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Content

Analysis of competitiveness of the postal services industry in Mongolia

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Abstract

In Mongolia, the postal and telecommunications sector is transitioning from a state service monopoly to a market characterized by perfect competition. Following the Covid-19 pandemic, there has been a surge in demand for delivery and dispatch services. Specifically, revenue within the postal industry witnessed a notable upswing, with increases of 26 percent in 2020, 39 percent in 2021, and 37 percent in 2022, respectively. This surge underscores a sharp rise in demand for parcel, shipping, and delivery services within the postal sector. Hence, within the postal sector of Mongolia, there exists a challenge to the expansion of e-commerce delivery services, the integration of novel electronic technologies, the enhancement of logistical service standards, and the systematic elevation of sectoral competitiveness. The primary objective of this research is to examine the factors influencing the competitiveness of companies within the postal sector by employing M. Porter's Diamond model. Additionally, the study aims to identify the pivotal success factors crucial for enhancing the competitiveness of the postal sector in Mongolia. In assessing competitiveness, the study employs the comprehensive methodology of the Diamond model, which encompasses resource factors, demand factors, company strategy, structure, and organization, as well as related and supporting industry factors. Through this framework, the competitiveness of

Mongolia's postal industry is analyzed across seven dimensions, comprising a total of 119 indicators. These dimensions include government support, human resources, and opportunities, among others. Subsequently, the findings are disseminated to reveal the outcomes of the assessment. The results revealed that the opportunity factor is the major important factor, on the other hand, the government factor was the less important factor for boosting the competitiveness of the postal company.

Keywords: Mongolia's postal sector, M. Porter's Diamond model, human resources, demand factors, infrastructure investment

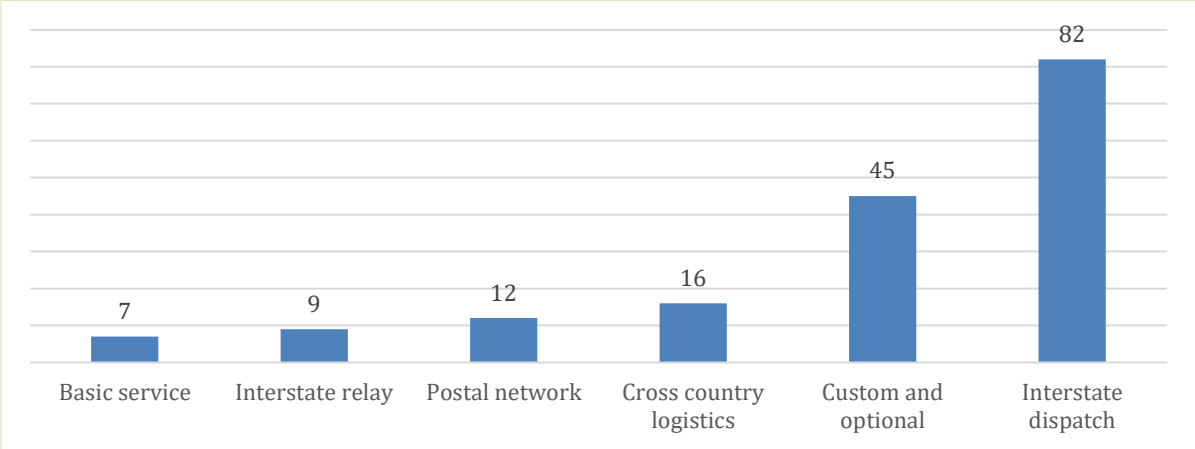
Introduction

The shifts in consumer behavior catalyzed by the rise of e-commerce, marking the onset of the digital era, are instigating profound transformations within the postal industry. According to the latest estimates by the Universal Postal Union (UPU), revenue generated from parcel and logistics services has, for the first time, surpassed that of postcard services. Globally, parcel services experienced a notable growth rate of 17.6 percent compared to 2020. Consequently, the postal sector has emerged as a pivotal nexus, interlinking the developmental trajectories across all sectors of society.

The paramount challenge confronting the industry lies in investing in e-commerce logistics to accommodate the escalating demand for postal services, implementing a novel payment system, optimizing operational processes, expanding capacity, and fortifying its foothold in both domestic and foreign markets.

As the number of postal service providers in Mongolia increases, the total income within the sector experiences a corresponding rise, with the average income surging by 34 percent over the past three years. Presently, there are 177 enterprises and organizations equipped with specialized licenses for postal services operating across Mongolia (Graph1).

Graph 1: Types and amounts of issued licenses, as of April 05, 2023



Source: Own.

Among the 171 enterprises granted special licenses, 46.2 percent are presently operational. An examination of the principal areas of activity among postal service providers reveals that primary services such as domestic mail, international mail, and parcel services occupy prominent positions. In comparison to 2021, the volume of postal services in Mongolia has surged by 1.4 times, alongside a similar increase of 1.4 times in postal logistics services. Additionally, there has been a notable 26 percent rise in the number of companies holding special licenses for parcel services.

When considering the companies and organizations providing postal services by country, it is observed that the United States, South Korea, China, Great Britain, and Turkey hold the leading positions.

Tab. 1: Licensed mail, types

№		2019	2020	2021	2022
International services					
1	USA	15	19	23	26
2	South Korea	10	13	21	25
3	Great Britain	2	2	2	2
4	ROC	3	3	6	13
5	Sweden	1	1	2	3
6	Australia	2	2	2	2
7	Germany	2	3	5	7
8	Turkey	-	1	4	7
9	Express mail	7	7	8	8
10	Domestic mail services	4	5	6	8
11	Logistics Services	5	6	6	13
12	Custom delivery	10	17	50	54
	TOTAL	**61**	**79**	**135**	**177**

Source: Telecommunications Regulatory Commission, "2022 Key Indicators of Licensed Telecommunications Service Providers".

In the Mongolian postal sector, 11 companies employ 10-49 individuals, and 45 companies with fewer than 9 employees. Overall, the postal sector employs a total of 1,542 individuals.

Tab. 2: The number of employees of enterprises and organizations actively engaged in the postal service of Mongolia

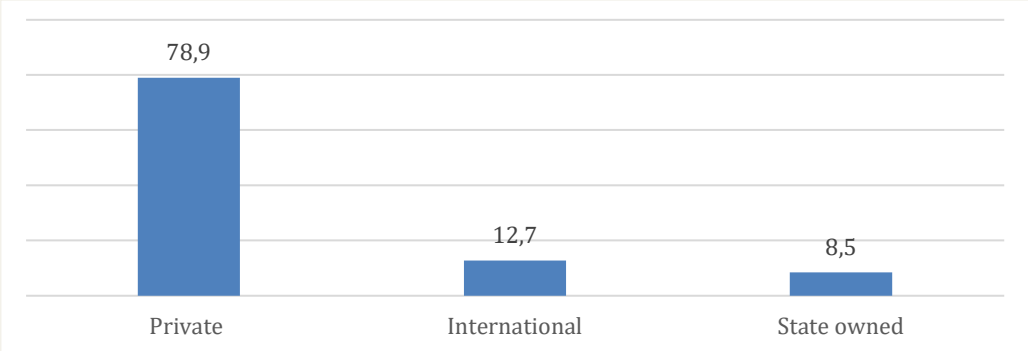
Employee number (person)	Number of Entreprises and organizations	Percent (%)
50 and more	5	8%
10-49	11	18%
Up to 10	45	74%
Total	**61**	**100 %**

Source: Survey of supply and demand of human resources in the postal industry, 2023.

Enterprises with more than 50 employees include Mongolian Post LLC, employing 959 individuals, Mongolian Express LLC with 85 employees, DH-EL LLC with 79 employees, Infinity Post with 55 employees, and Pik Pak LLC with 52 employees. Notably, Mongolian Post LLC stands out with the largest workforce, constituting 62 percent of the total industry employment. The competitive strength among these companies varies significantly. Regarding market share, Mongolia Post JSC holds 58.5 percent, DHL LLC 5 percent, Infinity Post 0.5 percent, and Pik Pak LLC 2 percent, respectively. This analysis suggests that Mongolian Post JSC operates as a monopoly, wielding a dominant position within the market.

When examining the recipients of postal services, it is observed that 78.9 percent are private organizations, 12.7 percent are international organizations, and 8.5 percent are government organizations. Additionally, 70 percent of the total population constitutes private users who avail themselves of domestic and international mail services.

Graph 2: Postal companies by ownership type, 2023



Source: Survey of Supply and Demand of Human Resources in the Postal Industry, 2023.

The principal factors that adversely affect the competitiveness of the companies in the postal sector in Mongolia are inadequate cooperation between professional organizations within the sector and insufficient regulation of competition. Moreover,

challenges such as unclear user addresses, scarcity of skilled human resources, and deficiencies in both soft and hard infrastructure investment emerge as pressing issues impeding the provision of expedient and high-quality postal services.

In the following text, the factors of competitiveness of the postal industry will be discussed.

The factors to analyze the competitiveness of the postal industry were extracted from the Single diamond model of M. Porter.

Resource factors: In several studies, the ability to create advanced production factor resources and productive use of resources predicted enhancement in competitiveness (Porter, 1998, Nilsson & Peterson, 2002; Li et al., 2009; Deniz et al., 2013). Talent and skills of employees (Saru, 2007; Nanda & Singh, 2009), relatively low personnel costs (Hamalainen, 2003; Nair, 2006); Effective use of limited resources, and knowledge resources (Loader, 2007; Rojaka, 2015; Petrakis et al., 2015), information resources, innovation capabilities, production hard and soft infrastructure, technology, transportation, and communication infrastructure. Many researchers have pointed out that they are important factors for satisfying demand. The postal industry's soft infrastructure resources include software, electronic systems, and online shopping sites.

Demand factor: The tendency of the rapid growth of domestic demand and the mechanism of transition of domestic demand to international markets is very important for companies to gain a competitive advantage (Ismal & Fatma, 2012). Hence, the study aims to elucidate the readiness and inclination of companies within the Mongolian postal industry to procure services for domestic customers, alongside their ability to promptly respond to the specialized and exacting demands of the postal service customer segment.

Supporting and Relatied Industries: At the international level, the competitive advantage of an industry hinges significantly on the robust presence of efficient, profitable, and productive supplier companies and related industries within the country (Zhao, 2018). This factor is paramount in enhancing competitiveness and encompasses aspects such as supplier collaboration, value chains, cluster initiatives, and the presence of research institutions (Erboz, 2020; Chung, 2016).

Company Strategy and Structure: The management methodologies, innovativeness, organizational culture, and strategic management employed by companies within a particular industry serve as the foundation for sustainable competitiveness and success (Kharub & Sharma2017; Bakan & Doğan, 2012).

Government Support: The effectiveness of government policies and regulations within each country is gauged by the advantages they confer upon companies within the business and industrial environment, and this varies across different nations. Government policies encompassing education and innovation, capital market-oriented measures, and the establishment of local product standards and regulations play pivotal roles. Additionally, alterations in tax laws, anti-monopoly regulations, and initiatives

aimed at attracting foreign investment directly or indirectly impact the competitiveness of companies operating within the sector (Mboya & Kazungu, 2015). The study also delineates how government support influences other factors within the Diamond model.

Opportunity and Occasion: Opportunities encompass external events beyond the control of the company, encompassing industry challenges, future development trends, national and international political fluctuations, proximity to low-cost countries, conflicts, technological advancements, labor mobility and migration, and demands within foreign markets. These factors impact competitiveness by influencing changes in consumption patterns and other pertinent industry dynamics (Tsai et al, 2021; Flanagan et al, 2005).

Human Resources: In the digital era, marked by the pervasive use of information technology, scholars underscore the critical role of human resources in enhancing competitiveness within the postal industry. Specifically, human resource factors such as workforce skills, wages and incentives, health and safety standards, and investments in human capital are believed to exert a significant influence on the industry's competitiveness (Strenitzerova, 2023; Flanagan et al, 2005).

Methods and Data

This study was conducted to competitiveness of postal services of Mongolia. The research was performed in two main steps. The first step focused on determination of competitiveness factors from the literature. In the second step we developed a survey questionnaire based on the list of factors gathered from the literature to collect respondents' perceptions of the importance of competitiveness factors. The literature review enabled us identify 46 factors of 7 groups, including 1) Resource condition; 2) Demand condition; 3) Supporting and Relating Industries; 4) Strategy and Structure; 5) Government role; 6) Chances and opportunity; and 7) People.

The second step was to structure the final survey questionnaire and to deliver to collect responses from the respondents. The survey questionnaire was divided into two sections. The first section covered the respondents' backgrounds and company profiles. The second section asked respondents' degree of agreement on importance of competitiveness factors. A five-point Likert scale was used in the questionnaire: 1 = Not important; 2 = Fairly important; 3 = Adequate; 4 = Important; and, 5 = Vital (Tholibon et al, 2021; Azman et al, 2019)

The study was conducted from an organizational perspective and collected data from respondents of the postal services industry, covering both public and private companies. The total number of respondents was 422.

In this study, the relative importance index (RII) and Spearmen's rank correlation are frequently used. Firstly, to determine the ranking of the competitiveness factors, we applied the relative importance index (RII) for each competitiveness factor using following equation:

$$RII = \frac{\sum w}{AN} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{5N} \quad (1)$$

Where w is the respondent's weighting of each factor, which can range from 1 to 5, for instance, n_1 represents the number of respondents for Not Important, n_2 represents the number of respondents for Fairly Important, n_3 represents the number of respondents for Adequate, n_4 represents the number of respondents for Important, and n_5 represents the number of respondents for Vital. Thus, the highest weight is A, and N is a total number of respondents. The Relative Importance Index ranges from 0 to 1.

The RII value ranges from 0 to 1 with 0 not inclusive. It shows that higher the value of RII, more important was the sustainable criteria and vice versa. The comparison of RII with the corresponding importance level is measured from the transformation matrix as proposed by Chen et al. (2010). According to him, derived importance levels from RII are as follows:

Tab.3: Importance Level from RII

Level	**Range**
High	0.8<RII<1.0
High - Medium	0.6<RII<0.8
Medium	0.4<RII<0.6
Medium - Low	0.2<RII<0.4
Low	0.0<RII<0.2

Source: Own.

Results

A total of 67% of the enterprises participating in the survey are operating in Ulaanbaatar, 82.4% have up to 50 employees, and 8.8% have 250+ employees.

Tab. 4: Company profile

Background indicators	Categories	Percent
Year of operation	Up to 5 years	60.9
	5-10 year	20.7
	10 years more	18.4
Operation	Postal network	20.9
	Domestic Mail Services	19.8
	International Mail Services	59.3
Ownership	Joint stock company	19.8
	Limited Liability Company	80.2
Company size	up to 9	52.7
	10-49	29.7
	50-249	8.8
	250+	8.8

Source: Own.

Background information of respondents demonstrates a good representativeness of the sample. Companies that operated on international market account for 59.3 percent, limited liability companies account for 80.2 percent and 60.9 percent of companies comparatively young operating companies.

We computed the RII of each group to identify and rank the general contribution of the main groups. RII is the average of the importance indices for the competitiveness factors in each group. Table 5 demonstrates the RII rankings of all seven groups according to their relative importance. A concise explanation of each group according to rank is presented below.

