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Content

The Influence of Corporate Culture on the Development of Employee Training System in Enterprises of the New Economy

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Abstract

Turbulent changes characterize 21st century; the world is entering into a new era – the so-called "new/digital" economy. Completly new knowledge and skills will be required, and employees' preparedness will be the crucial factor for adaptation to the challenges (population aging, initiative Industry 4.0, structural changes of labor market). Training and corporate culture might help enterprises to adapt. The paper aims to create a scheme of the mutual relations between corporate culture and employee training system in the context of HRM within a company environment. The contribution compiles theoretical concepts of the employee training system and corporate culture and analyzes their relations and possible influence. The secondary output of the contribution will be setting up future research based on research studies and preliminary analysis of the state of issues in the case of the Czech Republic. The first part of this paper is the theoretical foundation which points out the relevance of corporate culture and employee training system for the preparedness and implementation of Industry 4.0. The second part analyzes the relations between corporate culture and employee training system. Finally, the third part describes the state of corporate culture and employee training in Czech companies. It was used secondary data available on Eurostat (CVTS surveys). It was done a preliminary study focused on the training costs and training outcomes in 2018. State of corporate culture was analyzed by Hofstede cultural dimensions between 2015 and 2017. It was applied descriptive statistic, correlation, and multiple regression analysis. Based on CVTS surveys, the Czech companies preferred external training and implemented mainly on-the-job training and less active methods (lectures, conferences, workshops). Almost half of the Czech enterprises did not have a plan for training. According to the own research, 23% of researched companies do not evidence the training cost. Examined enterprises hold the dimensions of high power distance, individualism, femininity, uncertainty avoidance, and short-term orientation. The size has an influence only on IDV and UAI. IDV, UAI, LOT are also influenced by the classification according to CZ- NACE. The contribution has limits and at the end it was set up the recommendations for future research.

Key words: Training system, Corporate culture, Czech enterprises, New economy, Industry 4.0, Diagnosis of corporate culture, Relation between corporate culture and training.

Jel Classification: M 12, M14, M53

1 Introduction

If something might be said, then the symbol of the first decade of the 21st century is a change (Alvesson, 2012). Many authors state that the world is entering into a new era - the so-called "new economy" (Kislingerová, 2011; Hvidt, 2015; Vojtovič, 2015). Knowledge is one of the production factors together with land, capital, and labor (Soukup and Hejduková, 2008). The ability to create and absorb them, together with their effective sharing and use, is a way to support innovations and maintain a competitive advantage, and it leads to economic success (Strozek, 2014; Parcero and Ryan, 2016; Huggins et al., 2013; Lelek, 2009). For enterprises, utterly new knowledge and skills will play a crucial role, and employees will need to acquire and share them. Thus employees' preparedness will be the crucial factor for adaptation to the challenges of the new economy (Ejsmont, 2021). Kazancoglu and Ozkan-Ozen (2018) argue that due to the growing complexity and intelligence in the new socio-economic conditions, employees need to have multidimensional aspects. Growth in the new economy will be driven by knowledge, innovation, and information technologies and by the ability of employees to be a part of innovative processes (Vojtovič, 2015; Peruzzini and Pellicciari, 2017). The new economy has been described in the media, such as the age of the internet, the information technology revolution, the latest term (for social and economic changes) is the "digital economy" (Landefeld and Fraumeni, 2001). The primary purpose of these developmental economic theoretical terms is to describe the changes that are reflected in the economy and society.

Approaching socio-economic changes include, for examples:

- increasing population aging, aging workforce (see Marešová et al., 2015; Urbancová et al., 2020; European Commission, 2016 and 2017);
- the initiative Industry 4.0 - digitization and robotization of society (see MPO, 2016; Vrchota et al., 2020; Lazanyi and Lambovska, 2020);
- changes in the labor market (Pardi, 2019; Gandasari et al., 2020);
- the new concept of work (Gorecky et al., 2014; Sumer, 2018),
- the new vital competencies (Lööw et al., 2019; Liboni et al., 2019).

Furthermore, these changes will require the readiness of companies and their employees.

Therefore, what should companies focus on to face these challenges and deal with a chaotic and turbulent environment? The Ministry of Industry and Trade (2016) introduces the concept of Education 4.0 – a lack of interest in the education system, further training, and retraining is seen as a possible threat to the implementation of the initiative Industry 4.0. According to

Hecklau et al. (2016), it will be possible to face new socio-economic challenges by using competencies (e.g., there will be an increasing need for innovation, increasing virtual work). Ejsmont (2021) states that employees' preparation for Industry 4.0 needs to support training related to this concept and that barriers are willing to adapt to change and learn. Stentoft et al. (2019) highlight a lack of knowledge about Industry 4.0 and trust as potential barriers to its implementation. Loch and Vogel-Hauser (2017) add that in population aging, it is essential for the company to focus on the needs and abilities of elderly employees in the training system to remain competitive. Liboni et al. (2019) perceive training in the context of Industry 4.0 as an essential topic for research.

Consequently, according to these researches, the system of business training could be perceived as a critical element for maintaining the company's competitiveness in the new economy, especially in the context of Industry 4.0. Many authors study the training system (Faizi and Fkihi, 2017; Kucherov and Manokhina, 2017; Del Carmen Vásquez-Torres, 2017; Loch and Vogel-Hauser, 2017; Liboni et al., 2019; Moica et al., 2019), and it is a popular topic in the scientific community, where in recent years even the number of published articles indexed in the WoS database has tended to grow. Most often, articles with this title focusing on management, applied psychology, business, education research, labor relations, and economics. Only two articles out of the total were focused on Industry 4.0; 2 on the context of new trends (WoS, 2020).

What else helps businesses to adapt? A corporate culture focused on productive learning leading to new and valuable knowledge, leading to innovative ways to solve problems and optimize processes, increases the likelihood that a company will be successful in an increasingly global, dynamic, and uncertain environment (Rebelo and Adelino, 2011). In Gibson (2007), Kotter states that corporate culture helps businesses adapt, which could be a crucial aspect in the era of Industry 4.0. Even the study Li et al. (2020) proved that corporate culture is an intangible asset designed to meet contingencies as they happen. Their researches show that strong corporate culture can help to adapt, even to the current situation with pandemia COVID-19. The future holds promise for a strong corporate culture. Strong cultures can respond to the environment and adapt to various changing circumstances (Deal and Kennedy, 2000). Enterprises that are leaders in their field of business see corporate culture as a tool that influences employee satisfaction, workplace relationships, employee performance, identification with the company and its goals, commitment, and loyalty, the entire field of human resource management (Hitka et al., 2015). Excellent corporate culture takes the form of

encouragement, instruction, and constraints and can motivate and unite employees to improve the organization's long-term performance (Li and Chan, 2006). Culture influences employee attitudes and affects business outcomes (Gregory et al., 2009). It has been found that the type of corporate culture can influence the success of an organization (Acar and Acar, 2014). Corporate culture is a fundamental determinant of innovation and can accelerate the entire innovation process. It was proved that flexibility has a positive impact on performance, but mainly when combined with values such as creativity, risk-taking, and freedom (Naranjo-Valencia et al., 2016). Li et al. (2018) mention five corporate cultural values - innovation, integrity, quality, respect, and teamwork.

Even according to Lukášová (2010), corporate culture (along with the atmosphere it creates) may have a positive or negative impact on the effectiveness of the training process and knowledge transfer in the company, on the concentration on the learning process and the leadership that supports learning in companies (Garvin et al., 2008). Corporate culture should create motivating conditions for employee learning and development. If the corporate culture creates a suitable climate, then there is an acquisition of a comprehensive view, innovative and creative thinking, which can make the company improve and develop. Therefore, it can be said that corporate culture can help a company transform itself into the "new economy"and thus contributes to greater competitiveness in a global environment. Managers perceive the corporate culture within the Czech environment as a difficult to grasp and neglected area of business management. Many scholars have analyzed corporate culture from different perspectives even in this millennium; its importance and influence are irreplaceable for modern enterprises.

The analysis of background research has shown that training system and corporate culture belong between significant factors in companies of the "new economy." They can help the company deal with the challenges and can influence the preparedness of companies to Industry 4.0. The paper aims to create a scheme of the mutual relations between corporate culture and employee training system in the context of HRM within a company environment. The contribution compiles theoretical concepts of the employee training system and corporate culture and analyzes their relations and possible influence. The secondary output of the contribution will be setting up future research based on previous research studies and preliminary analysis of the state of issues in the case of the Czech Republic. The first part of this paper is the theoretical foundation which points out the relevance of corporate culture and employee training system for the preparedness to Industry 4.0. The second part analyzes the

relations between corporate culture and employee training system. Finally, the third part describes the state of corporate culture and employee training system in Czech companies**.**

2 Research background

The "new economy" could be defined as a new economic system with the increasing importance of knowledge, the growth of labor productivity, and increased competition and globalization (Satti and Nour, 2015; Soukup and Hejduková, 2008). According to study Gluckman (2018), the current digital revolution is unstoppable. According to the OECD report (2018), the Czech economy is in a state of prosperity and growth, but it is necessary to improve the appropriate skill structure of the workforce and intensify innovation. To maintain and strengthen competitiveness, our government approved the initiative Industry 4.0 in 2016 (Ministry of Industry and Trade, 2017). The following trends can be included among the emerging socio-economic changes in the Czech Republic within the "new/digital economy."

