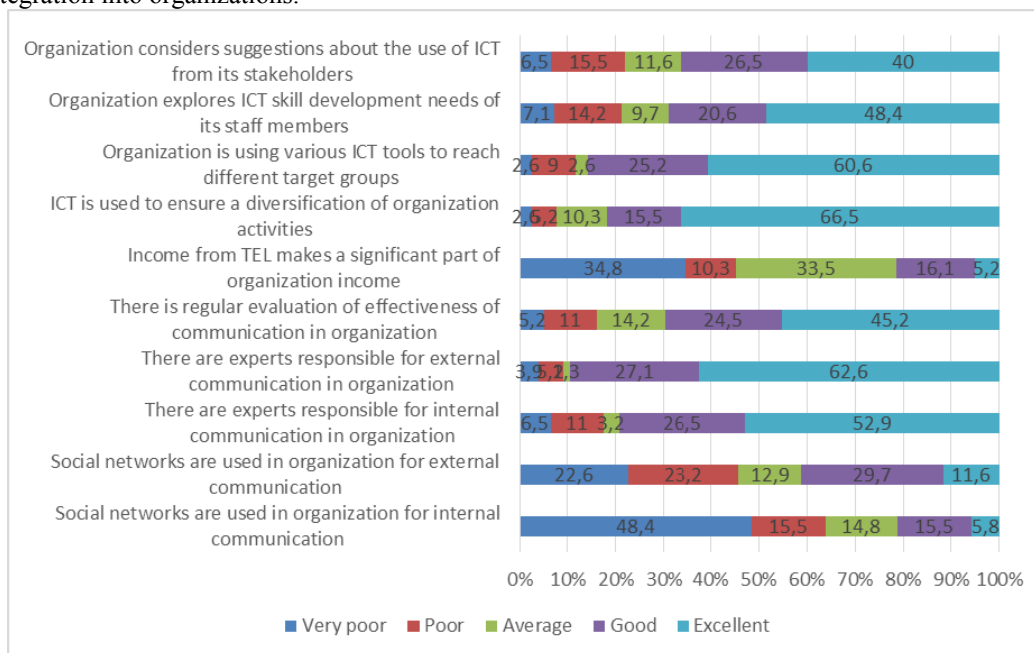

Figure 13. Percentage distribution answers on marketing and business

The assessment of internal and external communication is varying. Scarce number of respondents indicated that income from TEL contribute sufficiently to increase the organization's profit, as well as only 20% of respondents agree that social networking is used for internal communication. However, over 60% of respondents agree that ICT is used to secure fluent organizational functioning.