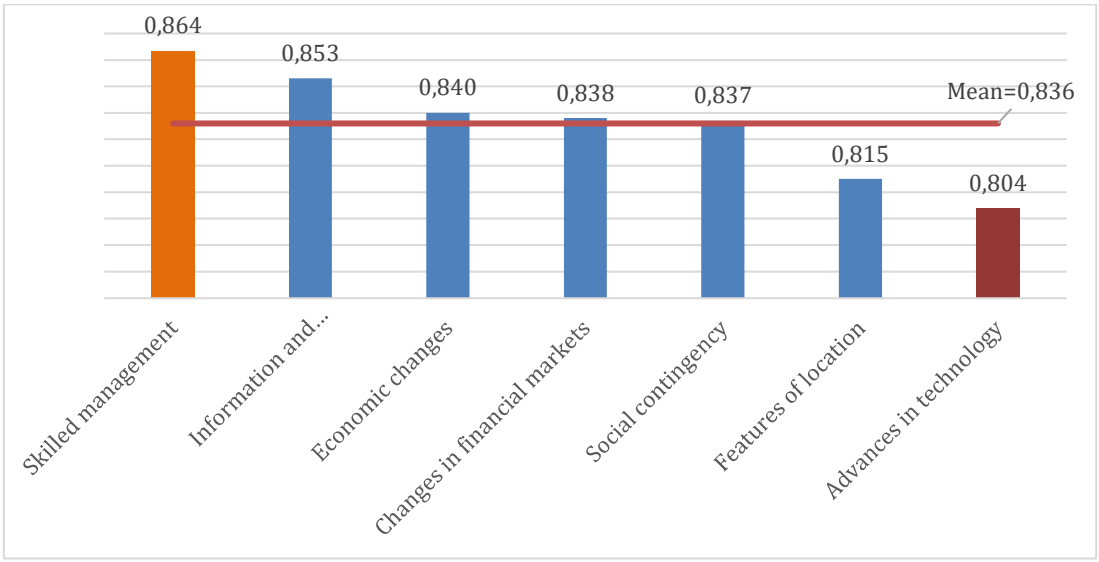
Tab. 5: RII and Ranking of competitiveness factors

	RII	Rank
Resource Conditions	0.831	2
Demand Conditions	0.791	4
Supporting and Relating Industries	0.736	6
Strategy and Structure	0.803	3
Government Role	0.595	7
Chances and Opportunity	0.836	1
Human Resource	0.772	5

Source: Own.

Chance and Opportunities: This group is considered the most critical for competitiveness (Graph 3). The group analysis revealed that the factor "Skilled management" was ranked (RII = 0.864) as the most significant factor. For other critical competitiveness factors in this group Information and transportation security (RII = 0.853), Economic changes (RII = 0.840), Changes in financial markets (RII = 0.838), and Social Contingency (RII=0.037) were above the average. However, Features of location (RII=0.815) and Advances in technology (RII=0.804) were the least crucial factors within the group.

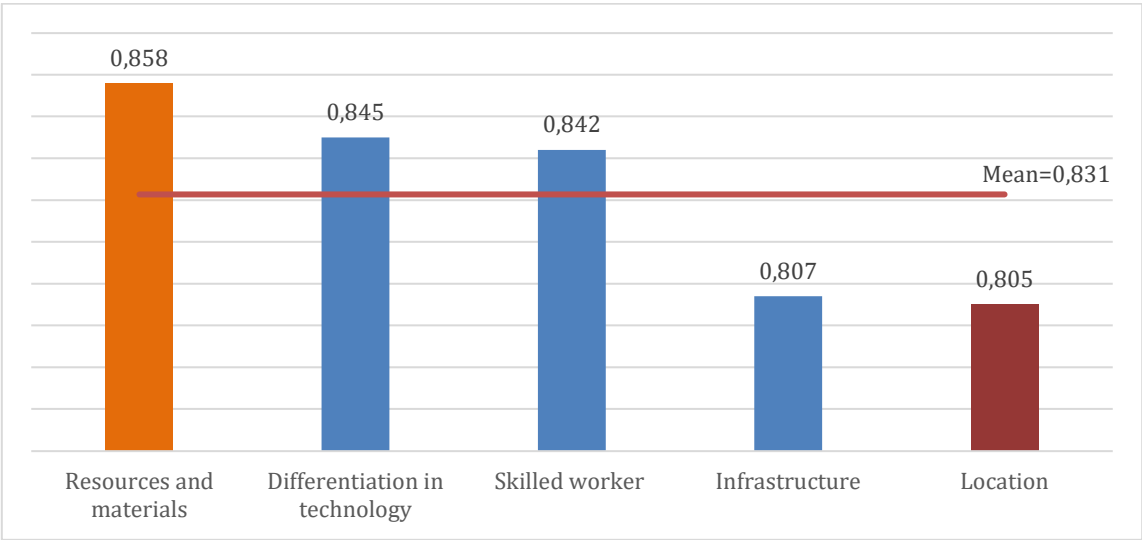
Graph 3: RII of Chance and Opportunities factors



Source: Own.

Resource Conditions: This group is considered the second critical for competitiveness (Graph 4). The group analysis revealed that the factor "Resources and materials" was ranked (RII = 0.858) as the most significant factor. For other critical competitiveness factors in this group Differentiation in technology (RII = 0.845), and Skilled worker (RII = 0.842) were above the average. However, Infrastructure (RII=0.807) and Location (RII=0.805) were the least crucial factors within the group.

Graph 4: RII of Resource Conditions factors

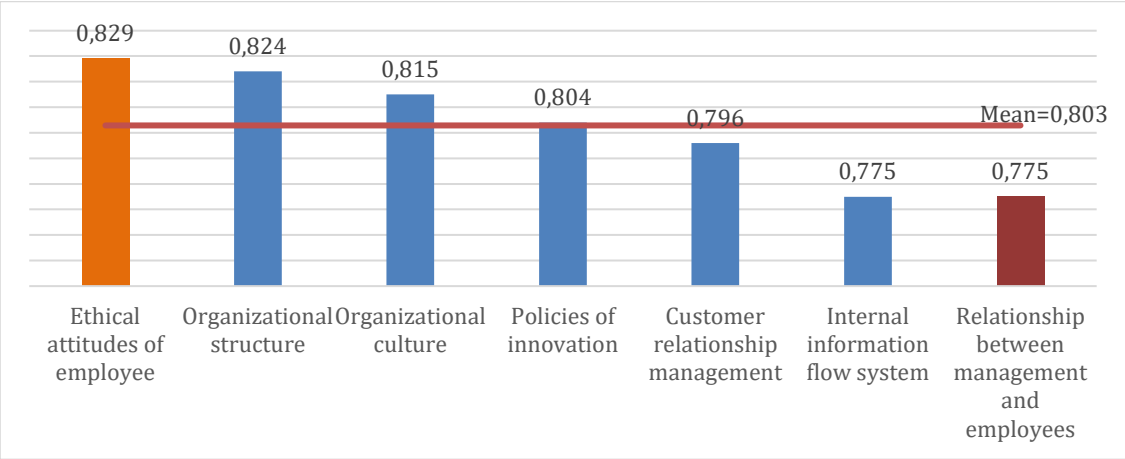


Source: Own.

Strategy ans Structure factors: This group is considered the third critical for competitiveness (Graph 5). The group analysis revealed that the factor "Ethical attitudes

of employee" was ranked (RII = 0.829) as the most significant factor. For other critical competitiveness factors in this group Organizational structure (RII = 0.824), Organizational culture (RII = 0.815), and Policies of innovation (RII=0.804) were above the average. However, Customer relationship management (RII=0.796), Internal information flow system (RII=0.775) and Relationship between management and employees (RII=0.775) were the least crucial factors within the group.

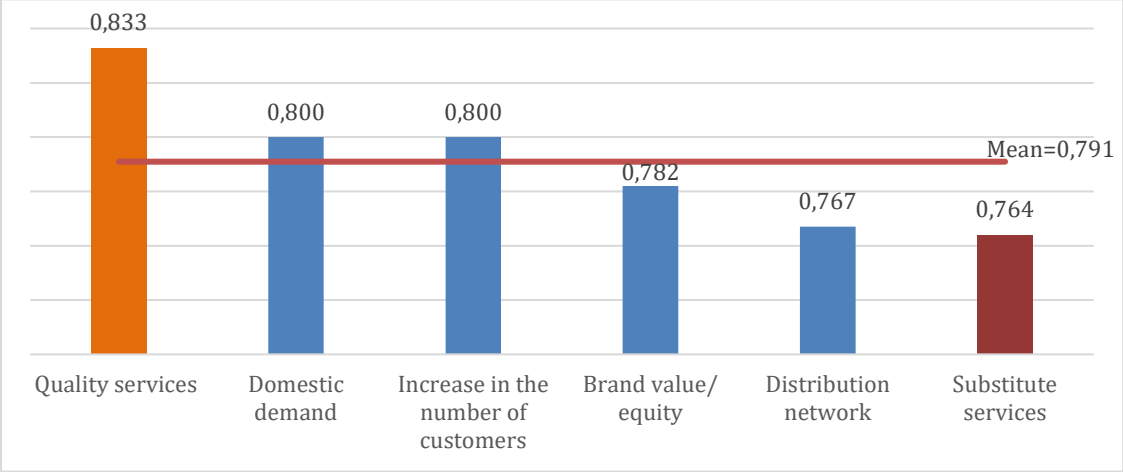
Graph 5: RII of Strategy ans Structure factors



Source: Own.

Demand Conditions: This group is considered the fourth critical for competitiveness (Graph 6). The group analysis revealed that the factor "Quality services" was ranked (RII = 0.833) as the most significant factor. For other critical competitiveness factors in this group Domestic demand (RII = 0.800), and Increase in the number of customers (RII = 0.800) were above the average. However, Brand value/equity (RII=0.782), Distribution network (RII=0.767), and Substitute services (RII=0.764) were the least crucial factors within the group.

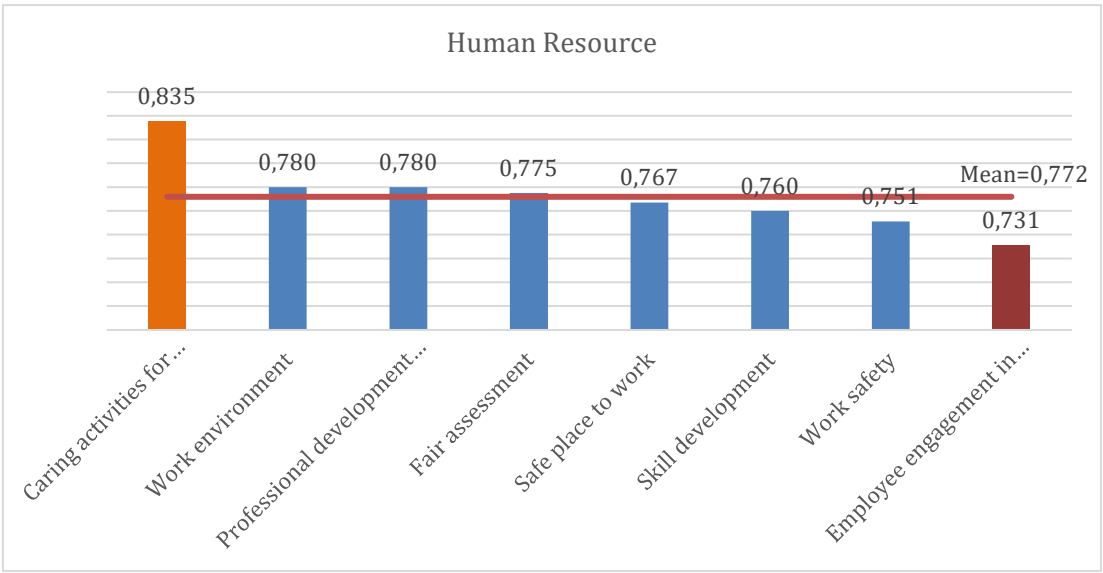
Graph 6: RII of Demand Conditions factors



Source: Own.

Human Resources: This group is considered the fifth critical for competitiveness (Graph 7). The group analysis revealed that the factor "Caring activities for employees" was ranked (RII = 0.835) as the most significant factor. For other critical competitiveness factors in this group Work environment (RII = 0.780), Professional development opportunities (RII = 0.780) and Fair assessment (RII=0.775) were above the average. However, Safe place to work (RII=0.767), Skill development (RII=0.760), Work safety (RII=0.751) and Employee engagement in strategic decision making (RII=0.731) were the least crucial factors within the group.

Graph 7: RII of Human resources factors

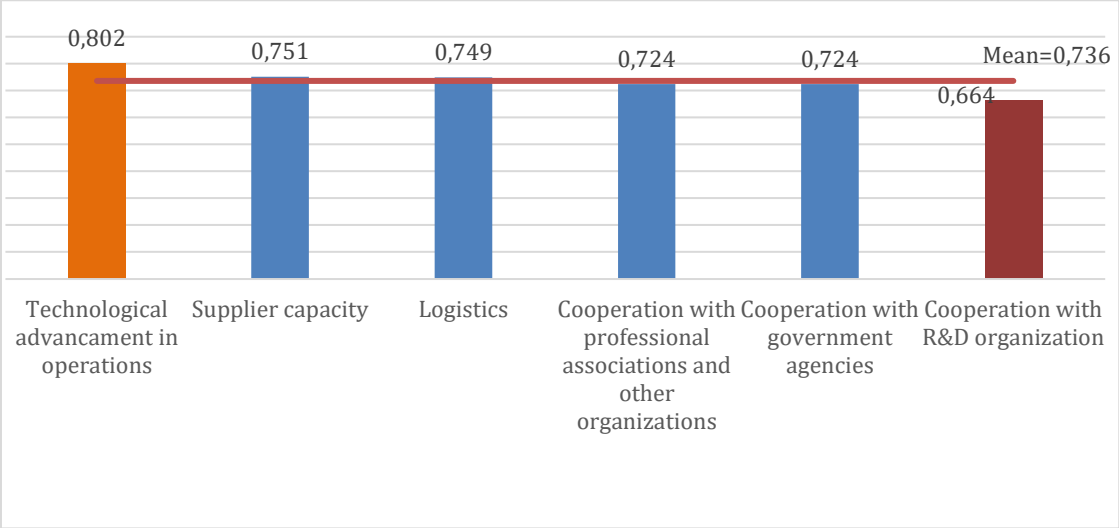


Source: Own.

Supporting and Related Industries: This group is considered the fifth critical for competitiveness (Graph 8). The group analysis revealed that the factor "Technological

advancement in operations" was ranked (RII = 0.802) as the most significant factor. For other critical competitiveness factors in this group Supplier capacity (RII = 0.751) and Logistics (RII = 0.749) were above the average. However, Cooperation with professional associations and other organizations (RII=0.724), Cooperation with government agencies (RII=0.724), and Cooperation with research and development organization (RII=0.664) were the least crucial factors within the group.