Population aging

In the 21st century might be seen a significant increase in population aging. It will be resulting in the aging of the overall workforce (Pedro et al., 2020). It is argued that aging might influence labor productivity (Cristea et al., 2020). As a solution to population aging, it could be seen using the positive attributes of older workers such as a corporate memory and experience (Taylor et al., 2010). Of course, it will be crucial educational support for the elderly workers - skills formation connected to digital transformation (Cristea et al., 2020).

Initiative Industry 4.0

Industry 4.0. aims to achieve the highest level of operational productivity, automation efficiency (Lu, 2017). Industry 4.0 refers collectively to a wide range of contemporary concepts and is based on the interconnection of the virtual cyber world with the world of physical reality, which implies significant interactions of these systems with the whole of society (Špička et al., 2016). The widespread use of automation, robotics, and digitalization will seriously affect jobs, skills, and occupations. The desired competencies of Industry 4.0 are technical skills, problem-solving, coding skills, analytical skills, ability to work under pressure, creativity, conflict solving, decision making, entrepreneurial thinking, data analysis, leadership, ability to give and receive feedback, pro-activity, teamwork, flexibility, self-management, innovation, initiative (Ejsmont, 2021; Grzybowska and Łupicka, 2017; Kipper et al., 2021). Even Gunasekaran et al. (2018) argue that a human aspect of Industry 4.0 might be seen as a critical component.

Structural changes within a labor market

According to the Ministry of Industry and Trade (2016), Industry 4.0 will offer many opportunities. However, we must not forget its threats – the failure to manage structural changes in the labor market and neglect of the social and ethical dimension of the Industry 4.0 implementation, and the threat to the institution of work. The development of Industry 4.0 will be accompanied by changes in employees' **job content and requirements** (Gorecky et al., 2014; Sumer, 2018). The World Economic Forum indicates that approximately 54% of employees will retrain or upgrade their qualifications by 2022 (World Economic Forum, 2019). These changes will be most evident in the labor market, and in enterprises, they will be most evident in the change in job descriptions and the change in the required level skill of workers. *"Employers indicate employee training as one of their priorities. Approx. 50% of them want their current staff to stay in their workplaces and use new technologies, which means that they are not planning layoffs. In addition, 41% want to allocate funds to retraining employees, and 33% said they would only finance training for those employees who need retraining and upgrading their qualifications the most."* (Grodek-Szostak et al., 2020).

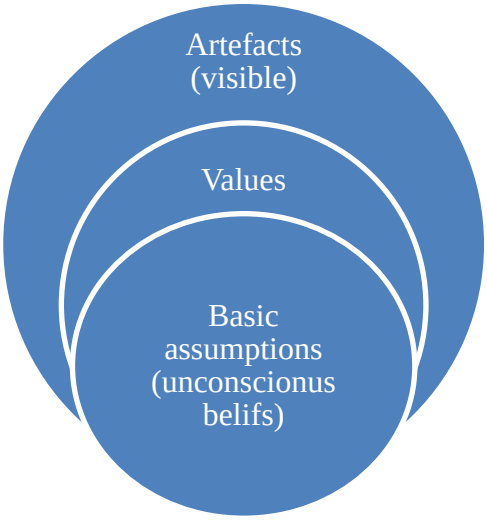
2.1 Corporate culture

Corporate culture has been a highly discussed topic in recent decades. It boomed in the 1980s and 1990s, authors Schein (2016), Denison (1997), Deal and Kennedy (2000), Hofstede (2005, 2010), Handy (2007), Cameron and Quinn (2011) are among the still highly cited and respected pioneers in the field. The concept of culture is a broad, interdisciplinary term. For its definition see – Lukášová (2010), Bedrnová, Nový et al. (2007), Schein (2016), Hitka et al. (2015), Vetráková and Smerek (2015,2016), Naranjo Valencia et al. (2016). Each organization has a unique culture (Mierke and Williamson, 2017). According to Deal and Kennedy (2000), the culture of companies is most strongly influenced by the broader social and business environment in which the firm operates. It exits many models of corporate culture; however, the basis is Schein's model (see Fig. 1). In some literature, corporate culture and organizational culture have the same meaning. Therefore in this contribution, the terms are used equally.

Thus, the concept of corporate culture can be briefly characterized by the following points: the external action of the organization and employees; the mutual relationships of employees, their way of thinking and behavior; the climate of the organization, traditions, ceremonies; the perception of "bad" and "good"; shared values (Vysekalová and Mikeš, 2020). It can be

said that culture is a glue that holds an organization together as a source of identity and the ability to differentiate (Yildrim and Birinci, 2013).

Figure 1: Schein's model of corporate culture



Source: Schein (2016)

The strength of corporate culture is the extent to which a given set of beliefs, values, norms and resulting patterns of behavior are shared within the organization. When shared to a high degree, corporate culture is strong and significantly influences the organization's functioning (Lukášová, 2010). A strong corporate culture is a positive phenomenon, increasing motivation and teamwork, reducing the need for control, and simplifying communication and decision-making. Corporate culture affects performance, employee satisfaction regulates superior-subordinate relationships, defines authority (Vetráková and Smerek, 2016). It also has a significant impact on knowledge management (Zheng et al., 2010). According to Tseng (2010), corporate culture, knowledge transformation, and sharing positively affect corporate performance. With few exceptions, the financial literature ignores corporate culture's role (Guiso et al., 2015). Table 1shows the importance of corporate culture in companies. We can see that corporate culture affects attitudes, motivation, and performance of employees, company productivity, even CSR (Corporate social responsibility), the process of innovation, financial outcomes. These results are dependent on the type and values of corporate culture and its strength.

Table 1: The highlighting of the importance of corporate culture in companies

Authors	Year	Findings
Cherian, Gaikar, Paul and Pech	2021	69% of employees agreed that corporate culture has a significant impact on their performance, 69% agreed that a company influences productivity.
Wan, Chen and Ke	2020	Integrity-oriented corporate culture has a positive impact on attitudes and behaviors of corporate members towards their social responsibilities.
Fiordelisi, Renneboog, Ricci and Lopes	2019	The majority of researched companies mention that their innovative capacity largely hinges on their corporate culture.
Li, Liu, Mai, and Zhang	2020	Enterprises with a strong corporate culture outperform their competitors without a strong culture (they are more likely to support their community, digital transformation, and develop new products, and are no more likely to cut costs). Companies with a strong culture have higher sales per employee, a higher ROA, and a higher profit margin.
Ramdhani, Ramdhani and Ainissyifa	2017	Organizational culture is related to employees' commitment, supported by teamwork, communication, training development, and reward recognition.
Kismono and Ramadista	2020	The corporate culture and high commitment of the employees are necessary for the success of HRM practices.

Source: own processing

2.1.1 Analysis of corporate culture

Corporate culture is complicated to measure, and qualitative approaches are preferred (Acar and Acar, 2014). Every typology is simplistic and has many limitations (Bedrnová, Nový et al., 2007). Diagnostics is one of the ways that helps managers and owners find out the current corporate culture, describe its features, find out the causes of existing workplace problems,

and take the necessary measures to change (Vetráková and Smerek, 2016). The actual diagnosis of corporate culture, determining strategies, policies, and procedures in the field of human resources following the corporate culture will enable the organization to achieve the desired dimensions of corporate effectiveness depending on the stability or variability of the internal and external environment (Actaúa et al., 2011). According to Vetráková and Smerek (2016), the diagnosis of corporate culture can be classified into 3 groups:

a) Dimensional approaches: these are mainly empirical measures of corporate culture, which tend to be scale-based (Tsui et al., 2007 in Vetráková and Smerek, 2016). Representatives of these approaches include Hofstede and Hofstede (2005); Sagiv and Schwartz (2007).

b) Interrelated approaches: they link the concept of corporate culture with other features of the organization and often provide the theoretical basis for empirical research designs (Reisinger, 2009 in Vetráková and Smerek, 2016). Representatives of these approaches are, for example, Homburg and Pflesser (2000); Deshpandé and Farley (2004).

(c) Typological approaches: they are based on predefined key characteristics that are categorized and grouped by organizations into certain categories. Typological approaches are highly discussed but the most widely used. The main representatives of these approaches are Deal and Kennedy (2000); Cameron and Quinn (2011).