The statements that organization is using different ICT for different target groups, that there are specialists responsible for external communication, are valued positively. Social networks are used less often and the respondents indicate that the quality of communication is not assessed regularly.
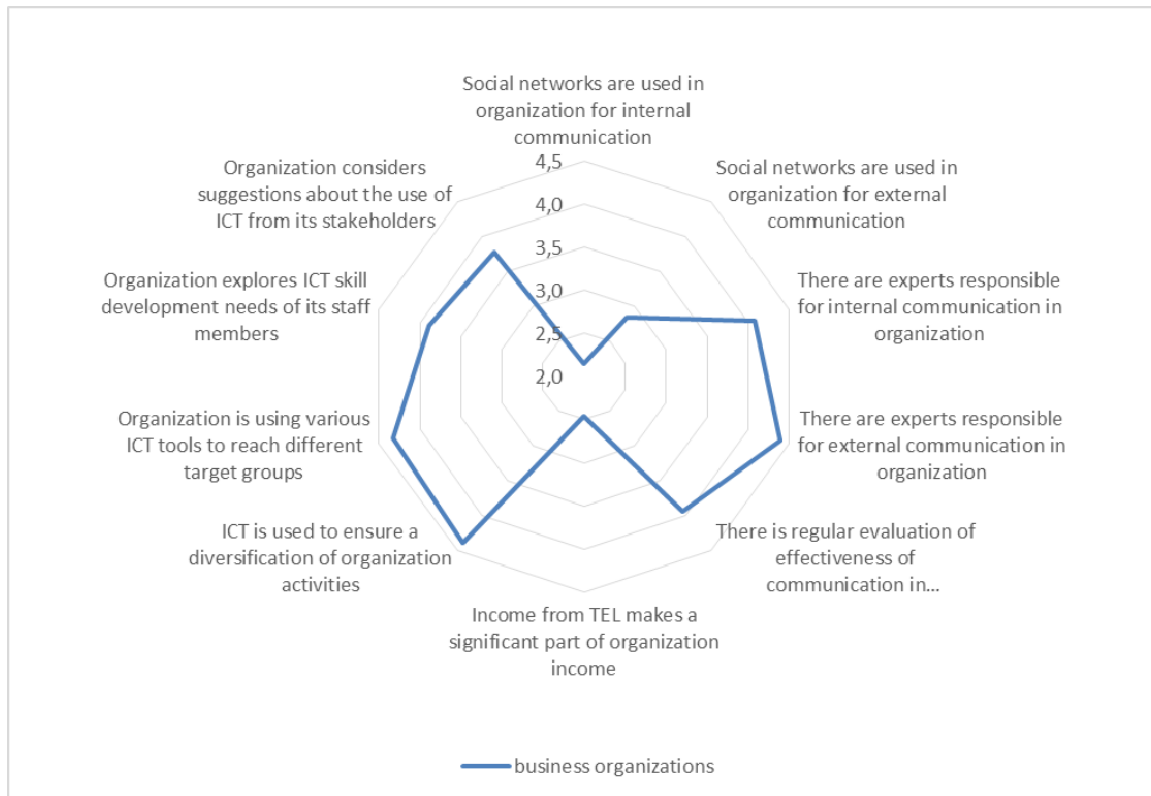

Figure 14. Mean of responses on marketing and business

The assessment results for this group of criterions is rather unexpected. In business organizations it is not assumed that TEL is increasing profits, nor that social networking is used for internal communication. However, marketing actions include ICT to ensure diversification of organization activities. The mean values for business organizations fluctuated from 2,15 to 4,39.

It is possible to conclude that the majority of highest statement assessments were provided by employees of business organizations. However, it is also important to point out that not all employees know the strategic provisions of their organizations regarding TEL, do not often use virtual learning environments, up-skilling is not always controlled, learning environments are not always accessible by different devices, there is no inner quality assurance inside of an organization. These may be treated as the main barriers for TEL integration.

The analysis of summarized research results included only analysis of summarized index means for each index group. The comparison of the evaluations of 7 parameters indicates that business organisations hold that such elements as staff continuous professional development; learning enablers (curriculum and didactics) are both important and quite well developed. More attention should be paid to the improvement to support systems, IT infrastructure, marketing and quality assurance of TEL.
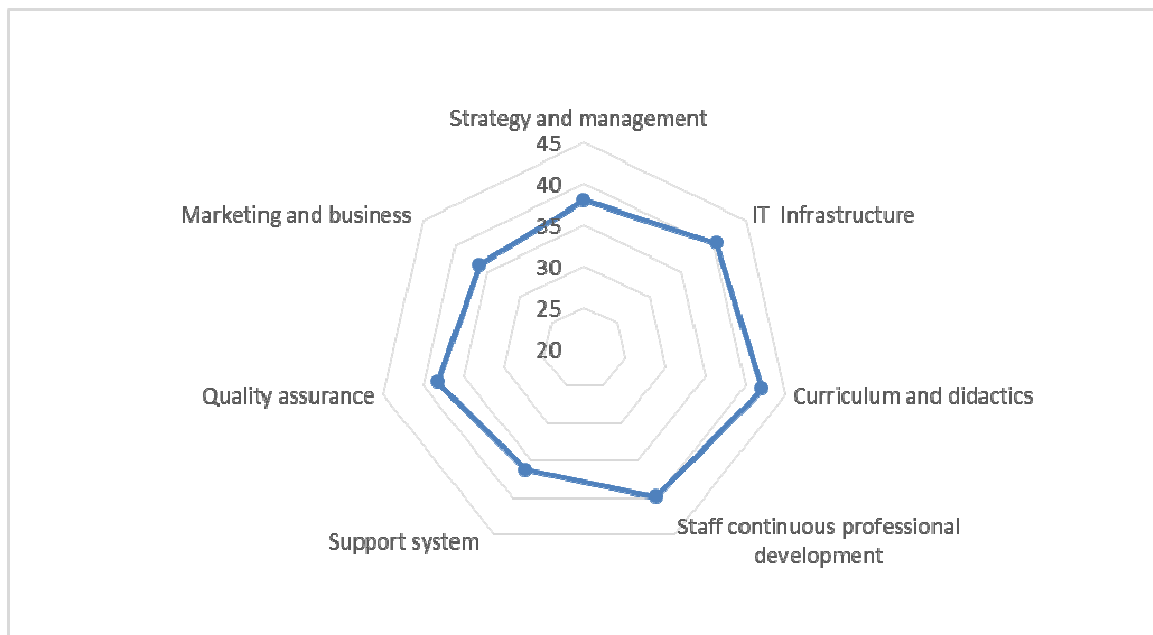
Figure 15. Differences in evaluation of 7 TEL integration framework parameters (indexes)