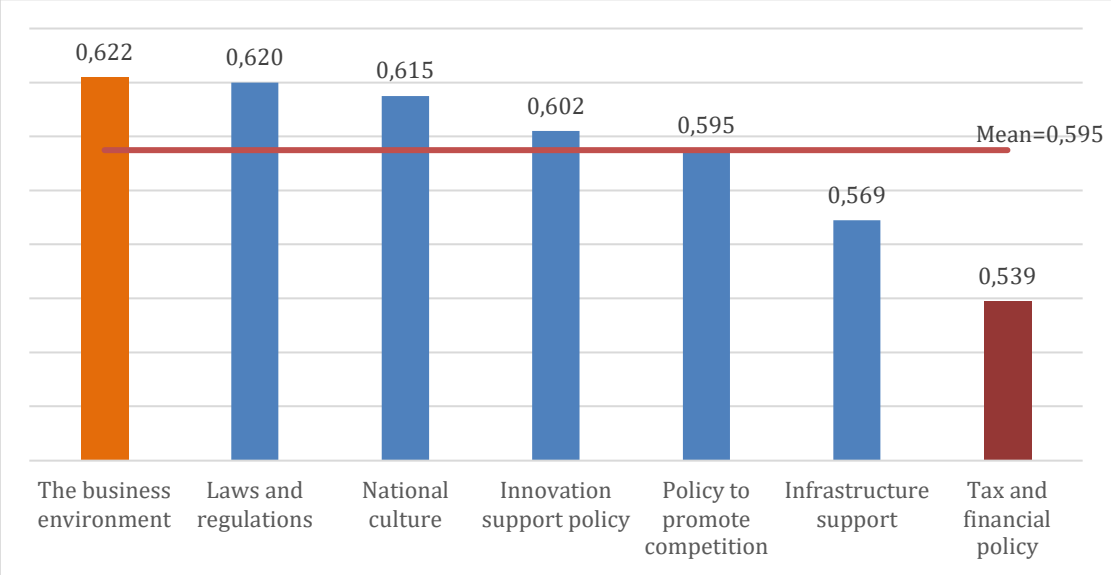
Graph 8: RII of Supporting and Related Industries factors



Source: Own.

Government: This group is considered the fifth critical for competitiveness (Graph 9). The group analysis revealed that the factor "The business environment" was ranked (RII = 0.622) as the most significant factor. For other critical competitiveness factors in this group Laws and regulations (RII = 0.620), National culture (RII = 0.615), Innovation support policy (RII=0.602) and Policy to promote competition (RII=0.595) were equal to and above the average. However, Infrastructure support (RII=0.569) and Tax and financial policy (RII=0.539) were the least crucial factors within the group.

Graph 9: RII of Government factors



Source: Own.

Conclusion

This study was conducted to identify the most critical factors of competitiveness of the postal services industry of Mongolia. To approach to the problem, we conducted a survey of 422 professionals in postal services industry. The results of the research show that the external factors have a major defining factor of competitiveness, reflecting respondents' reliance on external factors. The findings indicate that government factors are least significant to competitiveness of the industry in relation to other factors. Although governance issues exist, they do not remarkably add value to the competitiveness. There is also a small contribution from the supporting and related industries in enhancing competitiveness. This may relate to immature infrastructure and most of the supplies are import-dependent. Companies might rely on the chances and opportunities, resources, strategies and demand conditions. The survey data reflects the feeble role of the government on supporting the competitiveness of the industry. Caring activities for employees is the most crucial factor within the Human resource group reflecting a good understanding among respondents' importance of the workforce. This may also reflect that the industry is also facing lack of skilled employees as well as other industries within Mongolia. Moreover, according to the findings, the Technological advancement, Supplier Capacity, and the logistics are major factors of the Supporting and Related Industries group. The results reflect the unique feature of the industry that the strong dependance on logistics and supply, and hence technological advancements both in operations and material.

Overall, the main factors of competitiveness based on the survey of the postal industry professionals reviled that the most critical factor was the Chances and opportunity,

Resources, Strategy, and Demand conditions. However, the factor of the Government condition was the least important one, indicating the need for further research.

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The development of e-commerce turnover in the Czech Republic during economic crises: a case study

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Abstract

The aim of the case study was to analyse the impact of economic crises on e-commerce in the Czech Republic. Secondary data from Google Analytics was used for the research and e-shops from four different sectors in the Czech Republic were included. Data analysis was performed using Google Analytics, Google Sheets and Google Data Studio. Ordinary Least Squares (OLS) statistical method was used to test the hypotheses using R software. The results showed that the performance of e-shops was affected by various factors including economic crises and pandemics. The relationship between economic crises and e-commerce turnover was not clear and depended on many factors. A limitation of the study was the researcher's limited sample of e-shops in the country, but we still believe that the results can be generalized to the e-commerce performing industries under study.

Keywords: online marketing, digital era, business opportunities, global trends, technological advances, e-commerce performance analysis, statistical analysis

Introduction

The e-commerce context is rapidly evolving and is significantly influenced by global trends and local economic factors (Helmy et al., 2022; Švecová, Ostapenko & Veber, 2020). This sector, which now encompasses various forms of interactions (B2C, B2B, C2C, C2B), is rapidly developing and influencing both business and shopping (Dinesh & Muniraju, 2021; Masyhuri, 2022; Treiblmaier and Sillaber, 2021). Across the boundaries of brick-and-mortar stores and with more and more people shopping online, e-commerce is becoming increasingly crucial for businesses of all sizes and is an

important element of global trade (Ilieva et al., 2022). Soava, Mehedintu and Sterpu (2022) along with Kurniawati, Al Siddiq and Idris (2020) show that the future of e-commerce will continue to play a significant role and will increasingly strengthen its position as one of the most important areas of the economy.

The impact of e-commerce on the global marketplace is unquestionable and its dimensions are manifold. Solanki (2022) highlights that customers value the convenience of online shopping, while Dinesh & Muniraju (2021) highlight the benefits that this platform offers businesses, such as the ability to reach a global customer base and automate their operations.

However, e-commerce is also a pioneer in the use of new technologies. Jallouli & Kaabi (2022) highlight advances in areas such as mobile technology, social media and artificial intelligence that bring further improvements, whether it is in logistics, personalizing the shopping experience or providing customized services.

In this context, it is also important to mention the role of data. Rathore (2023) highlights the importance of collecting data on customer shopping habits and behaviour. This data can be used to better understand customer needs, allowing businesses to target their advertising campaigns and tailor their products and services to the specific needs of their customers. E-commerce thus offers a dynamic environment that not only brings growth and expansion, but also new tools and strategies for businesses that want to better understand and meet the needs of their customers.

However, with the development of e-commerce also come challenges. New legislation, such as the Button Amendment (Česko, 2023), and privacy features in iOS 14 (Osadchuk, 2021) are changing the landscape of online commerce. These changes require businesses to adapt and take advantage of new tools like the Cookie Bar (Heureka Group, 2021) to be able to meet new demands while thriving.

Crises can also have an impact on e-commerce, both negative and positive (Kitukutha, Vasa & Oláh, 2021; Din et al., 2022). Reduced economic activity and spending constraints can lead to reduced sales and disrupted supply chains (Miljenovic & Beriša, 2022). But on the other hand, the crisis also creates new opportunities, as Nigam, Dewani and Behl (2020) have shown, as consumers focus more on online shopping and look for bargains. This opens up space for new market strategies and adapting to new customer needs and preferences. Semerádová and Weinlich (2022) stress the importance of businesses being prepared to take advantage of new trends and technologies in order to respond effectively to new challenges and opportunities in the marketplace.

Methods and Data

The research used data obtained through secondary data collection from Google Analytics, which was also used in the previous article (Korená et al., 2024). A random sampling method was used to select the samples and four e-shops from different industries in the Czech Republic were selected. In order to protect the sensitive

information of the e-shops, the specific names of the companies will not be disclosed. The selected e-shops included a cosmetics company, a family-owned company specializing in unique food products, a company offering quality headwear and fashion accessories, and an e-shop specializing in quality and original jewellery.

Research to date has shown that internal administration is most commonly used for data analysis and the results are collated and analysed in detail in conjunction with the use of Google Analytics, which are then exported to Google Sheets using Supermetrics, a tool that enables automated information gathering. The linking of Supermetrics with Google Data Studio has subsequently enabled the creation of live reports and the tracking of social campaign progress using dashboards (McDonald, 2020). Excel spreadsheets were used to evaluate monthly marketing costs and sales, from which PNO (Share of Turnover Costs) or ROAS (Return on Ad Spend) metrics were calculated. The analysis also allows to compare last year's and this year's sales and to track the daily evolution of costs, sales, PNO or CPA (Cost per Action).

The Google Analytics tool allows (Google Marketing Platform, 2022) to visually compare analytics outputs and identify trends over reference periods. Each report consists of dimensions (data attributes, e.g. cities) and metrics (quantitative measurements). The revenue trend was calculated from the arithmetic average of the reference e-commerce data for the first six months of 2021 and 2022 and the parallel average of all four companies, which represent representatives of each e-commerce segment. In addition, guided interviews were conducted with company owners for more detailed data analysis.

There are a number of different methods and approaches that can be applied to test the stated hypotheses in the analysis using the software R. Various statistical indicators such as mean, median, percentage change and others can be used to calculate the analysis. Different types of graphs and other forms of visualization can be used to visualize the data.

Methods of analysing e-shop performance

The first method is trend analysis, which examines the percentage change in turnover in each month and compares it to the average percentage change in turnover. This analysis can be applied to individual e-stores as well as to different groups of customers, for example by gender (Kivikunnas, 1998).

The second method is to compare the performance of individual e-shops, which allows a comparison of the average percentage change in turnover between different e-shops or groups of e-shops over different time periods. This comparison is useful for identifying the most successful e-shops and for determining the factors that contribute to their success. Comparing the performance of e-shops in different regions allows us to track the average percentage change in turnover between e-shops in each region, which allows us to compare the performance of individual e-shops in different parts of the country and identify any differences between them. Analysing the performance of e-shops by customer gender then allows us to compare the average percentage change in

turnover between men and women and to examine whether individual e-shops differ in how they perform in relation to these two customer groups. This analysis can help in developing targeted marketing campaigns and improving customer retention (e.g., Shen & Li, 2022 or Tolstoy, Nordman & Vu et al., 2022).

The seasonality analysis method focuses on fluctuations in sales in particular months and compares them with fluctuations in other months. This analysis also allows for a comparison of seasonal fluctuations between e-commerce stores and how these fluctuations vary across periods (Diao, 2022).

Statistical analysis: the OLS method

Statistical analysis is increasingly used to understand complex trends and relationships in economic and social systems. One of the most commonly used tools (Dismuke & Lindrooth, 2006) for such analysis is the Ordinary Least Squares (OLS) method, which is used to calculate linear regression. OLS allows one to estimate the relationship between one independent and one dependent variable and to see how much influence the independent variable has on the dependent variable.

Based on the data obtained, the column 'Annual change' will be used as the dependent variable (y), and the different independent variables (x) will be used as follows:

- The "months" from January 2021 to December 2022 will be used as independent variables, which may be affected by seasonality and fluctuations in consumer behaviour.
- The "gender" distribution for both 2021 and 2022 will be used as independent variables as they may play an important role in influencing preferences and buying behaviour.
- "Regional breakdowns" for both 2021 and 2022 will be used as independent variables as they may influence changes due to differing economic conditions and demographic characteristics.

The analysis aims to determine how these variables are involved in the overall change and whether there is a statistically significant relationship between them. Based on the OLS calculation, coefficients will be estimated and the results will be interpreted. The results of the analysis will provide deeper insights into the functioning of economic systems and the impact of months, gender and regions on overall changes.

In order to perform the OLS analysis, statistical software will need to be imported into R. The specific steps for performing the OLS analysis depend on the software package used, but generally include importing the data into the software, cleaning the data, defining the dependent and independent variables, creating a regression model using the OLS method, and evaluating the model for goodness of fit and statistical significance of the independent variables (Kabacoff, 2011).

In OLS, a mathematical model is created that attempts to describe the relationship between one independent variable (the predictor, referred to as Dep. Variable) and one dependent variable (the explanatory variable). In order to create this model, parameters

are needed which are determined by OLS. The first part of the linear regression (OLS) output provides basic information about the model used and its results. It contains information on the dependent variable (Dep. Variable), the regression model used (Model), the method of calculation (Method), the number of observations (No. Observations) and the number of independent variables in the model (Df Model). It also provides information on the degrees of freedom of the residuals (Df Residuals) and the covariance type used in the calculation of the standard errors of the coefficients. This information is important for the interpretation of the regression results and allows to assess the quality of the model (Kabacoff, 2011).

The next section of the output of the linear regression (OLS) contains various statistics that are used to evaluate the quality of the model. These statistics include coefficient of determination (R-squared), adjusted coefficient of determination (Adj. R-squared), F-statistic and its probability (Prob (F-statistic)), log-likelihood (Log-Likelihood), Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC). These statistics are important for assessing whether all the independent variables in the model are statistically significant and whether the model is appropriate for explaining the dependent variable. In the next steps of the analysis, it is important to compare different models and select the best one based on these statistics (Kabacoff, 2011).

Other key information included in the output of the linear regression (OLS) is used to interpret the results of the regression analysis and to assess the significance of the independent variables in the model. The coefficients of the regression equation (coef) indicate how much each independent variable contributes to explaining the dependent variable. The values of the t-statistic and the probability P > |t| indicate whether these coefficients are statistically significant. The confidence interval for the regression coefficients [0.025 0.975] indicates the range within which the coefficient is likely to lie with a given probability (Kabacoff, 2011).

Linear regression (OLS) results provide not only the coefficients of the regression equation and their statistical significance, but also other statistical indicators to assess the quality of the regression model. These parameters include Omnibus, Prob (Omnibus), Durbin-Watson, Jarque-Bera, Skew, Prob (JB), Kurtosis & Cond. No. These statistical parameters are useful for assessing whether the model is appropriate for the data and whether there are problems with heteroskedasticity, autocorrelation, or normality of residuals. However, it is important to keep in mind that the interpretation of these parameters is dependent on the specific context and nature of the data being analysed (Kabacoff, 2011).

Results

Trend Analysis in E-commerce: Exploring Changes in Turnover

In the trend analysis, we examined the percentage changes in e-shop turnover over the years 2021 and 2022. We also compared the monthly changes in turnover with the annual average for each e-shop and analysed the differences between the genders.

E-shop 1 showed an average percentage change in turnover of -23.75% in 2021, while it reached -19.55% in 2022. The largest negative turnover changes were recorded in February and April 2021 (-50.79% and -14.48%) and January 2022 (-35.24%). In 2021, negative turnover changes were predominant except in August and October. In 2022, the number of negative changes decreased and positive changes were recorded in February, May and June.

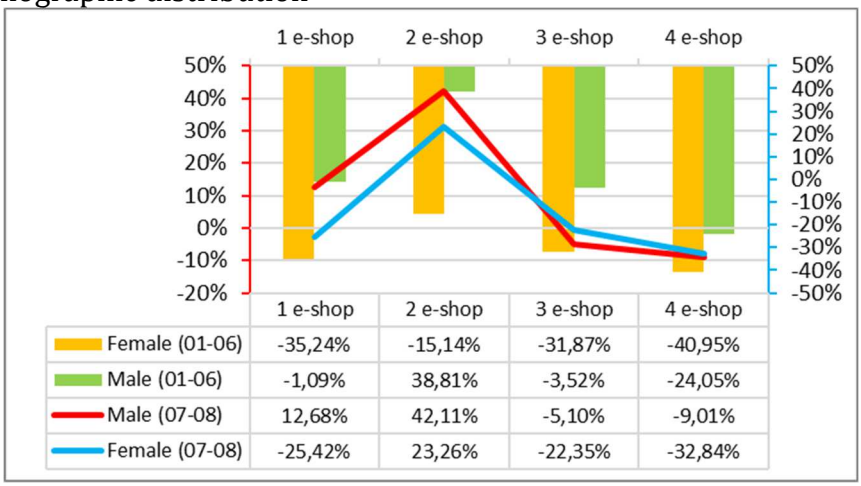
Focusing on e-shop 2, we find that in 2021, it achieved an average percentage change in turnover, while in 2022 it reached 32.68%. The largest positive changes in turnover were recorded in June 2021 (102.13%) and August 2022 (159.37%). In 2021, negative changes in turnover prevailed except in June and December. In 2022, the number of negative changes decreased to only two months and all other months had positive changes.