According to Jung et al. (2009), 70 methods of diagnostic of corporate culture were identified. There is no ideal instrument for cultural diagnostic. The choice depends on the approach which would like to be applied. Many diagnostic approaches use the approach of factors or some parameters of corporate culture (e.g., Organizational Culture Assessment Instrument, see Appendix 2) even features (e.g., Walach Culture Index, see Appendix 2).

2.2 Training system

Training employees is understood as an HR activity that ensures the development of the labor force in a company – acquiring vital competencies and knowledge. The process has to be systematic, and it exists in all types of enterprises. Only its organization is different. It is equally important for small and medium-sized companies. Otherwise, they would not be able to compete with large companies (Cascio, 2019). The term is described in many studies – e.g., Landy (1985), Koubek (2015), Patrick (2000), Noe et al. (2017), Kucherov and Manokhina (2017), Galanaki et al. (2008), Bartoňková (2010), Armstrong and Taylor (2015).

"The investing in training and development activities highlights the importance of people to an organization, thus creating a sense of being valued and increasing the emotional tie between employee and employer. As a result, employees are less likely to leave the organization" (Memon et al., 2016). The research of Choi and Yoon (2015) proved that organizations that invested more in training had better results in two following years. It is cheaper to train employees than recruit new qualified employees (Wenzelmann et al., 2017). The possible advantages and limits or barriers of the training system are described in Tab. 2.

Table 2: Overview benefits and limits/barriers of training system

Benefits of training system	Limits/Barriers of training system
Acquiring new knowledge and skills	Fear of failures and unknown
Better performance and increasing productivity	The difficulty of isolating the training effect
Possible increase in qualification	Costs
Getting a competitive advantage increases the attractiveness of organizations	Difficulties in measuring of performance of some jobs
Increases the quality of products	Unclear aims of programs
Increases motivation of workers, stabilization of employees in firms	Not engaged managers
Supports innovations and Talent management	Insufficient strategic focus
Supports changes, increases the flexibility of organizations	Traditional training methods are not sufficient
Enables the transformation towards Industry 4.0	The company culture must be developed to sustain the whole system

Source: own processing according to Kucherov and Manokhina, 2017; Memon et al., 2016; Choi and Yoon, 2015; Galanaki et al., 2008; Koubek, 2015; Armstrong and Taylor, 2015; Noe et al., 2017

Before we start to train employees, we shall assess if the problem is not caused by something else. For example, there might not be enough workers or an error in the working process. Within the process, choosing suitable training methods (in compliance with training goals) is crucial, designing it, managing cost, and organizing realization (Armstrong and Taylor, 2017). The methods could be divided into groups according to their specifications: on-the-job training, of-the-job training, formal and informal, online methods, and even virtual classes (Vasanthi and Basariya, 2019; Noe et al., 2017). It should be mentioned mainly modern

methods of training - m- learning and virtual reality training, which are typically used for safety training and health assessment for construction workers (Huang et al., 2021). The overview of methods you can find in Appendix 1, where is possible to find the definition of training methods and their pros and cons. In Appendix 1, especially modern methods related to new technologies and Industry 4.0. was included. However, according to the studies of Bächmann et al. (2019), the firms do not systematically evaluate training effectiveness. For the evaluation of the efficiency of investment into human capital, we can use Human Capital Return on Investment (HCROI), a Human Capital Value Added (HCVA) (AL-Ghazawi, 2006).

Due to new IT devices and the influence of the Industry 4.0 training system has been undergoing several trends:

1) Presently some authors refer to the concept of Education 4.0. meaning the technology-based teaching and learning (Hariharasudan and Kot, 2018; Hussin, 2018). Also according to the initiative Ministry of Industry and Trade (2016), we can define it as a system of education, refresher, retraining, requalification.

2) "Not so new" but still challenging Learning 4.0 (Harkins, 2008 in Liboni et al., 2019).

3) Companies prefer already prepared and qualified workers. This way companies avoid complex training. They want performance with minimal on-the-job training (Abadzi, 2016; Cascio 2019).

4) Firms prefer people with the required knowledge and above all people that are responsible**,** creative, flexible, initiative, team players with critical thinking (Abadzi, 2016; Cascio 2019).

5) Immediate changes that are expected to come are mainly: increased costs of requalification and retraining and focusing on soft skills (Ministry of Industry and Trade 2016, 2017).

6) The methods of learning are changing. Cascio (2019) claims that: *"Dynamic learning opportunities that fit individual needs and schedules are rapidly becoming the norm."*

7) There is an ongoing increase in employees' demand for personal and professional development and the possibility of training is in demand also by potential candidates. According to Azeem and Yasmin (2016), thanks to the Web 2.0 setting, the learning is increasing thanks to better work with information.

8) Lifelong learning[1] – people connect to e-learning and m-learning from work, home at the weekend and in the evenings, and on their way to work (LinkedIn Learning Solution, 2017).

9) *"Massive Open Online Courses[2]" (MOOCs – new type of e-learning) use online learning resources can cut down training costs, improve employees' retention rates and allow employers to monitor and evaluate the learning performance of their workforce.*" (Faizi and Fkihi, 2017; Noe et al., 2017).

10) M-learning[3] and social media are used as interactive tools of communication in the process of learning (Noe et al., 2017).

11) Blended learning combines technologies with the real teacher (Noe et al, 2017).

12) According to the report of LinkedIn Learning solution (2017), it belongs to the essential skills for the training leadership and knowledge of people.

13) More stress is laid on a formal evaluation of training in a company (Kucherov and Manokhina, 2017).

14) According to Brkljač and Sudarevic (2018), thanks to Industry 4.0, an increasing rate of education will be required. The stress will be laid on the personal development of workers more than it was until now. It entails, for example, the motivations, **attitudes**, and **values** of employees.

2.3 Corporate culture and employee training system in the context of the Industry 4.0

Industry 4.0 in companies has several dimensions (Fig. 2) following from humans, organization, and technology model of Oks et al. (2017). Most models of Industry 4.0 preparedness of maturity levels involves topics such as strategy, leadership, corporate culture, human resources (Basl, 2018) which belong to dimensions related to humans and organization.

As mentioned by Alias et al. (2018): *"As Industry 4.0 changes traditional manufacturing relationships, more high skilled labors are needed to monitor and manage the factories of the future."* Hecklau et al. (2016) conclude required competencies for Industry 4.0 in different categories (e.g., technical, methodological, social, and personal competencies). Their

[1] Life-long learning is a concept of a voluntary act of learning through the whole peoples' lives.
[2] MOOCs are web-based online courses for unlimited number of participants, which are held by academics or other experts (Wulf et al., 2014).
[3] It uses mobile phones, smartphones, and other IT devices for learning which enables learners to vary study location (Ozdamli, 2012).

competencies model enables enterprises to analyze the competence gap and their readiness to Industry 4.0 in the context of required competencies. Due to this analysis, the company reaches the information for qualitative HR planning, and it might find the need for recruitment or training employees to fill the gap. Kipper et al. (2021) say that enterprises need to develop employees' competencies and skills through a training system to use the opportunities offered by Industry 4.0 and minimize the threats.

For competencies development, it is possible to use more approaches – using online and offline methods, virtual reality (VR), integrating the internet of things in educational institutions' laboratories, using cyber-physical education, usage of information and communication technology and MOOCs, artificial intelligence (Roldán et al., 2019; Maisiri et al., 2019). As an example, the study of Casillo et al. (2020) presents using chatbots in the training of new employees; results show that more than 88 % of respondents claim that it would be helpful to implement chatbot for other types of training.

Another possible approach to competence development is the concept of the "Learning factory" (Baena et al., 2017). According to Büth et al. (2018) learning factory could be perceived as a training environment. An initiative of learning factory is an active learning approach that might cause better performance in competence development and knowledge acquisition than traditional approaches (Abele et al., 2015; Cachay et al., 2012).

Figure 2: Dimensions of Industry 4.0 in companies

Source: own processing based on Veile et al. (2019); Lodgaard and Dransfeld (2020)

To summarize the findings of research studies, a training system for Industry 4.0 will be dependent on new technologies like VR or chatbots (artificial intelligence) with a combination of online and offline methods. It can be expected transformation of the vital competencies and knowledge within the company training system and even the necessary transformation of the whole employee training system. If there were mentioned the terms learning 4.0, education 4.0, smart factories, learning factories in the context of the fourth industrial revolution - it is an exaggeration to say that it will be necessary to build the system of "training 4.0" in companies that will be reflected the need of the company and the implementation process of Industry 4.0.