Differences in the assessments according to the age groups reveal that in most of the cases higher assessments were indicated by the youngest age group of 18-31 respondents (Picture 16).
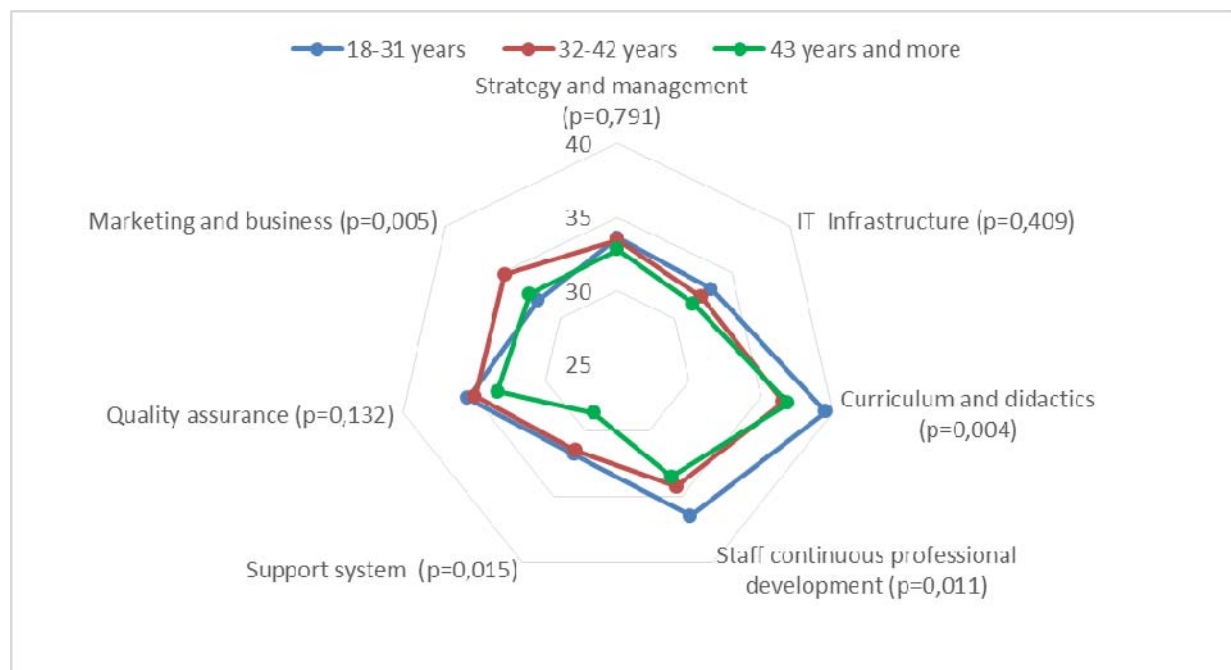

Figure 16. Differences in evaluation according to age groups (indexes)

This may be explained by the fact that younger respondents are more active in using and applying IT at work. Therefore, TEL application is assessed very positively, varying between 31 and 40. However, the assessment of marketing among young respondents was the lowest – 31.93, and differences with the other groups are statistically significant (p=0.005). In this case the middle-aged group gave the highest assessments, yet respondents 43 and older gave the lowest assessments. The exceptionally low assessment was given to the TEL support systems in organizations (the index of the oldest respondents' group is 28.68). The assessment of strategy, IT infrastructure and quality assurance did not demonstrate differences among age groups (p>0.05).