As for e-shop 3, we found that in 2021 it achieved an average percentage change in turnover, while in 2022 it reached -13.72%. The largest negative change in turnover was recorded in March 2021 (-36.84%) and the largest positive change was recorded in August 2022 (27.21%). In 2021, negative changes in turnover were predominant except in July and December. In 2022, the number of negative changes decreased and positive changes were recorded in all months except January and February.

The average percentage change in turnover of e-shop 4 in 2021 was -29.71% while in 2022 it was -20.92%. The largest negative change in turnover was recorded in May 2021 (-39.33%) and the largest positive change in November 2022 (15.61%). In 2021, negative changes in turnover were predominant except in June and December. In 2022, the number of negative changes decreased and positive changes were recorded in all months except January and March.

In terms of gender (figure 1), in 2021, women had an average negative percentage change in turnover of -30.80%, while for men it was 2.54%. In 2022, women had an average negative percentage change in turnover of -14.34%, while for men it was 10.17%. In both years, negative changes in turnover were prevalent for women, except in August and October 2021. In 2022, the number of negative changes decreased, and positive changes were recorded in all months except January and February. For men, positive changes in turnover were in all months except May and November in 2021, and in all months except January and March in 2022.

Figure 1: Demographic distribution



	1 e-shop	2 e-shop	3 e-shop	4 e-shop
Female (01-06)	-35,24%	-15,14%	-31,87%	-40,95%
Male (01-06)	-1,09%	38,81%	-3,52%	-24,05%
Male (07-08)	12,68%	42,11%	-5,10%	-9,01%
Female (07-08)	-25,42%	23,26%	-22,35%	-32,84%

Source: Own.

Overall, there is an improvement in the average percentage change in turnover across all e-shops and genders in 2022 compared to 2021. E-shop 2 shows the largest positive percentage change in turnover in both 2021 and 2022, while e-shop 1 shows the lowest change in turnover in both years. Although females experienced larger negative changes in turnover than males, both groups witnessed positive changes in 2022.

Comparison of the performance of individual e-shops

To compare the performance of each e-shop, we analysed the average percentage change in turnover between these e-shops and observed how their performance evolved over the year. This metric allows us to get an overview of the overall turnover dynamics and compare the different players in the market.

We proceeded as follows: for each e-shop, we summed the percentage change in turnover for each month and divided the resulting value by the number of months. An example calculation for e-shop 1 is as follows:

$$E-shop\ 1 = \frac{\begin{array}{c}-1.37\ +\ (-50.79) + \ (-30.40) + \ (-14.48) + \ (-39.79) + \\ (-5.66) - 44.19\ +\ 16.27\ -49.87\ +\ 53.45\ -27.91\ -28.66\end{array}}{12} \quad (1)$$
$$= \mathbf{-13.49\%}$$

We have performed the same calculation for all e-shops. Based on these results, it can be seen that e-shop 2 shows the highest average annual change in turnover with a value of 27.04%. This is followed by e-shop 3 with -1.41%, e-shop 4 with -0.55% and e-shop 1 with -13.49%.

This data suggests that e-shop 2 performs the strongest during the year, while e-shop 1 shows the weakest performance compared to the other entities.

It is important to note that this analysis only focuses on the average annual change and does not account for other factors that may affect the performance of individual e-shops. Other indicators such as customer satisfaction, website traffic and breadth of products offered should also be taken into account when assessing e-commerce performance. These factors can have a major impact on the overall success of an e-shop and its competitiveness in the market.

Comparison of e-shop performance in individual regions

To compare the performance of e-shops in different regions, we calculated the average percentage change in turnover for each e-shop and compared them across regions. The objective was to see how the performance of each e-shop evolves in different parts of the country.

Overall, e-shops saw a decline in turnover in 2021 compared to 2020. The average annual change was -30.80% for female customers and -2.54% for male customers. In 2022, we observed a recovery for some e-shops, with an average annual change of -14.34% for female customers and 10.17% for male customers. E-shop 2 had the highest average annual change in turnover in 2021 (+27.04%) and maintained a strong performance in 2022 (+23.26% for female customers and +42.11% for male customers). On the other hand, E-shop 1 showed the lowest average annual change in turnover in 2021 (-13.49%) and achieved only a slight improvement in 2022 (-25.42% for female customers and +12.68% for male customers).

The performance of e-shops varied across the country's regions. For example, e-shop 2 recorded a positive year-on-year change in turnover in some regions, such as in the South Bohemia Region (+17.36%) and the Central Bohemia Region (+23.04%), while other regions experienced a decrease in turnover, such as the Hradec Králové Region (+0.03%) and the Moravian-Silesian Region (-1.35%). Similarly, E-shop 3 performed well in some regions, for example in the South Bohemia Region (+25.90%), but in other regions there was a decrease in turnover, for example in the Hradec Králové Region (-38.96%).

Analysis of e-shop performance depending on the gender of customers

The data collected also allows us to analyse the performance of e-shops in terms of customer gender and region. The average percentage change in turnover between men and women is -30.80% and 2.54%, respectively. This data suggests a significant difference in e-shop performance by gender, with men tending to spend more than women.

If we focus on the year-on-year changes of each e-shop over two years, the most significant change was recorded by e-shop 2. In 2022, there is a significant increase in turnover for women by 23.26% and for men by 42.11%. On the other hand, e-shop 1 showed the lowest overall performance in both years, with a significant decrease in turnover for both men and women.

The positioning data for e-shops 1, 2 and 3 suggest that there are differences in performance across regions. For example, e-shop 2 showed a significant increase in turnover in 2022 in the Zlín region, while e-shop 3 showed a significant increase in turnover in the South Bohemia region. This data suggests that e-shop owners should consider targeted marketing and promotional strategies to increase sales in underperforming regions.

Seasonality analysis

To analyse seasonality in individual months, we use seasonal indices, which provide information on the average ratio between actual and expected (seasonally adjusted) turnover in a given month over several years. A seasonal index greater than 1 indicates that turnover in a given month is typically higher than the average for the year, while an index less than 1 indicates lower turnover than the average for the year.

For a proper analysis of seasonality, it is necessary to have more than two years of data. In our case, we can use the average changes in turnover for each month over the period 2021-2022 and compare them with the average changes in turnover over the whole year. If the fluctuations in turnover in individual months are larger than the average for the year, we can assume seasonality.

It can be observed from the data provided that some e-shops show more seasonality than others. For example, E-shop 2 shows a significantly lower turnover than the average for the year in March and April, while it shows a significantly higher turnover in June and August. Similarly, E-shop 3 shows lower turnover in January and February than the annual average, but significantly higher turnover in July and August. On the other hand, E-shop 4 does not show such a strong seasonality.

If we focus on the differences between the months during the year, significant fluctuations can be observed. For example, in January and February the e-shops show lower turnover, while in June and August they show significantly higher turnover. These month-to-month differences are similar for individual e-shops, but of course can vary depending on specific products and seasonal influences.

OLS (Ordinary Least Squares)

The aim of this analysis is to perform an OLS analysis (Ordinary Least Squares), which will allow us to obtain information about the changes in the "Year-on-year change" depending on the month. To perform this analysis, it is necessary to clean the data and calculate the average values for the dependent variable ("Year-on-year change") and the independent variable (month) as shown in Table 1.

Tab. 1: Average values for the *dependent and **independent variable (%)

**Year-on-year change		-14.25	
**January	-15.60	**July	22.72
**February	-42.05	**August	-35.16
**March	-38.17	**September	8.55
**April	-8.05	**October	-0.51
**May	-18.34	**November	-0.17
**June	21.06	**December	-24.94

Source: Own.

We then use an OLS model and calculate coefficients for each month that allow us to predict the "Year-on-Year Change" value based on the month. The coefficients represent the effect of each month on the "Year-on-year change".

$$\begin{aligned} Annual\ Change \\ &= -3.80 * January - 4.02 * February \\ &- 4.37 * March + 4.05 * April - 3.45 * May \\ &+ 3.56 * June + 6.28 * July - 4.23 * August \\ &+ 1.92 * September - 0.32 * October - 0.44 \\ &* November - 4.98 * December \end{aligned} \quad (2)$$

For example, the positive coefficient for June indicates that we expect an increase in the "Year-on-year change" value in that month. For completeness, we also report the standard errors and t-statistics for each coefficient, which are reported in Table 2.

Tab. 2: Monthly standard errors and t-statistics.

Month	Standard error	t-statistic	Month	Standard error	t-statistic
January	1.06	-3.58	July	1.01	6.21
February	1.04	-3.88	August	1.06	-3.99
March	1.03	-4.23	September	1.05	1.83
April	1.08	3.75	October	1.05	-0.31
May	1.07	-3.23	November	1.06	-0.41
June	1.05	3.40	December	1.05	-4.75

Source: Own.

The results of the OLS analysis show that there are statistically significant differences in the increase or decrease between months for all four e-shops. The t-statistic values for e-shop 1, e-shop 3 and e-shop 4 are less than 1.96, indicating statistical significance at the 0.05 level of significance. This means that there are significant differences in the increase or decrease for these e-shops between months. The t-statistic value for e-shop 2 is greater than 1.96, indicating that the increase or decrease between months is also statistically significant for this e-shop.

The next OLS analysis focuses on the relationship between "Year on Year Change" and gender of customers. A regression model was constructed which includes one dependent variable ("Year-on-year change") and two independent variables ("Women"

and "Men"). The resulting model provides coefficients for each variable, t-statistics and their statistical significance:

$$Annual\ change = \beta 0 + \beta 1 * Women + \beta 2 * Men + \varepsilon \quad (3)$$

where the coefficient of the intercept β0 in the regression model gives the expected value of the "Year-on-year change" if there were no difference between women and men. The coefficients β1 for females and β2 for males show the effect of gender on the "Year-on-year change". Thus, we assume that gender has no effect on the annual change:

$$Annual\ change = -5.00 - 25.56 * Women + 5.99 * Men \quad (4)$$

Based on the results of the analysis, it can be concluded that gender has a statistically significant effect on "Year-on-year change". Females are associated with a decrease in "Year on Year Change" while males with an increase in it.

Table 3 presents the results of the regression analysis for four different e-stores, examining the relationships between "Year-on-Year Change" and the location of e-stores in different regions. The results show different levels of explained variability and statistical significance of each variable depending on the e-shop. A multiple linear regression was performed for each e-shop, with individual e-shops as observations and regions as predictors.

Tab. 3: OLS regression results

OLS Regression Results

*E-shop 1: Annual change = 6.9700 + 2.4686 * (Prague) + 16.0865 * (South Bohemian) + 10.8729 * (South Moravian) - 19.3786 * (Karlovy Vary) + 2.4400 * (Hradec Králové) - 5.3733 * (Liberec) - 2.2029 * (Moravian-Silesian) - 16.2065 * (Olomouc) - 6.7490 * (Pardubice) - 1.4643 * (Pilsen) + 14.9500 * (Central Bohemian) + 34.1900 * (Zlín)*

*E-shop 2: Annual change = -1.0571 + 16.2057 * (Central Bohemian) - 2.2371 * (Hradec Kralove) + 6.5235 * (South Moravian Region) + 13.1275 * (South Bohemia Region) - 18.6362 * (Karlovy Vary Region) - 8.5761 * (Liberec Region) - 6.6542 * (Moravian-Silesian Region) + 1.5997 * (Olomouc Region) - 2.9442 * (Pardubice Region) + 0.5387 * (Pilsen Region) + 5.1981 * (Prague) + 24.4953 * (Zlín Region)*

*E-shop 3: Annual change = 0.0263 - 0.2263 * (Central Bohemian) - 0.8198 * (Hradec Kralove) + 0.4014 * (South Moravian Region) + 0.9628 * (South Bohemia Region) + 0.6932 * (Karlovy Vary Region) + 0.0143 * (Liberec) - 0.3245 * (Moravian-Silesian Region) - 0.1561 * (Olomouc Region) - 0.0665 * (Pardubice Region) - 0.3361 * (Pilsen Region) - 0.3890 * (Prague) + 0.4537 * (Vysočina) + 0.6023 * (Zlín Region)*

*E-shop 4: Annual change = 4.3820 - 22.7226 * (Prague) + 5.7752 * (South Bohemian) + 13.9096 * (South Moravian) - 3.1192 * (Karlovy Vary) - 7.8409 * (Hradec Králové) - 13.6932 * (Liberec) - 11.3523 * (Moravian-Silesian) + 20.9192 * (Olomouc) + 1.0669 * (Pardubice) - 25.6061 * (Pilsen) + 5.1886 * (Central Bohemian) - 6.6205 * (Zlín)*

Models	R-Squared	Adj. R-Squared	F-statistic	P-value (F-statistic)	AIC	BIC
E-shop 1	0.772	0.670	7.567	4.18e-06	180.4	183.1
E-shop 2	0.877	0.778	8.841	0.0280	94.58	101.8
E-shop 3	0.951	0.685	3.527	0.204	-8.591	1.409
E-shop 4	0.411	0.292	3.409	0.00403	185.3	187.7

Source: Own.

In our study, we performed OLS (ordinary least squares) analysis for four e-shops to assess their creditworthiness. The results of the models for each e-shop show different levels of explained variability and statistical significance of the variables.

According to the results of the analysis, the individual e-shops differ in their creditworthiness depending on their location in different regions and other factors. E-shop 3 shows the highest creditworthiness with the highest R-squared value (0.951) and the second highest Adjusted R-squared value (0.685). The F-statistic is not statistically significant, but the coefficients of the model show that e-shops with higher average product price experienced higher year-on-year sales growth.

E-shops 1 and 2 also demonstrate relatively high creditworthiness, as indicated by their R-squared, Adjusted R-squared and F-statistic values. E-shop 1 achieved an R-squared value of 0.772, indicating that 77.2% of the variability in year-on-year sales growth is explained by the variables in the model. The adjusted R-squared value is 0.670, indicating the inclusion of 13 relevant independent variables. E-shop 2 achieved an R-squared value of 0.877, indicating that 87.7% of the variability in the dependent variable is explained by the independent variables. The adjusted R-squared value is 0.778. Both of these e-shops show a relationship between location in different regions and year-on-year percentage sales growth. E-shops located in Central Bohemia and South Moravia regions showed higher sales growth compared to e-shop located in Prague.

E-shop 4 shows lower creditworthiness than other e-shops, which is evident from lower R-squared and Adjusted R-squared values and higher AIC and BIC values. These ratings suggest that the models for e-shop 4 are less accurate in explaining changes in sales. E-shop 4 achieved an R-squared value of 0.411, indicating that 41.1% of the variability in the dependent variable is explained by the independent variables. The adjusted R-squared value is 0.292. The model is statistically significant and shows that e-shops with more positive reviews and higher average ratings experienced higher year-on-year sales growth.

These results support the claim that the creditworthiness of individual e-shops varies and is affected by location in different regions and other factors. Further research could investigate other factors affecting the creditworthiness of e-shops and model their performance more accurately.

Discussion

The development of turnover in Czech e-commerce during economic crises is the subject of our analysis. On the basis of the hypothesis, we address the question whether the turnover development in these periods will worsen compared to the previous period. The aim is to use statistical methods and real data to investigate this hypothesis.

- ***H1****: In periods of economic crises, turnover development in Czech e-commerce will worsen compared to the previous period.*

The first hypothesis (H1) predicts that in periods of economic crises the turnover development in Czech e-commerce will worsen compared to the previous period. To test this hypothesis, we analyse the percentage change in turnover in the selected e-shops in 2021 and 2022. If a negative change in turnover in 2021 and a subsequent improvement in 2022 is shown, the hypothesis will be rejected.