Mohelská et al. (2018) claim that *"implementing the Industry 4.0 concept requires continuous innovation and education that not only depend on people's abilities but also organizational culture."* According to the analysis of internal factors supporting the transformation of companies to Industry 4.0 by Kohnová et al. (2019*), "Germany is the main*

leader in the perception of the need and cultural predispositions for innovation" (they perceive the importance of corporate culture focuses on innovation). The study by Munoz Satre et al. (2019) shows the importance of a change in company corporate culture that allows adapting the Industry 4.0. Many studies highlight the value of creativity and supporting environment for innovations and learning, and sharing knowledge as essential elements for the implementation of Industry 4.0 (Ziaei Nafchi and Mohelská, 2020; Naranjo- Valencia et al., 2016; Li et al., 2018; Garvin et al., 2008). According to Michna and Kmieciak (2020), *"there is a positive relationship between the open-mindedness culture and willingness to implement Industry 4.0."* Fan et al. (2021) state, "*there are effects of knowledge integration capability and knowledge absorptivity on organizational culture, and that both indirectly affect organizational innovation through organizational culture."*

To conclude, research studies follow the idea that organizational/corporate culture influences employee training, which is a crucial aspect of the preparedness and implementation of Industry 4.0 to companies. The relationship is on both sides because training can change employees' approaches and attitudes, which are part of the corporate culture.

3 Methods

The paper aims to create a scheme of the mutual relations between corporate culture and employee training system in the context of HRM within a company environment. The contribution compiles theoretical concepts of the employee training system and corporate culture and analyzes their relations and possible influence. The secondary output of the contribution will be setting up future research based on previous research studies and preliminary analysis of the state of issues in the case of the Czech Republic. The paper's priority is a systematic review that synthesizes and summarizes existing knowledge. The four-step process of Mayring (2014) was used – material collection, descriptive analysis, category selection, and material evaluation, which was used in Alias et al.'s (2018) study.

I. First phase

In the first phase, leading databases were searched (Scopus, Web of Science, Research Gate, Google Scholar). It was not set up any particular observation period. There were searched studies related to Industry 4.0, training system, and corporate culture using keywords or all fields full text as "training", "Industry 4.0", "corporate culture," and "organizational culture." It

was applied data analysis and synthesis, induction, and deduction. Reviewed literature belongs to journals, monographs, books, proceeding papers, dissertation thesis.

Research questions (RQ) were formulated to accomplish the paper's objective.

The main research questions are following:

RQ1: "What relationships can we find between employee training system and corporate culture?"

RQ2: "Is there any existing influence of corporate culture on employee training system?"

The secondary research question is:

RQ3: "What are the current states of employee training system and corporate culture in the Czech Republic?"

II. Second phase

a) State of the training system in Czechia

For analysis of the current state of training in Czechia, it was used secondary data focused on continuing vocational training in companies (CTVS survey), which is available on Eurostat in reference years 2005, 2010, 2015 (break-in time series), and the subsequent research is planned for the reference year 2020. The research structure was following:

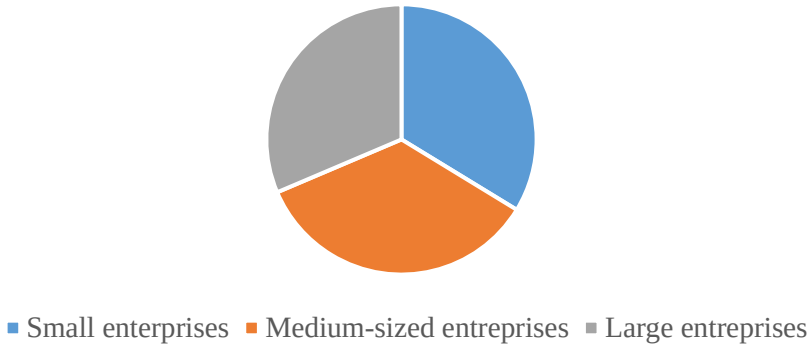
- Statistical unit - enterprises.
- Statistical population - enterprises with ten or more persons employed belonging to specific NACE categories.
- Unit of measure - Percentages, hours, euros.
- The data collection approach is determined nationally, i.e., countries implement the survey according to the approach that is best suited to obtaining a sufficiently high response rate (Eurostat, 2020).

The data are compared with an average of Europen Union for better understanding the state in Czechia. There were analyzed the differences between the small[4], medium-sized[5], and large[6] companies. The findings are compared with similar research studies from the Czech

[4] From 10 up to 49 employees.
[5] From 50 up to 249 employees.
[6] More than 250 employees.

environment. From the secondary data analysis, it was found out that almost half of the Czech companies do not plan training and do not have a budget for training courses. For this reason, it was done **a preliminary research study** focused on the training costs and training outcomes in 2018. It was received 110 questionnaires from the same number of Czech companies, but only 86 were completely filled. The consist research sample is shown in Fig. 3. It was detected costs on training, the ratio of costs on training required by law (compulsory training), the ratio of training costs on soft skills (from analysis literature framework they are seen as a crucial element of requirements on the workforce of the new economy), and the efficiency of training system was measured by the number of innovative proposals made by employees. Because innovative activity could be seen as a factor of educational efficiency (Musurmonov et al., 2021). It was applied descriptive statistic and correlation analysis.

Figure 3: **Research sample for analysis of training cost in Czech companies**



Source: own processing

b) State of corporate culture in Czechia

State of corporate culture was analyzed by Hofstede cultural dimensions, which are preferred for analysis of national culture; however, Jung et al. (2009) categorize it as a tool for diagnosis of corporate culture because it has been used in numerous studies to measure culture in organizations. Burke et al. (2008) add that "*within the organizational literature, some authors have even contended that societal or national culture may have a potentially more significant impact than organizational factors such as organizational climate on the nature and effectiveness of human resource management practices."* Their research used cultural dimensions for analyzing the role of national culture and organizational climate in safety training effectiveness.

The data processing methodology VSM 94 (Hofstede, 1994) was used. Hofstede (2001) sees

the national culture as a set of shared values. The cultural dimensions are Power distance – low or high (PDI), Individualism vs. collectivism (IDV), Masculinity vs. femininity (MAS), Avoidance vs. risk acceptance (UAI), Short-term vs. long-term orientation (LOT). The formulas are shown in Tab. 3. The formulas are based on the methodology of VSM proceeding (see VSM, 1994). According to this methodology, the individual indices of the given dimensions can be 0-100, but it is not an exception that they take values lower or higher. Individual indices include two opposing cultural dimensions, the first of which is reached in a range of 0-50, and the other in an interval of 50-100. Between 2015 and 2017 it was collected 931 completed questionnaires from individuals in small, medium, and large enterprises (exactly 59 enterprises).

It was applied the descriptive statistic and multiple regression analysis. The company's characteristics were subsequently selected as categorical independent variables (X1 - enterprise size, X2 - NACE sectors), and cultural dimension indices were selected as dependent variables.

Table 3: Formulas of cultural dimensions according to the VSM 1994 methodology

Dimensions	Formulas	
PDI	-35m(03)+35m(06)+25m(14)-20m(17)-20	(1)
IDV	-50m(01)+30m(02)+20m(04)-25m(08)+130	(2)
MAS	60m(05)-20m(07)+20m(15)-70m(20)+100	(3)
UAI	25m(13)+20m(16)-50m(18)-15m(19)+12	(4)
LOT	-20m(10)+20m(12)+40	(5)

Source: VSM 1994

4 Results and discussion

4.1 The relation between Corporate culture and Training system

According to Nongo and Ikyanyon (2012), employee empowerment, teamwork, employee development, and adaptability are crucial corporate cultural variables. The study of Mukminin et al. (2020) proves that training with organizational culture has a significant positive impact on employee performance. Training employees positively impacts employee commitment and job satisfaction (Ocen et al., 2017). Training effectiveness is influenced by trainees' interests and motivation (Banerjee et al., 2017). Training is an HR activity linked to a specific

organizational culture that **can shape the way of its implementation** (Ballesteros-Rodríguez et al., 2012). The research study of Ballesteros-Rodríguez et al. (2012) proved that organizational culture **could be a critical factor in training success**, even more so than any other aspect. Murtiningsih (2020) adds that corporate culture does not positively impact either job satisfaction or employee retention; however, training & development has a positive impact on job satisfaction but does not positively affect employee retention.

According to Egan et al. (2004), so-called organizational learning culture[7] has significant influences on job satisfaction and motivation to transfer training skills. The same findings have a study by Banerjee et al. (2017). Motivation to transfer training partially mediates the relationship between the four dimensions of corporate culture - job challenge, communication, innovation, and social cohesion (Gautam and Basnet, 2020). Potnuru et al. (2021) added that a climate that encourages employees' continuous learning would improve the relationship between employees' development and competencies. Furthermore, organizational learning culture tends to innovations (Bates and Khasawneh, 2005). Therefore, training transfer will be positively influenced by a corporate culture characterized by innovation, creativity, risk-taking, and quality (Awoniyi et al., 2002).