The comparison of responses according to gender demonstrates that men give higher assessments in all criterions, however, in assessing ICT their assessments were dramatically higher. Such parameters as TEL curriculum quality assurance and marketing criterions were assessed with minor differences in different gender

groups (Picture 17). Statistically significant are differences of IT infrastructure (p=0,000), curriculum and didactics (p=0,032) and support systems' (p=0,037) assessments.
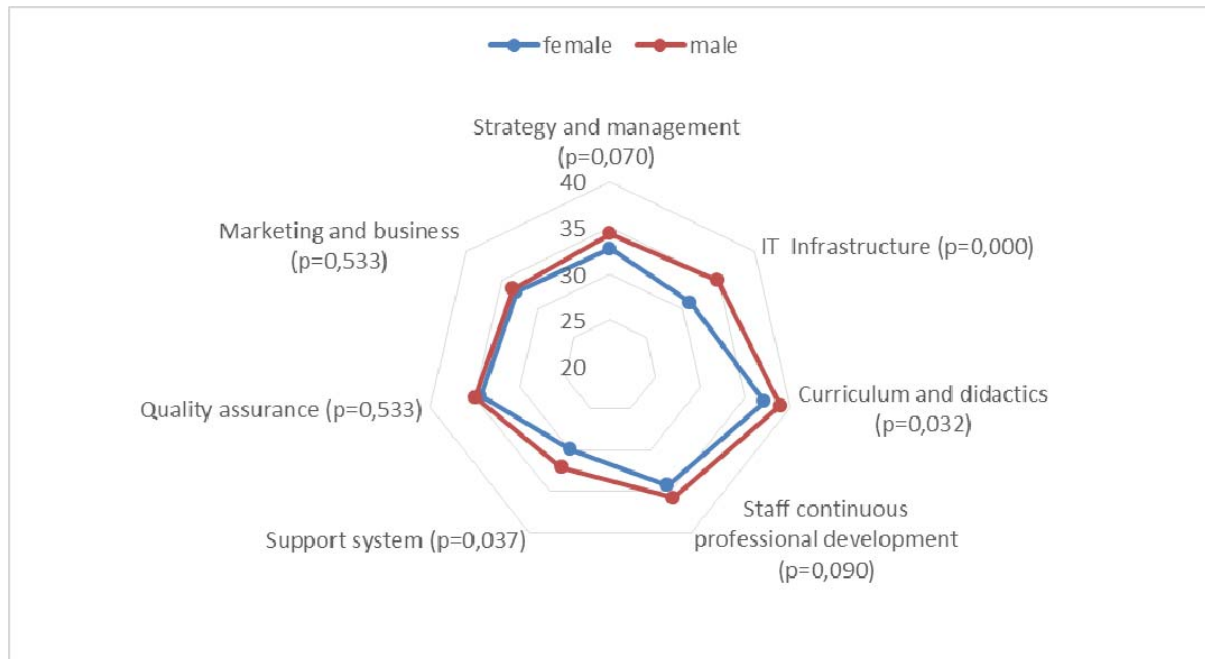

Figure 17. Differences in evaluation according to gender (indexes)

It is possible to summarize that general tendencies demonstrate the highest assessments in implementation of curriculum and didactics, professional development and quality assurance. The major difference of opinions demonstrated in assessment of IT infrastructure: in business organizations, men and younger respondents assessed this field higher than older respondents and women. The assessment of support systems was also assessed the lowest in most cases.

CONCLUSIONS

The conducted research allowed to validate the proposed framework for a more responsive and responsible integration of TEL within business organisation. As presented in the beginning of this article the framework construction is based on the contingency theory, which talks about the need to apply and integrate strategies as an organisation's response to external and internal contingencies. Even though the framework also takes into consideration the methodological approaches presented by innovation acceptance models (Rogers, 2003), the focus of the seven parameters model is on the responsible and responsive paradigm.