The results of our analysis suggest that null hypothesis 1 cannot be rejected. In all the selected e-stores, there is a negative percentage change in turnover in 2021 and an improvement in turnover with a positive percentage change in 2022. This means that the evolution of turnover in Czech e-commerce during economic crises is not consistent with H1, which claims its deterioration.

Specifically, e-shops 1 and 4 show a deterioration in turnover development, which is in line with the stated hypothesis. On the other hand, e-shops 2 and 3 show no change or even improvement in turnover development, which is not consistent with the hypothesis. These facts show that turnover development in e-commerce can be affected by many factors and the relationship between economic crises and turnover development is not clear.

Our findings on the impact of the economic crisis on e-commerce in the Czech Republic are in line with some other studies. For example, the studies by Kitukutha, Vasa & Oláh (2021) and Din et al. (2022) also report that the crisis can have both positive and negative impacts on e-commerce around the world, including the Czech Republic. A decline in economic activity and a reduction in consumer spending can lead to a reduction in e-commerce sales, which in turn can affect the supply chain (Miljenović & Beriša, 2022). On the other hand, our findings are not consistent with the studies by Svobodová & Rajchlova (2020) and Breckova & Karas (2020), which claim that the COVID-19 pandemic led to an increase in e-commerce sales in the Czech Republic. However, these studies may be influenced by the fact that they only cover the initial period of the pandemic, when demand for online purchases increased due to the closure of brick-and-mortar stores. However, our findings are consistent with Semerádová and Weinlich (2022) who argue that it is important for e-commerce businesses to be prepared for new trends and technologies in order to respond to new challenges and opportunities in the market. It is important to note that the results are based on only four selected Czech e-shops and cannot be generalised to the entire e-commerce market. Further research and an expanded sample would be necessary to gain a more comprehensive view of the relationship between economic crises and the evolution of e-commerce turnover.

- ***H2****: There is a significant difference in the performance of individual e-shops during periods of economic crises.*

The second hypothesis predicts that there is a significant difference in the performance of individual e-commerce businesses during periods of economic crises. This hypothesis needs to be tested using statistical methods and real data. If it turns out that e-commerce performance does change during economic crises, this hypothesis will be

confirmed. If there is no difference in e-commerce performance, the hypothesis will be rejected.

Based on the results, it can be concluded that there is indeed a significant difference in performance between e-commerce businesses during periods of economic crises. All four e-commerce businesses showed a different performance during the period under review, with some coping better with the crisis than others. For example, e-shop 2 showed positive changes in turnover only in June and December 2021, but in 2022 all turnover changes were positive and very high. In contrast, e-commerce business 1 experienced negative turnover changes in 2021, but the situation improved in 2022 and positive changes were recorded. E-commerce businesses 3 and 4 also showed negative turnover changes in 2021, but improved in 2022 and positive changes were seen in most months. Overall, the crisis affected the performance of e-commerce businesses, but each dealt with it individually.

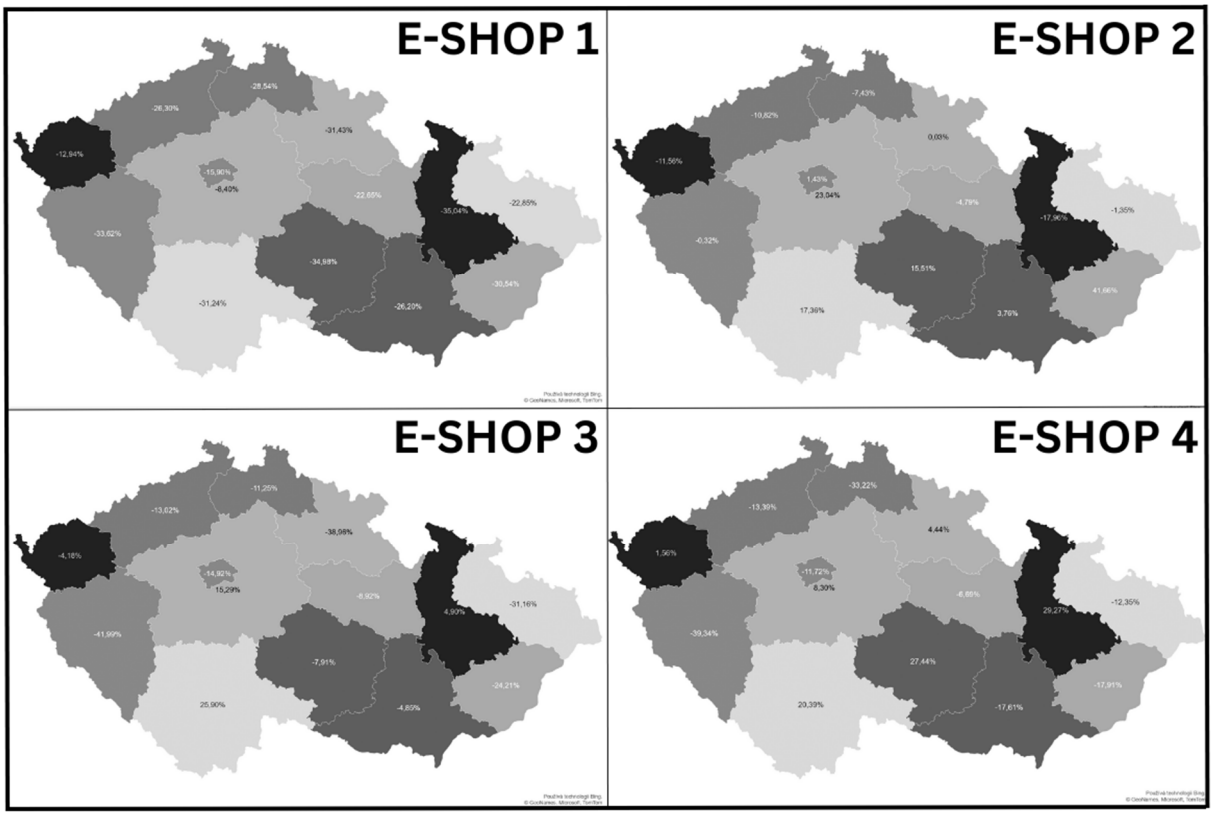
Although findings from different sources may differ depending on the methodology and context of the research, our findings on the impact of economic crises on the performance of e-commerce firms seem to be in line with other authors. For example, Makrides, Vrontis & Christofi (2020) also focused on the performance of e-commerce businesses and emphasized the importance of regularly monitoring and optimizing online marketing activities. Katsikeas, Leonidou & Zeriti (2020) highlight the need to adapt marketing strategy to changing needs and market trends to ensure competitiveness. Grzelak & Owczarek (2022) emphasize that the impact of economic crises on e-commerce can vary depending on many factors such as market size, economic structure of the country and consumer behaviour. These factors could explain the different results between different e-commerce businesses. Overall, however, our findings support the importance of resilience and adaptability of e-commerce businesses in times of economic crises.

- ***H3****: During economic crises, fluctuations in e-commerce turnover are more pronounced than in other periods.*

Hypothesis 3 claims that during economic crises, fluctuations in e-commerce turnover are more pronounced than in other periods. However, during 2021 and 2022, the four e-shops showed different turnover trends, so no general conclusions can be drawn.

A more detailed and comprehensive analysis of data from more e-shops and their development during economic crises would be needed to confirm or refute hypothesis 3. It is possible that the results would show more pronounced fluctuations in turnover during crises, but without further information, definitive conclusions cannot be drawn.

Figure 2: Map of 4 different e-shops



Source: Own.

The results (figure 2) indicate that e-shop 1 and e-shop 3 experienced negative changes in turnover in both years. The largest decreases occurred in February and April 2021 for e-shop 1 and January 2022 for e-shop 1. In 2022, e-shop 1 experienced fewer negative changes in turnover, but positive changes still predominated. E-commerce sales of e-shop 1 declined year-on-year in all regions, with the largest declines in the Central Bohemia region (-8.40%) and the Olomouc region (-35.04%). This suggests a significant decline in e-shop 1's sales in 2022 in all regional areas. In 2021, most of the changes in turnover for e-shop 1 were negative, with a few positive changes in August and October. There were fewer negative turnover changes in 2022, with positive changes in February, May and June. Based on these results, it can be concluded that the null hypothesis 3, which states that turnover fluctuations in e-commerce are no more pronounced during economic crises than in other periods, does not hold for e-commerce 1.

In the case of e-shop 2, the negative changes in turnover occurred mostly in 2021, with a few positive changes in June and December. In 2022 there was a significant increase in turnover with positive changes in all months. This suggests that Hypothesis 3, which states that sales fluctuations in e-commerce during economic crises are more pronounced than in other periods, does not hold for e-commerce 2. In 2022, the year-on-year sales changes of e-shop 2 vary across regions. Some regions saw an increase in sales, while others saw a decline. The largest increase was recorded in the Zlín region

(41.66%), while the largest decrease was recorded in Hradec Králové (-38.96%). Overall, e-shop 2's sales increased, but not all regions showed consistent growth.

E-shop 3 had mostly negative changes in turnover in 2021, with a few positive changes in July and December. There was an improvement in 2022, but there were still two months with negative turnover changes. This suggests that Hypothesis 3, which states that turnover fluctuations in e-commerce are more pronounced during economic crises than in other periods, does not hold for e-commerce 3. E-shop 3's sales mostly decreased in regional regions in 2022 compared to 2021, except in South and Central Bohemia, where there was a slight increase. The largest decrease in sales was recorded in the Pilsen region. This shows that e-shop 3 will see a significant decline in sales in 2022 in most of the regional regions.

E-shop 4 showed varied changes in turnover during the study period and hypothesis H3 holds true for this e-shop. The results show that the turnover fluctuations in e-shop 4 were more pronounced during the economic crisis than in other periods. In 2021, e-shop 4 experienced negative turnover changes in some regional areas, such as Pilsen region (-39.34%) and Liberec region (-33.22%). However, in 2022, there was a significant improvement and positive turnover changes were recorded in some regional areas, such as in Vysočina (27.44%) and Olomouc (29.27%). This variability and significant turnover changes suggest that during periods of economic crises, the turnover fluctuations in e-shop 4 were more pronounced than in other periods.

Overall, the development of e-commerce sales during economic crises is not consistent and depends on the individual e-shop and its strategy. Each e-shop had different results and reacted differently to the economic conditions.

In our study, we focused on specific e-shops and analysed their turnover development over the years 2021 and 2022. This approach distinguishes us from other studies that examine the development of e-commerce in the country as a whole and include many different factors that influence this sector (Kitukutha, Vasa & Oláh, 2021; Din et al, 2022), including global trends (Švecová, Ostapenko & Veber et al., 2020), economic crises (Nigam, Dewani & Behl, 2020), new technologies (Semerádová & Weinlich, 2022), the COVID-19 pandemic (Svatosova, 2022) and the Russia-Ukraine crisis (Prohorovs, 2022). In our study, we focused on four specific e-shops and observed different trends in their turnover during the economic crisis. The significant increase in e-commerce turnover during the COVID-19 pandemic and the changes in consumer behaviour related to online shopping are also important topics of our study.

The results of the study suggest that the relationship between the economic crisis and the evolution of e-commerce turnover is not straightforward and depends on many factors. It is important to note that the analysis was conducted only on a limited sample of four e-shops in the Czech Republic. To obtain a more comprehensive and representative view of the relationship between economic crises and e-commerce turnover development, further research would be necessary and the size of the research target group would need to be significantly expanded.

Conclusion

In recent decades, the internet and digital technologies have become an integral part of our daily lives and have brought about major changes in the business sphere. E-commerce has proven to be an effective tool for reaching customers and increasing turnover, despite the challenges brought about by economic crises and changes in regulations. It is the importance of e-commerce for business and its evolution in the context of economic crises that is the subject of our analysis. The results of the analysis suggest that the development of turnover in Czech e-commerce during economic crises is not clear-cut and depends on specific circumstances and factors.

Hypothesis 1, which assumed that the turnover development would worsen from the previous period, was rejected. However, an economic crisis does not necessarily lead to a negative effect on e-commerce turnover. Nevertheless, the turnover development of the four selected e-shops in the country in 2021 and 2022 showed some changes. E-shops 1 and 4 have seen a decrease in turnover, while e-shops 2 and 3 have remained unchanged or even seen an improvement. This variability suggests that there are other factors influencing the development of e-commerce turnover and that economic crises are not the only determining factor.

Hypothesis 2, which predicted a deterioration in turnover during economic crises, was confirmed. During the period under review, all four e-commerce businesses showed different levels of performance, with some coping better with the crisis than others. This suggests that the relationship between economic crises and e-commerce turnover is complex and specific to each e-commerce store.

Hypothesis 3, which concerned turnover fluctuations during 2021 and 2022, was neither clearly confirmed nor refuted. The results of the analysis suggest that turnover fluctuations in e-commerce may be more pronounced during economic crises than in other periods. However, these fluctuations vary between e-shops and depend on specific circumstances. The development of e-commerce sales during economic crises is not stable and is influenced by the strategy and specific characteristics of individual e-shops. To get a complete picture of this hypothesis, it is necessary to have a significantly larger data set.

The findings of the analysis suggest that the development of e-commerce turnover is complex and influenced by various factors. Economic crises are not the only factor affecting e-commerce turnover, and the relationship between crises and turnover is individual for each e-commerce store. Further research is needed to further understand these relationships and identify other important factors affecting e-commerce turnover.

Our study provides new insights into e-shop performance during economic crises and may be useful for entrepreneurs and e-commerce policy makers. However, it is important to note the limitations of this study, which was based on the analysis of four selected e-shops in the country, and therefore its generalization to the entire e-commerce market is problematic. Further research on a larger sample is needed to understand the relationship between economic crises and e-commerce turnover trends

in more depth. At the same time, there is a need to focus on other factors influencing the performance of e-shops in crisis periods, such as changes in customer shopping habits and innovative solutions for e-shops.

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Rules for Expert Institutes' Work Procedures Ensuring Proper Performance of Expert Activities

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Abstract

Act No. 254/2019 Coll., on experts, expert offices and expert institutes, came into force on 1 January 2021. The new legislation brought, among other things, changes to the conditions for the performance of expert activities by expert entities, meaning expert offices and expert institutes. One particular new feature is the duty to have rules for work procedures ensuring the proper performance of expert activities and the duty to have internal regulations that set out the way in which an expert report is to be "acknowledged". The purpose of this article is to familiarise the reader with the new duties and to clarify their meaning. However, the article is not only focused on theory; one of its tasks is also to provide the affected entities with at least a rough guide as to what areas can or should be included in the aforementioned materials so that they can be incorporated into existing or newly created internal documents.

Keywords: expert institute, Experts Act, rules of activity for expert institutes, expert report

Introduction

Act No. 254/2019 Coll., on experts, expert offices and expert institutes (hereinafter the "Experts Act"), came into force on 1 January 2021. The new legislation brought a whole number of changes, the majority of which concern the conditions for the performance of expert activities by expert entities.

First of all, it should be pointed out that while the old provisions in Act No. 36/1967 Coll., on experts and interpreters, (hereinafter the "1967 Experts Act") used a hierarchical structure of expert entities divided into experts, expert institutes registered

in Section I of the list of expert institutes and expert institutes registered in Section II of the list of expert institutes, the new provisions in the Experts Act hierarchically differentiate between experts, expert offices and expert institutes. To put it very simply for the reader's better orientation, while experts (natural persons) remained experts in the new legislation, expert institutes entered in Section I of the list of expert institutes (in terms of type mainly limited liability companies and general partnerships) were transformed into expert offices, and the former expert institutes entered in Section II of the list of expert institutes (typically hospitals, research institutes and universities) are the only genuine expert institutes in the new legislation.