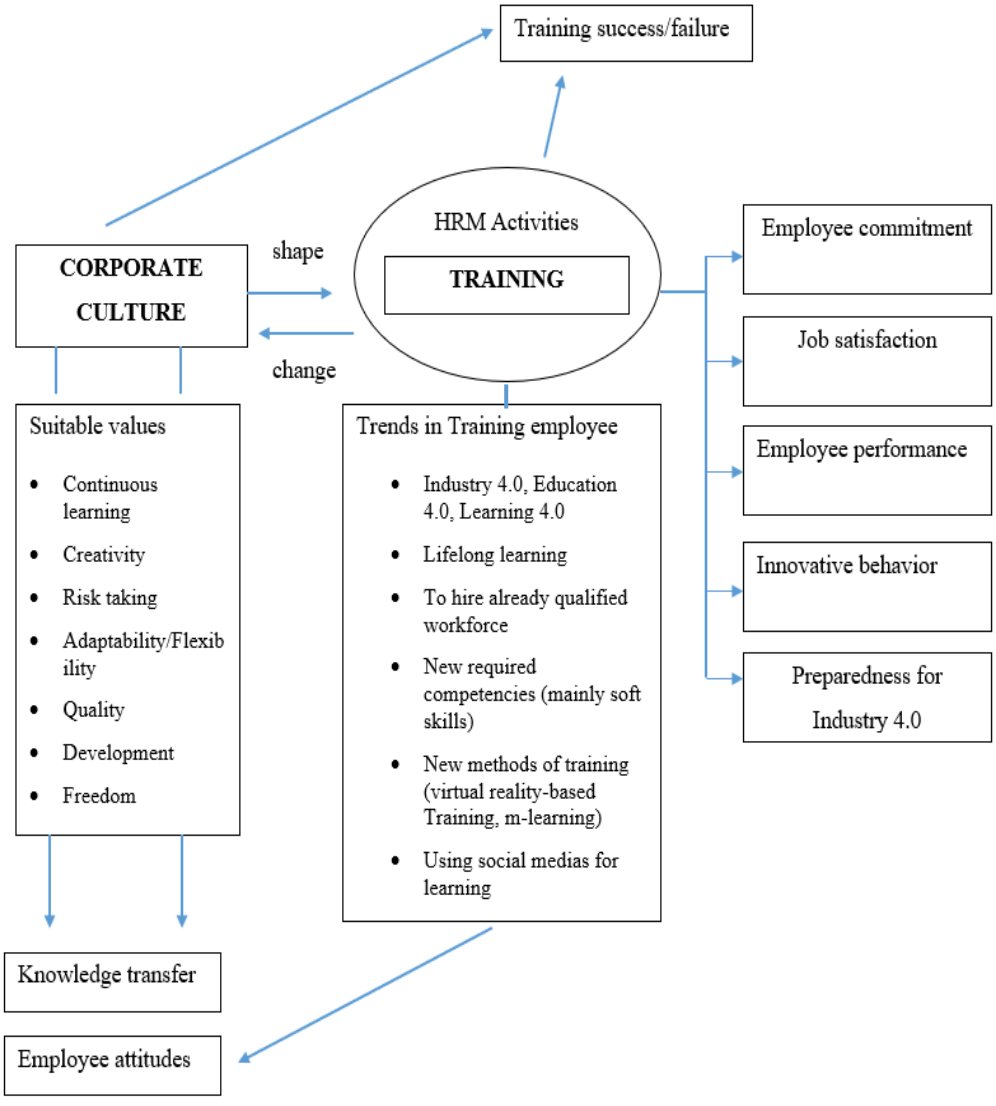
To create a corporate culture that supports innovation is needed HR system focusing on training, performance management (performance-based reward), and team development (leadership and team-based activities). Between features of high-performing companies, we can add spending more time on training (not only technical but orientated on skills), fitting values of corporate culture with development and innovation. To conclude, corporate culture is the *"key tool for channeling the effects of HR practices on innovation performance."* (Leede et al., 2002; Lau and Ngo,2004). Bunch (2007) adds that *"training designed to encourage creativity will not overcome a culture that rewards mediocrity. Even well-designed customer service training will not transfer if supervisors measure the number of transactions processed per hour rather than customer satisfaction."*

To conclude, the analysis of the literature framework within the contribution shows that multiple elements influence training success; some studies have analyzed the role of two essential elements such as organizational culture and HRM practices (Ballesteros-Rodríguez et al., 2012). For example, Hamid and Durmaz (2021) found weak positive training relations on innovative behavior. Fig. 4 shows relations between corporate culture and training and the other issues. It was created according to an analysis of the research background. In Fig. 4, we see that

[7] It means a culture that encourages the transition of knowledge and the sharing of ideas (Potnuru, et al. 2021).

corporate culture shape training employees as the other HR activities. On the other side, specific training could support a suitable corporate culture change (e.g., in the context of CSR, diversity, and suitable values). The whole figure is based on analyzed studies from this contribution, which proved positive relations between these issues. If corporate culture might form training, it has a crucial impact on the success or failure of the whole process. The crucial research question is: What type and features of corporate culture support training development in the new economy, especially the implementation of Industry 4.0? It is necessary to set up future research for the answer because we have not reached the answer in the literature review analysis.

Figure 4: Scheme of the mutual relations between corporate culture and employee training system in the context of HRM within a company environment



Source: own processing

More complicated is to explain the influence of corporate culture on the employee training system. There have been extensive studies on the impact of organizational culture on areas such as organizational change initiatives, implementation of total quality management (Ladinret et al., 2015), attitudes (Cherian et al., 2021), job satisfaction (Kangas et al., 1999; Lok and Crawford, 1999), performance (Acar and Acar, 2014), commitment (Chen, 2004; Lok et al., 2005), knowledge management/knowledge sharing (Banerjee et al., 2017), learning transfer environment (Chatterjee et al., 2018), innovation (Bates and Khasawneh, 2005), creativity (Koberg and Chusmir, 1987), etc. However, studies that analyze corporate culture's impact on training system are not so common (Bunch, 2007; Ballesteros Rodríguez et al., 2012).

From many studies, the influence of corporate culture on training system is given by corporate culture's values, artefacts, norms. We can analyze many attributes of corporate culture – e.g., trust, communication, team orientation, goal settings, innovation, leadership, human resource management (Ismail Al-Alawi et al., 2007; Cheung et al., 2011; Lapina et al., 2015; Hamid and Durmaz, 2021). These attributes can help develop the training system in companies, which is crucial for preparedness within new conditions of Industry 4.0. According to the research of Ismail Al-Alawi et al. (2007), trust, organizational structure, and communication support knowledge sharing, where training with its methods is part of knowledge sharing techniques. Ballesteros Rodríguez et al. (2012) claim that training transfer will be positively influenced by an organizational culture characterized by creativity, innovation, risk-taking, and quality, and it is essential to create a continuous learning culture. Due to this type of culture, the training system will be more successful. Fiordelisi et al. (2018) proved that companies with a creativity-oriented corporate culture have embodied the driver of innovation activity.

4.2 State of employee training in Czechia

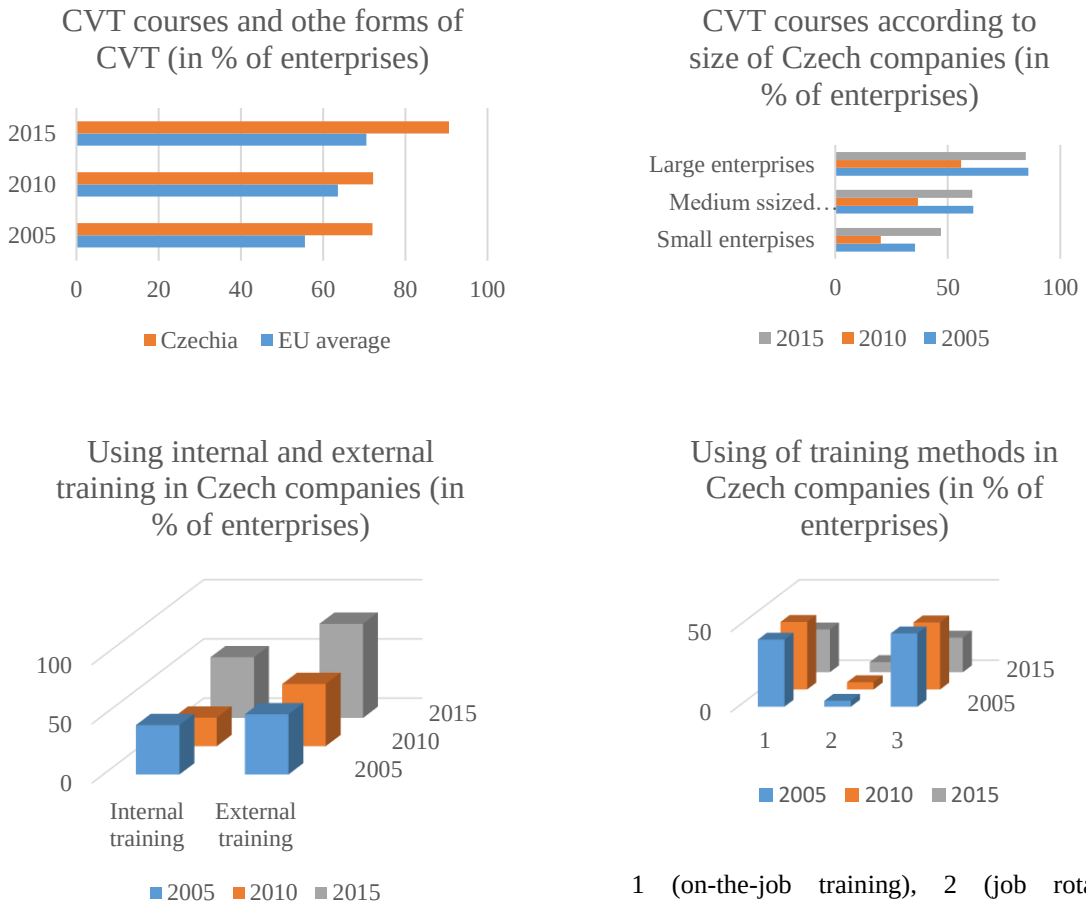
First, it was analyzed secondary data about training (CVTS researche) from Eurostat. In 2016 46.1% [8] (EU average was 44.4%) of Czech people participated in the training, most of them in non-formal training. According to gender distribution, it was more men than women. The majority of them reached the tertiary level of education (Eurostat, 2020). *"EU data show the importance of training in companies and validate the necessity of investment in employees training in the EU. The Czech Republic has decreased the number of trained employees as well*