A responsive and responsible approach to the integration of TEL in the organization is related to active involvement of organization's stakeholders into this process. According to Wagner, Hassanein & Head (2008), stakeholders' involvement is based on the constructivist paradigm, which stresses the importance of learning personalisation according to individual's special needs. While implementing technology enhanced learning within organizations it is vital to ensure that this process should be organized following a bottom-up principle, ensuring that the interests and needs of the main stakeholders, which the organisation has identified, are taken into consideration. As Wagner, Hassanein & Head (2008) put it, the stakeholders of eLearning are those that are affected by it. Moustakas & Oliveira (2012) specify that the stakeholders' concept refers to individuals, groups or organisations that need to be taken into account by leaders and managers contemplating any action on an issue. Wagner, Hassanein & Head (2008) consider that stakeholders should undertake certain roles or responsibilities for effective eLearning within the organisation. In other words, stakeholders' interests are important not only for the development of TEL strategies but are directly or indirectly "employed" in their implementation.

The research focused on the employees' perception of the framework parameters for TEL integration into business organisation. Several parameters are related to organisational resources (infrastructure, support, etc.). Wu (2013) notes that e-learning or TEL requires a certain standard of hardware. This idea is clearly expressed by Admiraal and Lockhorst (2009), who analysed peculiarities of eLearning in small enterprises. Based on the research results Admiraal and Lockhorst (2009, p. 745) state that "one major potential drawback of using eLearning in small firms is the technology infrastructure". Moreover, many companies, as noted, are more

concerned with return on investment than on other advantages offered by TEL. For example, one of the undiscovered areas might be related to new marketing strategies. Volungevičienė, Teresevičienė, Tait (2014) note that marketing strategies might foster TEL service provision and new organizational learning models. Improved and increased accessibility reveals new managerial capacities and possibilities to share and market TEL services.

A responsive and a responsible TEL integration is closely linked to the overall quality assurance system within an organization. Quality assurance and TEL are closely interrelated as they deal with increased motivation of employees (more training and learning, more possibilities, career prospects, and etc.). Quality assurance system also allows talking about the efficiency of training and learning.

Learning and technology are no longer considered as didactic rivals, but are increasingly treated among educators as compatible and synergizing each other. Designing learning content for TEL opens many attractive opportunities and liberties for teachers and course organizers, such as increasing technological opportunities to combine different environments and platforms, easily replicable content, avoiding time and space limitations, etc. The instructors in TEL find themselves on the cutting edge of the permanently changing requirements of new technological possibilities offered by ICT sector. Besides, those using TEL for teaching may have not experienced learning in TEL conditions themselves. Teaching in TEL requires a different mind-set for curriculum design from the teachers, whereas this and the previously mentioned factors raise high requirements for continuous professional development of the teaching staff themselves.

Volungevičienė, Teresevičienė, Tait (2014) mention he importance of social presence, understood as the degree to which learners feel socially and emotionally connected with others in virtual environment. This is also related to the social side of the support systems as users in the IT business have good IT skills to engage themselves in TEL, but a need to get answers in real time or in asynchronous ways through pre-prepared answers to frequently asked questions (FAQ) remains very important.

The research results helped to come up with the following main conclusions:
1. Technology enhanced learning integration into business organizations may have different and complex approaches, however, a responsive and a responsible approach can help develop TEL strategies which are focused on interests and needs of the main stakeholders of business organisation. Employees in this case represent a very important stakeholders group. A responsible and a responsive TEL mean that it is a learner (employee) centered and personalized in terms of existing knowledge, skills and competences. By this approach top management should be responsive to bottom-up initiatives and there should be a plan for continuous revision of staff teaching/learning plans. Responsiveness and responsibility also involve such aspects as TEL quality assurance and employees' motivation.
2. TEL integration should be supported by the so-called eLearning strategies which be followed by specific action plans and supported with the adequate ICT resources (infrastructure, technical staff support, etc.). TEL integration is directly related and should be enhanced by continuous staff professional development, support system and relevant learning curriculum and didactic approaches.
Further research in this field should help identify whether the proposed TEL integration framework could be expanded to educational institutions, NGOs, communities and other organizations.

ACKNOWLEDGEMENTS

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