This article will further deal with selected conditions for the performance of expert activities by expert institutes. Specifically, it will deal with the interpretation and description of the condition set out in Section 7(1)(f) of the Experts Act, according to which expert institutes must have rules for work procedures ensuring the proper performance of expert activities, and the interpretation and description of the condition set out in Section 7(1)(g) of the Experts Act, according to which they must have internal regulations setting out the procedure by which an expert report is "acknowledged". This is an area that has not yet been more significantly addressed by doctrine, although, as can be seen from the following text, the issue was recently examined by the Constitutional Court of the Czech Republic.

Relevant legislative provisions:

"Section 7 of the Experts Act

Conditions for Performance of Expert Activities by Expert Institute

(1) An expert institute may be an entity that

…

(f) has rules for work procedures ensuring the proper performance of expert activities;

(g) has a procedure set out by its internal regulations for acknowledging expert reports in accordance with Section 28(4), …".

"Section 28 of the Experts Act

Requisites of Expert Report

(1)…….

(4) In the event an expert report was prepared by an expert institute, it must be signed by the expert or the person stated in Section 7(1)(c) or 7(2), and the expert report must also state who contributed to its preparation and who is obliged to certify the expert report in person, supplement it or explain its contents in more detail at the request of a public authority. An expert report prepared by an expert institute must be acknowledged through the procedure laid down in the internal regulations of that expert institute. Information on

the acknowledgement of an expert report will be stated therein, including the date and signature of the responsible person."

Methods and Data

With regard to the article's objectives, a combined form of sources was chosen. Primarily, the source is the existing Czech literature dealing with the issue of expert institutes and especially the issue of internal rules for their activities. This primarily concerns publications (Ševčík et al., 2023; Hanák, 2021; Dörfl et al., 2021). From the viewpoint of the number of possible literary sources, it should be pointed out that the issue has not yet been taken up in terms of theory and the quantity of appropriate literature is therefore very small. Another source of knowledge is the decisions handed down by the Constitutional Court of the Czech Republic, although with regard to the relatively short period of the new legislation's effectiveness it is practically only one decision, which is analysed in more detail (Judgement of the Constitutional Court of the Czech Republic of 22 February 2023, file no. II. ÚS 3602/2022). The normative acts of individual expert institutes are an essential source of knowledge: (I) Dean's Ordinance 8/2019 of the Faculty of Physical Education and Sport of Charles University; (II) Dean's Decision No. 58/2022 of the Brno University of Technology, Faculty of Electrical Engineering and Communication Technology; (III) Rules for Work Procedures for Performance of Expert Activities of the Expert Institute of Health and Safety; (IV) Guidelines No. 2/2023 of the Institute of Technology and Business in České Budějovice.

Results

Rules for Expert Institutes' Work Procedures Ensuring Proper Performance of Expert Activities

The main questions that need to be answered are what the rules for expert institutes' work procedures are supposed to do, what their nature is and what they should contain.

According to the explanatory memorandum, work procedures mean, in particular, the organisation of an expert institute, control mechanisms and a clear definition of responsibility relationships at the relevant institution (cf. the explanatory memorandum for the Experts Act).

Work procedures are not intended primarily for the needs of the lay or professional public to check an expert institute's activities, but, on the contrary, they should primarily serve an expert institute itself; through the rules it sets the internal method of its operation that should ensure the proper preparation of expert reports. It should primarily be ensured that an expert report is prepared in accordance with lege artis procedures and by persons properly qualified to do so with the other properties that the law requires, i.e. primarily by persons who are not biased.

The character of the rules for work procedures is not entirely evident from the language itself, but in terms of content they are clearly intended to be in the form of an internal regulation. This conclusion is confirmed by the wording of Section 7(1)(g) of the Experts Act, which sets out the feature of "acknowledging an expert report", but in practice this is often part of the rules for work procedures themselves. An internal regulation can also be synonymously considered to be an intra-organisational regulation, internal guideline, directive, instruction, internal normative act, internal management act, etc. An internal regulation (and therefore also rules for work procedures) is binding only on the parties to the particular relationship the regulation relates (Gerloch, 2004). It therefore does not have an unlimited scope, but has an effect internally on the entity that issues the regulation, in this case on persons that participate in any way in the preparation of an expert report, whether in scientific or organisational form.

With regard to the language of Section 7(1)(f) and Section 11(3) of the Experts Act, it is clear that rules for work procedures must be prepared in written form, as their documentation is a condition for registration of an expert institute in the list. Logically, however, rules' entry into force is linked to the moment of an expert institute's entry in the list of experts. Visinger correctly states that the Act should really use the term "draft rules", when it is only at the moment of entry in the list of experts that they are actually recognised by the Ministry of Justice, as the administrative body that decides on an applicant's entry (Dörfl et al., 2021).

It is not quite clear whether only the first – initial – version of the rules, which serves only for registration, is to be submitted to the Ministry of Justice, or whether expert institutes are obliged to provide the ministry with amended versions in ongoing fashion. In accordance with Section 16(5) of the Experts Act, "an expert is obliged to notify the Ministry of a change to data entered in the list of experts within 10 business days of the date on which the change occurred". However, it is not quite clear from this provision whether a change to rules for work procedures is a change to which the provision is intended to apply. However, it can be assumed that, when adopting the new legislation on experts, legislators considered it important for expert institutes to have rules prepared. For this purpose, it also carries out a formal check on them, at least, at the time an expert institute is entered into the system. However, if it is concluded that it is no longer necessary to again provide additional versions of work procedures to the Ministry in accordance with the aforementioned Section 16(5) of the Experts Act, a situation could in fact arise that immediately after an expert institute's entry in the system the rules are cancelled or significantly narrowed, which would mean they quite cease to perform their task. Therefore, one can clearly come to the conclusion that even amended versions of rules for work procedures should be sent by expert institutes to the Ministry of Justice, at least for recording purposes. De lege ferenda it is clearly recommended to legislators that the duty to provide new versions of work procedures be contained in any amendment to the Experts Act, as the existing legislation is not entirely clear in this regard.

Content Requisites for Rules for Work Procedures

Neither the Act nor implementing legal regulations stipulate precisely what the requisites and content of the rules for work procedures should be. The content of the rules is therefore up to the individual assessment and needs of each expert institute (Ševčík et al., 2023). It is evident that each expert institute may and clearly will have different rules, taking into account the differences in institutional and personnel operation of an institute and the individual scope of expert authorisations. It can therefore be assumed that, for example, a hospital carrying out expert activities in healthcare will have one type of rules, a faculty carrying out expert activities in information and communication technologies will have another type of rules and an office for testing weapons and ammunition operating in the field of pyrotechnics, ammunition and explosives will have yet another type of rules.

However, the rules for work procedures may not contradict the law, in particular expert standards. They must be accessible to the relevant persons and they must be informed of their existence. The rules are binding not only on the standard's addressees, but also on their publisher. Publication of the rules for work procedures for the public is not necessary, but it is also not prohibited.

When taking into consideration each entity's individual needs, it is appropriate to think about setting out the following areas:

A. *Title page* - designation of the expert entity, document name, file reference or other identifier under which the document is kept, document version, preparer of the document, date of approval and entry into force including changes, number of pages and annexes to the document, periodicity of checks on standard, responsible person's signature.

B. *Subject and purpose of rules* - taking into account the individual nature of each expert institute (preamble or general provisions).

C. *Setting out the process prior to an agreement to prepare an expert report* (the stage of negotiation on an agreement to prepare an expert report with a private contracting entity or public authority pursuant to Section 25 of the Experts Act) – (i) in what way orders for expert reports are accepted by the institute, how they are recorded internally, (ii) who assesses the possibility of preparing an expert report, especially with regard to the scope of an expert institute's expert authorisation, the required time for the preparation of an expert report, an institute's capacity and personnel options, taking into account the necessary equipment for preparing a specific report and, if appropriate, who is entitled to refuse to prepare an expert report on behalf of an expert institute (cf. Section 19 of the Experts Act), (iii) who ensures communication with the contracting entity for the expert report – in particular on the issue of the specific nature of the assignment for the expert report, the provision of the necessary documents, the ascertaining of its future use and whether an expert report can be submitted in electronic form with the contracting entity's consent [cf. Section 27(1) of the

Experts Act], (iv) who verifies the possible bias of the institution as such or the individuals participating in an expert examination [cf. Section 18(2) of the Experts Act], (v) who decides whether it is necessary to hire a consultant and who requests consent to hire a consultant on an expert institute's behalf in relation to public authorities or other contracting entities [cf. Section 23 of the Experts Act], (vi) who prepares and who is entitled to communicate the preliminary calculation of the expert's fee - the expert quote [cf. Section 25(1) of the Experts Act], (vii) who is entitled to negotiate on the content of a contract on inspection activities (Ševčík et al., 2023 and Hulmák et al., 2014) and who is entitled to conclude one for an expert institute, (viii) after the conclusion of a contract on inspection activities or delivery of a resolution on appointment in a specific matter from a public authority, who arranges entry of data in the records of expert reports (cf. Section 29 of the Experts Act).

D. *Procedure after acceptance of preparation by expert institute* – (i) setting out the procedure for the selection of the persons who will physically carry out the expert activities; whether the expert report will be prepared by only one person or an expert team, in which case the person who will lead the expert team and manage its activities will be stated; definition of the competences and tasks of the expert team members, including determination of the authority to inspect court or other files, e.g. in accordance with Section 127a of the Code of Civil Procedure and Section 110a of the Criminal Code, (ii) determining the person that ensures advice on the duty of confidentiality before the start of expert activities themselves [Cf. Section 20 of the Experts Act], (iii) determining the person that sets the deadline for the submission of a final concept for an expert report for an opponent check at an institute while taking into account the handover date for the expert report, (iv) determining the mechanism for an opponent check and selection of specific opponents, (v) method of dealing with criticisms from the opponent check in relation to an expert report; resolution mechanism for disputes between an expert team and opponents, (vi) stating the procedure and person or body that will acknowledge the final version of an expert report in accordance with Section 28(4) of the Experts Act [cf. next Chapter] (vii) determining the person entitled to ask a public authority for the expert institute to put back the deadline for the preparation of an expert report [cf. Section 25(1) of the Experts Act], (vii) determining the person responsible for a final check on the requisites of an expert report before it is sent to the contracting entity (cf. Section 28), (viii) determining the person authorised to attach a qualified electronic signature or electronic seal to an expert report [cf. Section 27(2) of the Experts Act], (ix) determining the person or unit responsible for preparing a statement of account for an expert report or costs related to its defence [cf. Section 28(6) of the Experts Act]; determining the mechanism for records of individually performed expert acts or costs related to the preparation of a specific expert report, (x) determining the person authorised to send an expert report; (xi) determining the person responsible for making an entry in the

records of expert reports after sending a report, (xii) determining the person responsible for acts leading to the archiving of an expert report [cf. Section 27(3) of the Experts Act].

E. Organisational functioning of expert institute – (i) designation of the person responsible for ensuring permanent performance of scientific research activities by the expert institute in the relevant field, industry or specialisation [cf. Section 7(1)(b) of the Experts Act], (ii) designation of the person responsible for ensuring the institute's staffing, where there must always be at least one registered expert or a person carrying out scientific research activities within the scope of the expert authorisation in the expert institute [cf. Section 7(1)(c) of the Experts Act], (iii) designation of the person responsible for permanent provision of material and technical facilities, personnel, instrumentation and equipment at the expert institute, (v) identification of the person entitled to submit a request for the expert institute for the suspension of expert activities [cf. Section 13(1)(b) of the Experts Act], (vi) identification of the person authorised to act for the expert institute in situations not covered by the rules for work procedures, (vii) identification of the person authorised to communicate for the expert institute with the Ministry of Justice [for example, in matters of re-accreditation, administrative proceedings conducted by the ministry, documentation of insurance, notification of a change to facts pursuant to Section 16(5) of the Experts Act], (viii) solution for reporting duty of the expert institute's employees in the event of independent performance of expert activities, if the expert institute's equipment and facilities are used [cf. Section 2(2) of the Experts Act].

Acknowledging an Expert Report

A brand new feature in the new expert legislation is the "acknowledgement" of an expert report before its submission to a public authority or handover to a private contracting entity. As stated above, the issue is dealt with primarily by Section 7(1)(g) of the Experts Act, as well as Section 28(4) of the Experts Act.

Acknowledging an expert report primarily means:

a) familiarisation of the responsible body with the final text of the expert report to be submitted by the expert institute;
b) familiarisation of the responsible body with the text of any opponent opinions or comments;
c) familiarisation of the responsible body with the incorporation of opponent comments or refusal to incorporate them by the preparer(s) of the expert report;
d) making an entry in an expert report on acknowledgement in accordance with Section 28(4) of the Experts Act specifying the person's name and position, as well as the date of acknowledgement;
e) making an internal record of acknowledgement for possible future resolution by the supervisory authority.

However, with regard to the aforementioned list, it should be pointed out that this is a model situation assuming that the rules for work activities by an expert institute include an opponent checks mechanism, which, however, is not a legal duty, so acknowledgement can consist of only the steps stated under a), d) and e).

As already indicated in the explanation of the rules for work activities by an expert institute, the acknowledgement procedure must be set out by an expert institute's internal regulation, and it is submitted to the Ministry of Justice when entering the expert institute in the list of experts as one of the conditions. Two types of regulatory solutions can be encountered in practice. Some expert institutes set out the acknowledgement procedure in a separate internal regulation, some expert institutes set out the procedure together with the rules for work procedures in one standard. Both solutions are evidently possible; the Act does not rule out either option.

The phrase "the procedure by which an expert report is acknowledged" is significant for a correct understanding of the matter. The above indicates that an internal standard should not be limited to determining the person or body that will acknowledge an expert report, but should set out the entire acknowledgement procedure. This is particularly important in that a procedure set out transparently in advance enables the various situations that may arise in everyday reality to be resolved. A comprehensive procedure for the new acknowledgement feature by an institute should primarily answer the following questions:

a) how to proceed if the person or entity that is to acknowledge an expert report has reservations about the expert report and refuses to continue to cooperate;
b) in what way can reservations communicated be dealt with and whether, subject to certain conditions, acknowledgement can be enforced or whether acknowledgement can be replaced by another person or group of persons;
c) whether the person acknowledging an expert report may be a person who made a direct contribution to the expert report or was an opponent or member of the opponent team;
d) in what timeframe is acknowledgement expected after the time it is submitted for the performance of an action, etc.

The Act does not stipulate whether an acknowledgement is to be made by just one person (e.g. dean of a faculty, director of an institute), whether it must be by a collective body (e.g. expert collegium or board) or whether there must be a joint signing by, for example, multiple persons (director of an institute, head of an expert collegium). Evidently all options are possible, as they clearly fulfil the main purpose of the feature intended by legislators, i.e. demonstrable familiarisation of the management of an institute or authorised body with an expert report before its submission.