[8] % of population aged 25 – 64 within last 12 months

as the amount of money invested in training". The Czechia has not very good position (Maršíková and Spurná, 2014).

All of these findings are based on data from Eurostat (2020). Figure 5 shows the overview of the state of training in Czechia. As we can see, the Czech Republic exceeds the European average. The number of Czech enterprises which provide employee training is increasing. The change between 2005, 2010, and 2015 is not significant. On the other side in CVT courses according to the company's size, we can see the decrease between years 2005 and 2010. It might be caused by the consequences of the financial crisis (there was high pressure on cutting costs). In 2015 the situation was stabilized, and the trend was again increasing. According to surveys of Fajčíková et al. (2016), results show that 77.4% of Czech organizations train their employees, of which only 40.2% of them systematically evaluate the effectiveness of training and 63.5% of them responded that they monitor current trends in this field. In reference years of 2017, 2018 91.46% of Czech enterprises provided training (Smerek et al., 2021).

Figures 5: **Overview of secondary data analysis**



1 (on-the-job training), 2 (job rotation), 3 (conferences, workshops, lectures, trade fairs)

Source: own processing of data from Eurostat (2020)

In Czech companies, external training is preferred to internal. The ratio of enterprises with more implemented internal training is increasing with the company's size. The less favorite training method in the Czech environment is job rotation (the average of EU 27 is doubled). To conclude, Czech companies implement less active methods (conferences, workshops, lectures), which are more favorable than in the European Union, and on-the-job training. According to Fajčíková et al. (2016)[9], Czech organizations used as a training method: staffing (14.6%), development plans (14.3%), participation in team projects (14%), participation in tasks in different functional areas of the organization (13.3%), e-learning (12.3%), special tasks/projects simulating learning (12.6%), and training plans (9.6%). The least preferred methods include mentoring (8.3%) and coaching (7%), internal and external internships (6.3%), job rotation (5.6%), job enrichment (5.3%), and development center (4%). In 2017 and 2018 according to Smerek et al. (2021) results, the used methods according to order are instruction (44%), mentoring (40%), job rotation (36%), self-education (35%), work programs (34%), E-learning (33%), practical examples (30%), coaching (28%), special tasks (28%), model situation (20%), video (10%) and role-play (7%). According to the research of LinkedIn from 2017, 63% of firms centralize training into one department. Mostly it is the HR department. Companies employ internal instructors, and they use internal coaching, e-learning created in the company, and external forms of e-learning. These are accompanied by conferences, external lecturers, books and specialized reviews, and external couching (LinkedIn Learning solution, 2017).

Most Czech companies train more than 50% of employees. If we compare it with the EU average, there is a difference from 10 to 49% of employees under training. There is no difference between the different sizes of Czech companies (reference years 2005, 2010, 2015) (Eurostat, 2020).

Table 4 shows the ratio of Czech companies according to implement training on the development of competencies. According to company size, there is a difference between management skills (to increase with the growth of the size). A similar tendency has the competence of foreign language. Fig. 6 shows trends in training skills in the world for comparison of results in Czechia. We can see that globally the most important skills should be management skills (leadership, people management) and customer service. The Czech results are approaching this trend. In the Czech environment is crucial issue job-specific skills. The "new economy" is the current state of training employees important pillar, but a crucial factor

[9] Reference year 2015.

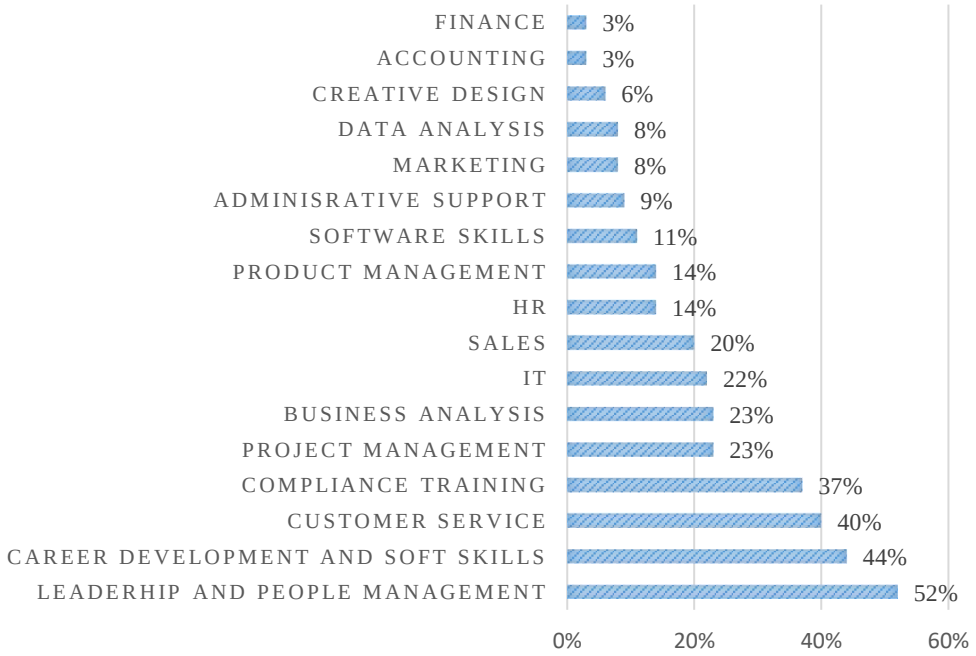
is the preparedness of companies and employees for new challenges (Ejsmont, 2021; Stentoft et al., 2019). In 2015 73.3% of Czech companies were concerned about CVT training of current staff as a reaction for future skills. 32.3 % of them did an internal reorganization to better use of existing skills, and 31.7% of them was focused on recruitment a new staff with suitable qualifications and skills (Eurostat, 2020) that complies with the trend that enterprises prefer already prepared and qualified workers (Abadzi, 2016; Cascio 2019).

Table 4: The CTV courses on the competencies in 2010, 2015

Competencies	**% of enterprises that implement the training on the development of the competency**	
	2010	**2015**
General IT skills	27.7	19.8
Professional IT skills	13.1	4.8
Management skills	32.2	12.5
Team working	45.4	34.3
Customer handling	59.6	33.5
Problem-solving	28.8	23.5
Office administration skills	24	6.5
Foreign language skills	26.6	15.2
Job-specific skills	56.5	42.3
Communication skills	25	18.5
Numeracy and literacy skills	9.6	11.8

Source: own processing of data from Eurostat (2020)

Figure 6: In what firms shall train workers according to the meaning (% of companies)



Source: LinkedIn Learning Solution (2017)

According to secondary data on Eurostat (2020), it is alarming that 46.3% of Czech companies did not have a plan for training, even not budget (the reference year 2015). The investment per participant was 324 euros in 2005, 296 euros in 2010, and 281 in 2015. It is deeply below the EU average, oscillating about 1500 euros.

According to Maršíková and Spurná (2014), the training investment depends on many factors - company size, even branch, the economic situation of a state.