Compliance with the condition of acknowledgement of an expert report occurs on the last page of an expert report by a person or group of persons authorised to do so, who

are clearly identified therein and who add their signature and date to the words, "The expert report was acknowledged on". The Constitutional Court of the Czech Republic recently dealt with a case in which an expert report was called into question and one of the defects criticised was the fact that the acknowledgement was not linked to a reference to an internal regulation governing the acknowledgement procedure. The Constitutional Court, however, reached the quite correct conclusion when it stated that such reference does not have to be specified, as expert legislation does not require it (Judgement of the Constitutional Court of the Czech Republic dated 22 February 2023, file ref. II. ÚS 3602/2022). However, it can be deduced from the judgement that the institute's internal document was evidently contained in the file documentation, so expert institutes must take into account that, in addition to the supervisory authority, they may be called on by the courts or other public authorities to produce such documents at any time, and the procedure for the preparation of a specific expert report will be compared with the content of the rules. There is, however, the question of whether a breach of or deviation from the general rules for work procedures must necessarily lead to the conclusion that an expert report was not prepared in accordance with procedures lege artis, especially in a situation where the content of the rules is, in reality, optional.

Conclusion

The above can be summarised in the following significant conclusions:

(I) Work procedures mean, in particular, the organisation of an expert institute, control mechanisms and a clear definition of responsibility relationships at the relevant institution.

(II) Work procedures are not intended primarily for the needs of the lay or professional public to check an expert institute's activities, but, on the contrary, they should primarily serve an expert institute itself; through the rules it sets the internal method of its operation that should ensure the proper preparation of expert reports.

(III) The rules for work procedures should have the form of an internal regulation. An internal regulation (and therefore rules for work procedures) is binding only on a person who is a party to a certain relationship to which the regulation relates. It therefore does not have an unlimited scope, but has an effect internally on the entity that issues the regulation, in this case on persons that participate in any way in the preparation of an expert report, whether in scientific or organisational form.

(IV) The rules for work procedures must be prepared in written form, as their provision is a condition for entry of an expert institute in the list of expert institutes.

(V) Neither the Act nor implementing legal regulations stipulate precisely what the requisites and content of the rules for work procedures should be. The

content of the rules is therefore up to the individual assessment and needs of each expert institute.

(VI) However, the rules for work procedures may not contradict the law, in particular expert standards.

(VII) "Acknowledgement" is a quite new feature in Czech expert legislation. The procedure for acknowledgement must be set out by an expert institute's internal regulation. The phrase "the procedure by which an expert report is acknowledged" is significant for a correct understanding of the matter. The above indicates that an internal standard should not be limited to determining the person or body that will acknowledge an expert report, but should set out the entire acknowledgement procedure.

Acknowledgement

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Rules for Work Procedures for Performance of Expert Activities of the Expert Institute of Health and Safety

Guidelines No. 2/2023 of the Institute of Technology and Business in České Budějovice

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Assessing factors Affecting Tax Compliance Intention

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Abstract

According to the tax office of Mongolia, as of 2021, 65 percent of registered enterprises have submitted tax returns, with an accumulated tax liability reaching 3.2 trillion MNT. However, research aimed at elucidating the reasons for non-compliance with tax laws is relatively limited in our country. The aim of this study is to investigate Corporate Income Tax (CIT) compliance utilizing the theory of causality and planned behavior. In this study, factors such as tax consulting services, the electronic tax system, tax simplicity, and tax knowledge were selected for examination. The survey data of 395 active companies affirmed that tax consulting services, tax knowledge, the electronic tax system, and tax simplicity exert influence on compliance intention. Thus, prioritizing the enforcement of tax laws is crucial for fostering cooperation and trust between tax authorities and taxpayers, ultimately enhancing tax compliance.

Keywords: tax advisory services, planned behavior, tax simplicity, e-tax system, tax awareness

Introduction

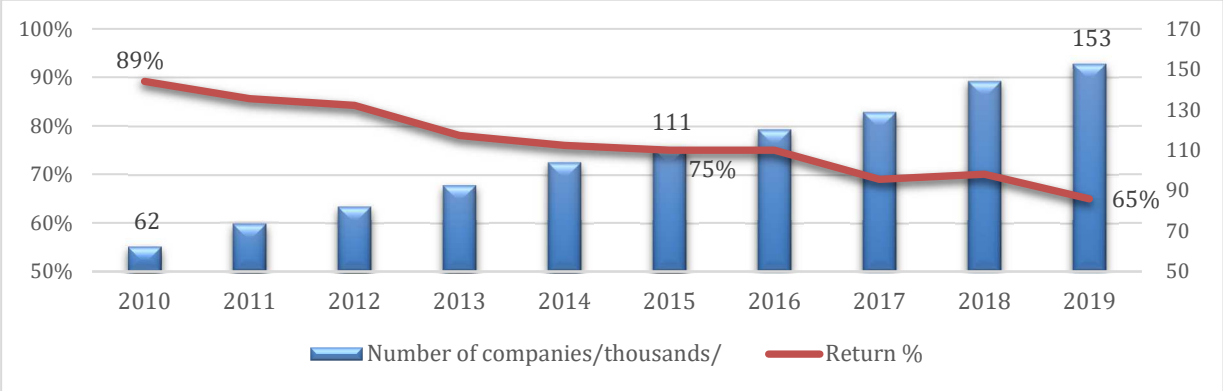
In 1992, the National Assembly ratified a comprehensive set of tax laws, ushering in the establishment of novel tax categories. This legislation marked a transition towards a system where taxpayers were responsible for determining their taxes and remitting payments following the rates and amounts stipulated by law, subject to specified

reasons and procedures. Among the initial four taxes sanctioned by the Parliament in 1992, the Enterprise Income Tax (EIT) stands out as the principal revenue-generating tax for Mongolia's budget. The legislation governing EIT underwent revisions in both 2006 and 2019, reflecting the evolving fiscal landscape and necessitating adjustments to tax regulations.

Since taxes are the main means of generating budget revenue in Mongolia, tax compliance behavior and efficient collection of tax revenues have always been one of the issues to be solved by the tax authorities. Within this framework, the Mongolian Tax Service has been developing an electronic tax reporting system over the past 10 years. Presently, taxpayers can transmit tax reports directly from financial software, generate simplified reports utilizing data from the electronic payment receipt system, conduct real-time online tax payments, register taxpayers, and fulfill tax obligations electronically. This system facilitates the electronic submission of 23 types of reports and 15 types of requests, streamlining tax-related processes and enhancing administrative efficiency. By anticipating taxpayer behavior and employing incentives to influence their decisions, a targeted intervention was conducted, involving the dissemination of text messages and emails regarding tax reporting and payment to 1,462 taxpayers. As a result, 152 reports were revised, leading to an increase in income by 55 billion MNT and a reduction in expenses by 79 billion MNT. Consequently, tax revenue surged by 29 billion MNT (Batsaikhan, 2022).

Between 2002 and 2003, approximately 94-95 percent of the 21,800 enterprises obligated to submit Corporate Income Tax (CIT) reports complied with this requirement. However, a noticeable decline in the submission of corporate income tax returns has been observed since 2010. By 2019, only 65 percent of the 152,000 mandated enterprises had submitted their reports. Over a decade from 2010 to 2019, data reveals that the number of enterprises grew at an annual rate of 11 percent, whereas reporting compliance decreased by 3 percent annually (Graph 1).

Graph 1: Corporate income tax reports return rate/2010-2019/



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Tax compliance behaviour

Due to variations in tax reporting requirements and laws among countries, there exists no universally accepted definition of tax compliance behavior. Consequently, scholars have delineated it in various ways, aligning with the specific objectives of their research endeavors. The study of tax compliance behavior commenced in the 1970s. For instance, Roth et al. (1989) posited that tax compliance behavior entails a scenario where a taxpayer submits tax returns punctually and accurately reports tax obligations in accordance with prevailing laws and regulations at the time of income declaration. Conversely, James and Alley (2000) offered a broader perspective, characterizing tax compliance behavior as a "continuous process" extending beyond mere adherence to tax regulations to encompass the broader behavioral patterns of taxpayers (James & Alley, 2002).

Bidin et al. assert that tax compliance entails the complete payment of all taxes owed (Bidin et al., 2011). Similarly, Alm (1991) and Jackson and Milliron (1986) define tax compliance as the act of reporting income and remitting taxes under tax laws, regulations, and judicial decisions. Paying taxes, within this framework, is construed as a manifestation of tax compliance behavior (Alm, 1991). Roth (1989), Alm (1991), Jackson and Milliron (1986), Kirchler (2007), James and Alley (2000), Franzoni (2000), Chattopadhyay and DasGupta (2002), and Palil (2010), among others, concur on a definition of tax compliance, stipulating it as the taxpayer's willingness to accurately declare income, correctly apply deductions and exemptions, and timely remit all taxes owed (Bidin et al.). Additionally, a key indicator of tax compliance is when a taxpayer submits a tax return, accurately reports taxable income, fulfills all tax obligations within prescribed timelines and does not necessitate coercive measures by tax authorities.

In general, compliance behavior can be understood as the act of acting according to the law (Tilahun, 2019). Moreover, tax compliance behavior is classified as voluntary or involuntary (Kirchler, 2007a). Voluntary compliance is the willingness of taxpayers to comply with tax laws as a result of trust and cooperation between tax authorities and taxpayers. However, coercive compliance means that due to a lack of trust and cooperation between the tax authority and the taxpayer, the taxpayer does not comply with the tax legislation, and then the tax authority enforces the tax legislation by conducting inspections and imposing responsibility. Specifically, coercive compliance denotes the use of governmental coercion to ensure taxpayer tax payment, whereas voluntary behavior entails taxpayers' willingness to fulfill tax obligations without coercion from authorities (Silvani & Baer, 1997). Moreover, individuals with high tax ethics are less likely to engage in tax evasion, even when presented with potential economic benefits (Molero & Pujol, 2012).

There are two primary approaches to the study of tax compliance behavior: the economic approach and the taxpayer behavior approach. The economic approach examines tax compliance behavior through an economic lens, drawing upon economic theory for its framework. The seminal work in this domain was undertaken by Allingham and Sandmo in 1972 (Allingham & Sandmo, 1972). Their model posits that taxpayers declare their income considering tax rates, the likelihood of detection, and

penalties. In essence, it has been established that the level of income reported for taxation is directly linked to the probability of being caught for non-compliance and the severity of penalties, while inversely correlated with tax rates. An economic theory-based approach assumes that taxpayers make rational decisions aimed at maximizing anticipated post-tax returns, with tax compliance behavior contingent upon economic incentives or disincentives (Hamid, 2013).

Conversely, this approach posits that taxpayers, akin to rational actors, weigh the risks and benefits before engaging in illicit activities (Becker, 1968). While early studies rooted in economic theory laid a foundational understanding of tax compliance behavior, they encountered critique for their omission of psychological and sociological factors that influence taxpayer compliance with tax laws absent coercion (Alm, 1999; Torgler, 2002). In contrast, the behavioral approach draws upon social and psychological theories to investigate tax compliance behavior (Kristina, 2004). Theories commonly employed to forecast behavior within this framework include the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) (Armitage & Conner, 2001).

The Theory of Reasoned Action (TRA), a social psychological theory (Sheppard et al., 1988), was formulated by Ajzen and Fishbein (1980) to elucidate human behavior. According to this theory, individuals are inclined to engage in behaviors they perceive as leading to favorable outcomes (attitudes), thus increasing the likelihood of performing said behavior. The TRA model comprises two main components: attitude toward the behavior and subjective norm (Figure 3). Attitude toward a behavior pertains to whether an individual perceives the consequences of that behavior as positive or negative. Conversely, subjective norms denote the societal pressures, either supportive or prohibitive, influencing the performance of a particular behavior. While TRA excels in articulating norms that reflect an individual's attitudes and social milieu, it also suggests that behavioral intentions do not invariably translate into actual behavior enactment.

The Theory of Planned Behavior (TPB) represents an extension of the Theory of Reasoned Action (TRA) by incorporating the component of behavioral control, aiming to enhance the predictive capacity of the causal theory (Ajzen, 1985). The initial conceptualization of the TRA posited that an individual's attitude and subjective norms solely influence the intention to engage in a particular behavior. By introducing the concept of "perceived behavioral control," TPB expands this framework, enabling a more accurate determination of an individual's intention to enact a behavior under controlled circumstances. The Theory of Planned Behavior posits that human behavior is influenced not solely by desire but also by an individual's capability to regulate the execution of said behavior (Hamid, 2013). This implies that control over behavior performance is also a significant determinant. In other words, in the theory of planned behavior, it is believed that human behavior is determined not only by desire but also by the ability of the person to control the performance of the behavior (Hamid, 2013) control is also affected.

Theories stemming from economic, social, and psychological sciences have significantly contributed to the analysis of tax compliance behavior, as well as the identification and categorization of its influencing factors (Marandu et al., 2015). For instance, Jackson and Milliron (1986) conducted an exhaustive review encompassing 43 studies on tax compliance behavior spanning from 1970 to 1985, wherein they identified 14 distinct factors exerting influence. These factors encompass age, gender, education, income level, source of income, occupation, integrity, social influence, tax complexity, detection probability, penalties, tax rate, tax authority feedback, and tax ethics (Richardson & Sawyer, 2001). Building upon the foundation laid by Jackson and Milliron, Richardson and Sawyer (2001) extended their research timeline to cover the period from 1986 to 1997, thus providing a more comprehensive understanding of tax compliance behavior. Further elaboration on the factors affecting taxpayers' compliance behavior has been delineated into five principal categories by Kirchler (2007), Loo (2006), and Palil (2010) (Kirchler, 2007b) (Loo, 2006) (Palil, 2010). These categories include:

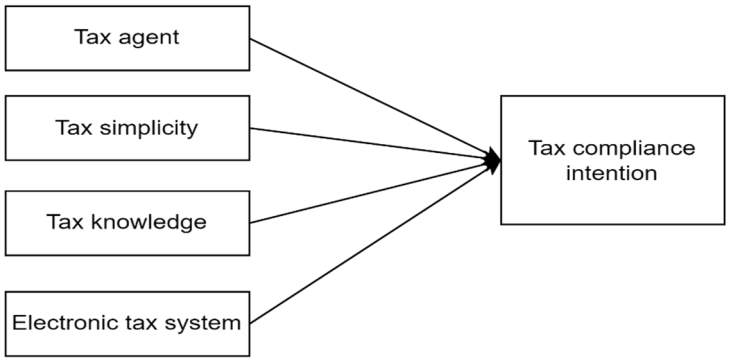
- Economic factors (such as tax rates, tax enforcement, and government expenditure forecasts).
- Institutional factors (including the role of tax authorities, simplicity of tax reporting and management procedures, and the likelihood of detection).
- Social factors (such as ethical considerations, attitudes towards taxation, perceptions of fairness and equality, political significance, and shifts in public policy).
- Personal factors (such as individuals' perceptions of financial constraints, attitudes towards tax evasion, and the threat of penalties).
- Other factors (such as age, income level, cultural background, educational attainment, and gender).

According to the theoretical framework and empirical evidence, tax compliance is integral to the core operations of an organization. Nevertheless, policies aimed at enhancing tax compliance behavior are implemented to improve adherence to tax regulations.

Within the scope of this study, the objective was to ascertain the determinants influencing the inclination of Mongolian enterprises to adhere to income tax regulations. A research framework was devised based on the amalgamation of the theory of causation and planned behavior (see Figure 2). The primary aim of this investigation is to delineate the impact of factors influencing tax compliance willingness, a crucial prerequisite for fostering future tax law adherence. Throughout the research endeavor, factors including access to tax consultancy services, utilization of electronic tax systems, tax literacy, and tax procedural simplicity were identified and examined. This study seeks to address the following questions:

1) How do electronic tax systems, tax consulting services, tax knowledge, and tax ease influence the intention of enterprises to comply with tax regulations?
2) Among these factors, which exerts the most significant influence on the intention of enterprises to comply with tax regulations?

Figure 1: Conceptual model of factors affecting the intention to comply



Source: Own.