According to the preliminary research, 23.22% of researched companies do not evidence the training cost. The correlation analysis did not confirm any significant relationship. The surveyed company invested more in compulsory training than in training soft skills. The 9% of surveyed companies did not record any innovative employees' proposals. However, these companies rely on training on average 57, 167 CZK. According to LinkedIn Learning solution (2017) research, only 10% of American and Canadian companies do not measure effectiveness. They assess it by following methods (the most used are listed from the top down):

- feedback of participants,
- feedback on the productivity of employees reported by line managers,
- content of participants,

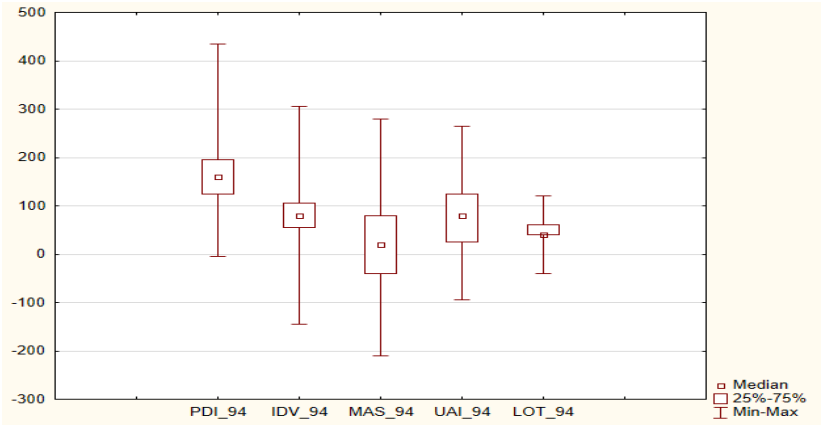
- feedback and content of online participants,
- workers' time spent in the company after completion of training,
- a number of participants in a class,
- a number of completed online courses,
- a number of people registered for online courses,
- time spent viewing online courses.

4.3 State of corporate culture in Czechia

Figure 7 summarizes values for cultural dimensions in 59 Czech companies (931 completed questionnaires - 10% filled by managers, 21% filled by officers, 17% filled by university degree specialists, and 52% by other workers). This methodology is not the best option for diagnosis of corporate culture (the primary purpose is focused on national culture), but according to Jung et al. (2009), it was used in many studies as a tool of diagnostics corporate culture.

Examined enterprises hold the dimensions of high power distance, individualism, femininity, uncertainty avoidance, and short-term orientation. The study from Chinese IT firms shows that high power distance impacts a low level of creativity than low power distance (Hu et al., 2018). High power distance has a positive impact only in implementing benevolent leadership (Lin et al., 2018). If employees are orientated on high power distance, they are more willing to tolerate manifestations of superiority and distance in the organization (Jiang, 2018). In individualistic societies, individuals are independent of one another (Hofstede, 2001). In a feminine society, employees are more satisfied with the feminine jobs (Gelade et al., 2008). A high score of uncertainty avoidance harms the implementation of new technologies because societies fear news (Sanders et al., 2018).

Figure 7: Summarized values for cultural dimensions



Source: own processing

The influence of the company size and the sectoral classification according to the CZ-NACE was examined on individual cultural dimensions by multiple regression analysis. Company size and sectoral classification were categorical independent variables; otherwise, cultural dimensions were dependent variables. However, the size of the business was not significant in most cases. It was found that neither the size of the enterprise nor sectoral classification affects the high power distance (PDI). Only sectoral classification affects individualism (IDV). Interestingly, the index of individualism (IDV) is growing with the company's size, which means that large companies are more individualistic than smaller ones. The classification influences uncertainty avoidance (UAI) according to CZ- NACE and the size of the enterprise. UAI grows with the size of a company. Short-term orientation (LOT) is affected by the industry classification according to CZ- NACE.

The limit of research focused on corporate culture could be the uninterest of small and medium-sized (hereinafter SMEs) companies in the issue; Fejfarová and Urbancová (2016) say that SMEs do not carry out corporate culture analyses. The Czech Republic could be described by hierarchical cultures where is usual formality, work procedures, and regulations (Pech, 2012). It corresponds with Mohelská and Sokolová's (2018) study, whose finding says that the Czech respondents perceive corporate culture as more bureaucratic and supportive than innovative. The byrocratic culture prevailed in the study of Sokolova et al. (2019); they add that corporate culture in Czechia depends on the organization's size and the respondent's job position. According to Urbancová and Depoo (2021), *"only 53.5% of the respondents (i.e., the surveyed organizations) have codified the organizational culture strategy, which subsequently affects not only the personnel processes but also the innovation potential of both individuals and organizations. However, it is necessary to realize that increasing research costs and investment in employee development and motivation or the increase in the number of innovation projects are influenced just by the organizational culture that has been implemented by the management and also adopted by employees."*

4.4 Reccomendations for future research

This study has many limitations. Because corporate culture, even company training are multidimensional systems. We can find many other factors which influence them in the company (existence and organization of HR department, the current state of the company, size, and field of business, etc.) but even in the external environment (economic situation,

legal system, labor market and any other current trends like pandemia COVID-19). For this reason, the baseline study was a necessity. The next step is crucial to choose suitable methods for diagnosing corporate culture. It was mentioned that we could find more than 70 methods according to the review of Jung et al. (2009). In the contribution was chosen Hofstede Value survey model (Hofstede, 1994); however, as mentioned, it is not the most suitable tool. In Appendix 2 are summarized chosen possible tools for this type of research. Their choice depends on the purpose of the study.

Typological approaches are the widest (Denison Organizational Culture Scale, Organizational Culture Assessment Instrument of Cameron and Quinn); however, in many studies we can find dimensional approaches which are often used for empirical measurement (Hofstede's Measure of Organisational Culture, Corporate Assessment Survey, Assessing Learning Culture Scale, Walach Culture Index, Values Survey Module, Norms Diagnostic Index). For concentration on training is recommended to use the Corporate Assessment Survey or Norms Diagnostic Index, but their limits are the length of the questionnaire and availability of the methodology. The author should choose the Walach Culture Index (1983) for the following reasons. According to Ziaei Nafchi and Mohelska (2020), the advantages of the Walach Culture index are simplicity, favorite by scholars, used by today, it enables international comparison, and his validation was proved in many studies. Even it has many similarities with the approach of Cameron and Quinn typology (Mohelska and Sokolova, 2018). The following pros are the availability of methodology, and it was used in the Czech environment. It will be beneficial for the research to add other variables of corporate culture for a better understanding of the relations. It should be used the Likert scale (in Appendix 2, we may see that it is often used methodology for analyzing corporate culture).

Because it will be necessary to gain data on employee training system a structured questionnaire on training should be compiled based on similar published studies. Based on the pre-research study on a training system in Czechia, it turned out that difficult topics are costs and their consist (yearly investment per employee is deeply under EU average, based on data Eurostat, 2020), evaluation of effectiveness (Fajčíková et al., 2016), preparedness on Industry 4.0 (one-third Czech companies prefer to hire qualified workforce than to train them, two-third of them retrain current staff as a reaction for future skills – based on data Eurostat, 2020), Czech companies used mainly traditional face to face methods (Eurostat, 2020; Smerek et al., 2021; Fajčíková et al., 2016). These findings, together with enumerating trends of training, should be part of the questionnaire. The questionnaire should also analyze the effectiveness of

the whole process (e.g., by measuring innovative proposals or patents).

According to the preliminary research results of corporate culture (the influence of size and field of industry on corporate culture), future research should focus on one field of industry classification and one size of the company. Because Fejfarová and Urbancová (2016) claim that SMEs do not carry out corporate culture analyses, the research sample should consist of large companies. They are significantly more advanced and have better financial opportunities than small and medium-sized enterprises (Institut der Deutschen Wirtschaft Consult, 2015). The economic activity of the sample should be Manufacturing according to CZ NACE - C (10–33). According to the Ministry of Labour and Social Affairs (2016), production is a crucial segment of the fourth industrial revolution.

5 Conclusion

The contribution summarized the overview of the research background. It was analyzed secondary (CVTS surveys on Eurostat in reference years 2005, 2010, and 2015) and primary data (pre-researches) about the state of corporate culture and training in the Czech Republic.

The relation between corporate culture and employee training system is both sides. Corporate culture forms all Human resource management, which essential part is the employee training system. On the other side, due to suitable training, companies can change employee attitudes and behavior, transforming corporate culture. Corporate culture and training can influence job satisfaction, employee commitment, performance, innovative behavior, and preparedness for Industry 4.0. A corporate culture that supports developing an employee training system should be oriented on creativity, innovation, and a continuous learning environment. These types of cultures support employees' positive attitudes to their development, undergoing training, and sharing knowledge.

Corporate culture can influence employee training system by some suitable values and variables, such as high level of communication, structure organization (which supports communication and discussion), an atmosphere of trust, risk-taking, no punishment for failures, the value of continuous learning. Generally, the environment should support employees' learning and share their knowledge. So it is recommended to have the type of organizational culture which supports creativity and innovation (e.g., adhocracy culture, innovative culture, learning culture).

Based on CVTS surveys, the Czech companies preferred external training to internal.. To conclude, Czech companies implement on-the-job training and less active methods, which complies with the findings of the study of Fajčíková et al. (2016). Within trained competencies, the ratio of enterprises that develop management skills increases with the growth of the company size. A similar tendency has the competence of foreign language. The most trained competencies in 2015 are Job-specific skills, Customer handling, Team working, and Management skills. In 2015 more than 70% of Czech companies were concerned about CVT training of current staff as a reaction for future skills, a fundamental aspect of preparedness for Industry 4.0. Almost half of the Czech enterprises did not have a plan for training, even not budget. The investment per participant is deeply below under EU average. According to the own preliminary research, 23.22% of researched companies do not evidence the training costs. The surveyed companies invested more in compulsory training than in training soft skills. The 9% of surveyed companies did not record any innovative employees' proposals.

Examined enterprises hold the dimensions of high power distance, individualism, femininity, uncertainty avoidance, and short-term orientation. The influence of the size of the enterprise and the sectoral classification according to the CZ-NACE was examined on individual cultural dimensions. The size has influence only on the dimension of individualism (large companies are more individualistic than smaller ones) and uncertainty avoidance (it grows with the company size). IDV, UAI, LOT are influenced by the classification according to CZ-NACE. These results correspond in some way with the studies of Pech (2012), Mohelská and Sokolová (2018), Sokolova et al. (2019). It was set up recommendations for future research.

To conclude, the essential aspect of implementing Industry 4.0 will be employees and their ability to cooperate with robots and artificial intelligence. Therefore, enterprises will have to train employees to new vital competencies and knowledge. However, the training will not support the preparedness for Industry 4.0 if there are no suitable changes in corporate culture for supporting the learning environment.

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Appendix 1: Overview of training methods

Method	Definition	Pros	Cons
Apprenticeship	It combines part-time formal education with training at the workplace.	Good source of efficient skill development.	It is not easy to measure.
Blended learning	The method involves the combination of face-to-face and technology-mediated instruction.	To optimize teaching and learning.	For students, it is necessary to have self-regulation skills and technological competencies.
Couching	The concept for developing professionals, usually aimed at well-defined goals.	It provides long-term support, to address an issue or job performance.	It has a finite timeline.
Development centers	The diagnostic trainee program for skills development.	Holistic approach for the development of competencies.	Demanding on time and technical equipment.
E-learning/ M-learning	It is accessible using technological tools that are either web-based, web-distributed, or web-capable.	The online classroom is a flexible environment and promotes lifelong learning and solve distance problem. Just in time learning. Gamification.	The ability to adapt, realign or change is no longer available.
Games	Games may only indirectly relate to the real world.	It is a fun and entertaining method.	Sometimes it could be too simplistic and therefore provide an incomplete view of reality.
Case studies	The method includes the description of an actual problem and the trainee develops the solution.	It stimulates discussion, motivation, and learning and improves communication and interpersonal skills.	It is crucial to have an experienced moderator/lector.
Counseling	The modern method that shapes working abilities.	Development of trainer and trainee, proactive approach, feedback.	Time costing, trust as a necessary element.
Internship	Involves supervised, practical training on the job.	It has low cost and training content is relevant to the future job.	The training experience for the learners can be inconsistent and high-pressured.

Method	Definition	Pros	Cons
Job instructional training	Step-by-step instruction will be given by the trainer to the learner.	Based on trainee activity and feedback, it allows for repeated practice.	There are many interruptions at the workplace.
Job rotation	Involves training for a job by working in the job for a limited duration.	It can promote greater interest in the company and enhance employee commitment.	There is a chance of public failure.
Lectures	Only speaking.	A wide range of audience sizes, it takes less time to design.	A shortage of trainee involvement and feedback, a one-way communication.
Mentoring	Involves a one-on-one partnership between a new employee and senior employee.	Development of mentee and mentor also. Individual approach.	Possible interpersonal conflict.
MOOCs	It is free to open access, video-based instructional content, videos, problem sets, and forums released through an online platform to high volume participants aiming to take a course or to be educated.	An unlimited number of participants. Just in time training.	Missing personal contact.
Outdoor training	Learning by games for the development of competencies.	Entertainment, efficient, relaxing.	Demanding on organization and technical support.
Role playing	Trainees act in certain roles in the context of a situation.	It encourages active participation and feedback.	It is crucial to have an experienced moderator/lector.
Shadowing	A trainee closely observes someone perform a specific job.	To generate employee interest and engagement. No fear of failure.	A coaching session is needed after it.
Simulation	The method aims at capturing elements of the real situation.	It allows trainees to get experience in handling new situations while avoiding unacceptable risks.	It is expensive.

Method	Definition	Pros	Cons
Team training	Intended exclusively for groups that behave interactively, to improve knowledge within a team, or to train the team on a specific skill.	The team performs tasks better than individuals.	Members might negatively affect the group's performance and dynamics.
Virtual reality	Based on the combination of visual, audio, and tactile stimuli, the trainee can experience the situation.	It might improve the recovery efficiency and give an experience from simulation.	The cost for assessment.
Workshops	Team solving of complex case studies.	Building of teamwork and interdisciplinary.	It is not recommended without crucial knowledge or experience on the chosen issue.

Source: own processing according to Vasanthi and Basariya, 2019; Noe et al., 2017; Read and Kleiner, 1996; Martin et al., 2013; Wolter and Ryan, 2011; Rasheed et al., 2020; Hussey and Campbell-Meier, 2020; Hamid, 2001; Moore et al., 2011; Baturay, 2015; Huang et al., 2021; Koubek, 2015; Armstrong and Taylor, 2017

Appendix 2: Overview of tools for diagnosing corporate culture

Method	Methodology	Results	E.g. studies
Hofstede's Measure of Organisational Culture	Self-report questionnaire - 18 key items of perceived practices, each with a 5-point scale	6 dimensions (organizational effectiveness, customer orientation, level of control, focus, approachability, management philosophy)	Hofstede et al. (1990)
Corporate Assessment Survey (recommended for analyzing Training)	Self-report questionnaire - 129 items with 5-point Likert scale	17 dimensions of culture (Rewards/Recognition, Training/Career Development, Innovation, Customer Orientation, Leadership and Quality, Fairness and Treatment of Others, Communications, Employment Involvement, Use of Resource, Work Environment/Quality of Worklife, Work and Family/Personal Life, Teamwork, Job Security/Commitment to Workforce, Strategic Planning, Performance Measures, Diversity, Supervision	Usala (1996); Muldrow et al., (2002)
Culture Index (Walach)	Self-report questionnaire- 24 adjective-style items with 4 response options (0 does not describe my organization to 3 describes my organization most of the time)	3 dimensions (bureaucratic; innovative; supportive)	Lok and Crawford (1999); Lok et al. (2005), Kangas et al. (1999), Chen (2004); Ziaei Nafchi and Mohelská (2020), Koberg and Chusmir (1987); Sarhan et al. (2020),
Assessing Learning Culture Scale	Self-report questionnaire - 10 items with 5-point scale	Dimensions of learning culture.	Preskill and Torres (1999); Botcheva et al. (2002)
Denison Organizational Culture Scale	Self report questionnaire - 60 items measured on a five point scale	Four cultural types: effectiveness: involvement, consistency, adaptability and mission	Denison and Mishra (1995); Li et al. (2013); Wahyuningsih et al. (2019).

Method	Methodology	Results	E.g. studies
Values Survey Module (designed to measure culture at the national level, but has been used in numerous studies to measure culture in organisations)	Self report questionnaire - 20 items with 5-point scale	5 dimensions (power distance, individualism, masculinity, uncertainty avoidance and long term orientation)	Pratt and Beaulieu, (1992); Ardichvili (2001); Jones (2007); Kruger and Roodt, (2003); Bearden et al. (2006)
Norms Diagnostic Index (NDI) (recommended for analyzing Training)	Self-report questionnaire - 51 statements with 5-point Likert response	7 dimensions of norms: performance facilitation, job involvement, training, leader-subordinate, policies and procedures, confrontation, supportive climate, job satisfaction	Allen and Dyer (1980)
Organizational Culture Assessment Instrument	Consists of 6 Dimensions (Dominant Characteristics, Organizational Leadership, Management of Employees, Organizational Glue, Strategic emphases, Criteria of success)	4 types: Clan, Adhocracy, Market and Hierarchy corporate culture	Cameron and Quinn (2011); Lapiņa et al. (2015)

Source: own processing according to Hofstede Insights (2021); Jung et al. (2009); Walach (1983); Denison et al. (2005); Denison et al. (2014), Muldrow et al. (2002), David et al. (2018)