Based on the above, the following hypotheses are posited:

H1: Tax consulting services, electronic tax systems, tax ease, and tax knowledge will impact the intention of enterprises to comply with tax regulations.

H2: Tax consulting services, electronic tax systems, tax ease, and tax knowledge will positively affect the intention to comply with tax regulations.

H3: Tax consulting services will exert a greater influence on tax compliance intention compared to other factors.

Methods and Data

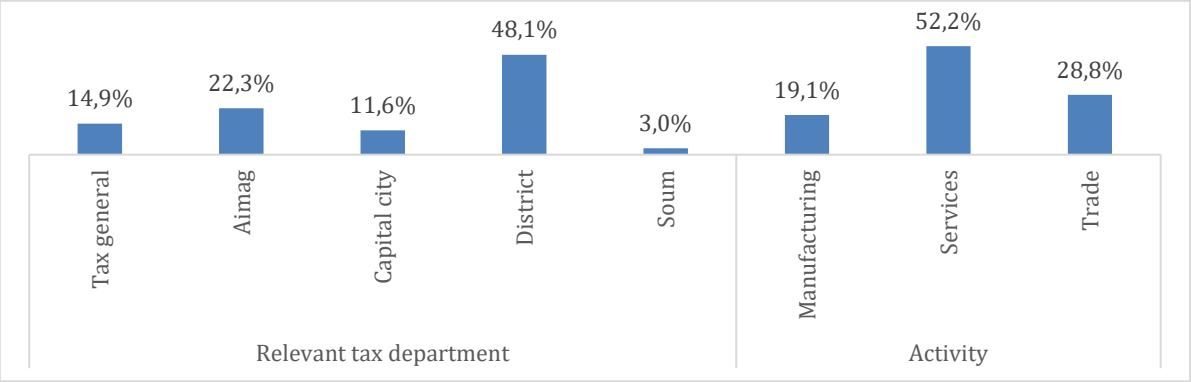
In the study, a set of 70 questions divided into 5 groups was surveyed using a 5-point Likert scale. The Kaiser-Meyer-Olkin (KMO) value, a measure of sampling adequacy for factor analysis, was employed to assess the representativeness of the sample compared to the original population (Field, 2013). A KMO value greater than 0.6 indicates satisfactory representation. The research data were processed using MS Excel and IBM SPSS Statistics 26 software programs. To evaluate the reliability of the survey questionnaire, Cronbach's alpha coefficient was utilized. This coefficient assesses the internal consistency or reliability of the questionnaire by examining correlations between different groups and sets of questions. Cronbach's alpha is not a statistical test but rather a measure of reliability. Internal consistency is deemed acceptable if the Cronbach's alpha value exceeds 0.7.

Results

The survey comprised a total of 395 respondents, including directors, accountants, and tax specialists. Among them, 77.7% were accountants, 14.4% were CEOs, 3.5% were tax consultants, and 6.3% were financial managers. In terms of industry sectors, 19.1% of enterprises operated in manufacturing, 52.2% in services, and 28.8% in trade industries. Regarding the jurisdiction of tax departments, 48.1% of participants were affiliated with district tax departments, while 11.6% were associated with the capital tax department.

Among the surveyed enterprises, 59.5% have a staff size of up to 20 employees, 16.2% have between 20 and 49 employees, and 24.3% have more than 50 employees.

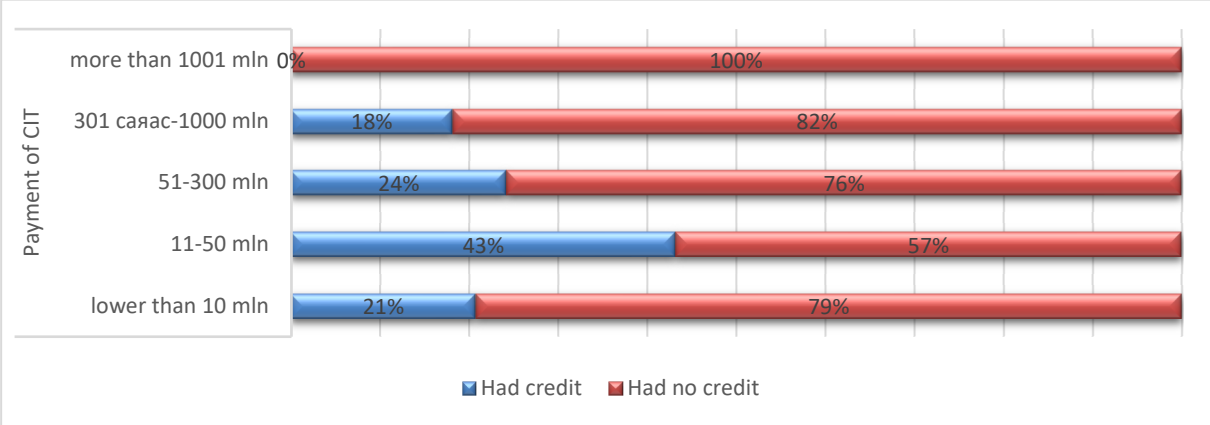
Graph 2: Industry and affiliation of entreprises, surveyed



Source: Own.

Considering the data of the average sales income of the last year, 20% were micro-enterprises with an income of less than 50 million MNT, 42% were small or have an income of 51-1500 million MNT, 24.3% have an income of 1.5-20 billion MNT, and 13.7% have an income of more than 20 billion MNT. is %.

Graph 3: CIT payments and credits



Source: Own.

Factor analysis results: In the factor analysis, the Eigen value of the factor is greater than 1 and the absolute value of the variable is greater than 0.6. Here, the KMO (Kaiser-Meyer-Olkin) value is 0.904, which indicates that the sample size is sufficient. According to the results of the analysis, Cronbach's alpha was at an appropriate level (Intention to comply with taxes-0.812, Tax consulting services-0.869, Easiness of tax payment-0.810, Tax knowledge-0.715, electronic tax system-0.950), which indicates the reliability of the questionnaire, and the variables are internally consistent (Tab 1).

Tab. 1: Factor analysis results matrix

Rotated Component Matrix[a]

Variable	Items	Component					Cronbach's alpha
		1	2	3	4	5	
E-tax system	Electronic registration is easy to understand	0.847					0.950
	Electronic registration takes less time	0.811					
	Online registration is easy to fill	0.810					
	The electronic reporting form is easy to understand	0.796					
	All tax registrations are done electronically	0.778					
	The use of electronic systems has increased labor productivity	0.755					
	Electronic registration costs less	0.754					
	The electronic system treats taxpayers equally and without discrimination	0.753					
	The electronic system is easy to use and intuitive	0.730					
	Taxes are easy to file, report and type	0.729					
	Electronic payment receipts are considered primary financial documents	0.662					
	Getting a tax return has become easier.	0.657					
	Paying tax debt has become easier.	0.654					
Tax consulting service	A qualified tax consultant protects the legal interests of the taxpayer		0.760				0.869
	A tax consultant participates in tax audits and defends tax returns		0.745				
	Outsourcing tax advisory services is more cost-effective		0.737				
	Changes and updates in tax laws are easily available from tax advisors		0.729				
	Our company would have been in a very difficult situation if a tax consultant had not been involved in the tax audit		0.683				
	Corporate income tax is charged because of its complex regulations		0.622				
	It is taken because of lack of knowledge about tax laws		0.604				
Intention to comply	It is fair that Large enterprises pay higher taxes than that of SMEs.			0.774			0.812
	It is fair that a more profitable enterprise pays more tax than a less profitable enterprise			0.755			
	It is correct that the reporting costs of large enterprises are higher than those of small and medium-sized enterprises			0.688			
	It is correct that the number of cases subject to tax inspection of large enterprises is higher than that of small and medium-sized enterprises			0.672			
Tax knowledge	Concepts related to Exemption-Taxable Income and Allowance-Taxable Income				0.748		0.715
	Dividend income is not included in the operating income of the enterprise				0.694		
	Taxable income is a different concept from taxable income				0.650		
Tax ease	CIT Act is easy to understand					0.813	0.810
	The report is simple and easy to fill out					0.755	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Source: Own.

Through factor analysis, the total of survey questions were grouped into following five categories that are tax advisory services, e-tax system, willingness to comply, tax knowledge, and tax ease. A multivariate regression analysis performed to define effects of e-tax system, tax consulting services, tax knowledge, and tax ease on intention to comply with taxes. The ANOVA test of the multivariate equation analysis and the

statistical significance of the coefficients of the variables are presented in Tab 2 and 3, respectively.

Tab 2. ANOVA test results of the multivariate equation analysis

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	121.797	4	30.449	45.116	.000[b]
	Residual	263.216	390	.675		
	Total	385.013	394			

a. Dependent Variable: Intention to comply
b. Predictors: (Constant), Tax Ease, Tax knowldege, Tax consulting services, E-tax systém

Source: Own.

Tab 3. Results of multivariate regression analysis

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	.001	.263		.002	.998
	E-tax system	.260	.066	.194	3.907	.000
	Tax consulting services,	.298	.059	.243	5.067	.000
	Tax knowldege	.170	.045	.173	3.730	.000
	Tax Ease	.243	.058	.193	4.158	.000

a. Dependent Variable: Intention to comply, R^2=0.316

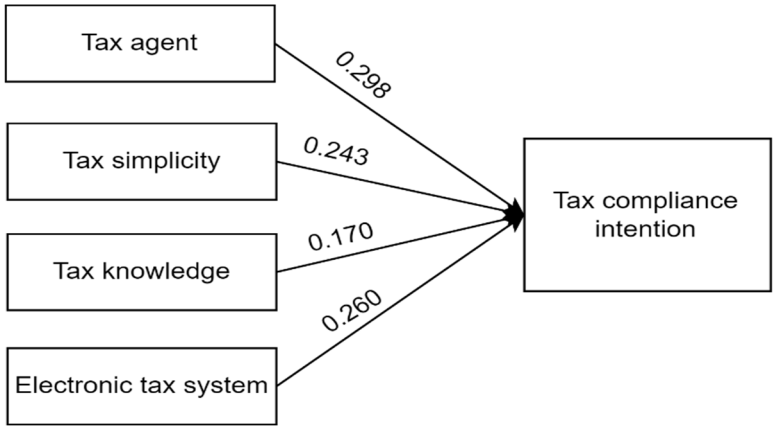
Source: Own

When considering the model of factors influencing intention to comply with tax (IC), it can be seen that four factors have an influence: Tax consulting service (TA), Electronic tax system (ETS), Tax ease (ES), and Tax knowledge (TK).

$$IC = 0.298 * TA + .260 * ETS + .243 * ES + .170 * TK \quad (1)$$

Here, Intention to comply with taxes (IC), specialized tax consulting services (TA), electronic tax system (ETS), tax ease (ES), and knowledge of taxes (TK), are considered.

Figure 2: Factors affecting intention to comply with tax



Source: Own.

Tax consulting services (0.298***), tax e-services (0.260***), tax ease (0.243***), and tax knowledge (0.170***) have statistically significant effects on the intention to comply with taxes. And all of the above factors have a positive effect on the intention to follow. Among these factors, tax consulting services (0.298***) have the most impact on intention to comply with tax.

Tab 4. Whether the prediction came true

Hypotheses	**Supported/ Not supported**
H1	Supported
H2	Supported
H3	Supported

Source: Own.

Conclusion

In Mongolia, the number of enterprises eligible to submit reports in 2019 has increased sevenfold since 2002, but the number of tax reports has decreased by more than 30 percent. This indicates that although the number of business owners is increasing and contributing to the economic development of the country, there is insufficient behavior in tax compliance and willingness to comply. Therefore, there is an urgent need to study the intention of enterprises to comply with income tax and the factors affecting it. Within the scope of this research, the aim was to determine the factors affecting the desire to comply and to derive a compliance model.

According to the survey results from 395 enterprises Intention to comply with taxes is depend on tax consulting services, electronic tax services, ease of taxation, and tax knowledge. The existence of tax consulting services in Mongolia for more than 20 years and the fact that enterprises perceive the importance of these services is evident from their highest impact on compliance willingness. The transition to electronic tax systems in the last decade and the 2019 reform of corporate income tax, which simplified the law

and reporting, have also influenced compliance willingness. However, tax knowledge has a relatively minor impact on compliance willingness compared to other factors. In this regard, it is necessary for tax authorities and other relevant professional organizations to collaborate to enhance the tax knowledge of enterprises. From this perspective, the fact that only two third of the enterprises report their taxes is not a favorable outcome. Therefore, the study's findings suggest that enhancing the intention to comply with taxes can be achieved by providing support services from tax authorities.

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Effectiveness measurement for cleaning services

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Abstract

Aims: The main aim of the paper is to identify qualitative differences in the perception of cleaning service quality from the perspective of the provider, customer and user (guest) in the hotel industry.

Methods: structured interviews with the service provider, customer (representative of a hotel resort in the South Bohemia region) were used for data collection. Furthermore, data from Booking, Trivago, Tripadvisor, Google platforms on the evaluation of cleaning services by guests of the hotel resort were used. The expolatory case study method was used to process the data. A one-factor ANOVA was used to statistically evaluate the association between the perceived level of cleaning quality by guests and the overall value of their stay at the resort.

Main findings: The key result is the identification of the link between the perception of the quality of cleaning services in a hotel resort from the perspective of the service provider (cleaning company), the customer (hotel resort) and the user (guest of the hotel resort).

Limits of work: The results are valid for resorts and only for assessing the quality of cleaning services.

Keywords: outsourcing, perceived level of quality, supplier-customer relationship, facility management

Introduction

The current era brings with it new challenges for all business entities (Duong et al., 2022). It can be concluded that the post-covariance "weakening" affects both individual business entities (Li et al., 2022) and the global economy as a whole (Gómez et al., 2021). The global economic recession is due to, among other things, the slowdown and

restriction of material flows due to the COVID-19 pandemic (Priya et al., 2021), which means placing even more importance on the efficiency of individual processes for corporate practice.

The Global Value Chain (GVC), as a conceptual framework for business and inter-company processes, is constantly changing in an effort to withstand turbulent times (Ersoy & Camgoz Akdag, 2022) and adapt to new changing conditions (Ha, 2022). At the same time, the evolution of GVCs is closely linked to technological advances (Zagashvili, 2022), which can change the structure and architecture of GVCs (Cherkas & Chekh, n.d.).

Value chain analysis provides firms with the underlying technology to identify value-creating processes and activities that represent a strategic advantage for the firm and its business partners (Cokins et al., 2021). The purpose of value chain analysis is to understand and describe the different actors and their economic performance at each node of the chain (Asiedu et al., 2022). Through the value chain, the different processes of a company can be divided into primary processes and secondary or supporting processes. A value chain for a manufacturing process is theoretically easier to define than a value chain for a service process (Mohsen aldouri & A. Kumbhalkar, 2023). In recent years, many companies have reduced their value-adding activities and introduced efficiency-oriented cost reduction, e.g., outsourcing, single sourcing, platform concepts, lean management, design-to-cost approaches (Helmold, 2022). The traditional approach to measuring corporate performance focuses on monetary terms (Dyckhoff & Souren, 2020). (Maas et al., 2023) states that the proper selection and effective use of KPIs will help an organization to achieve better performance management, identify areas of improvement and better achieve its strategic goals. There are several studies related to the topic of this paper. A large number of them focus mainly on the quality of FM processes (including cleaning services) in healthcare facilities. For example, (Y. Li et al., 2020) focuses on the research on the role of health facility management in the delivery of health services along five dimensions - cost effectiveness, customer satisfaction, energy and resource efficiency, management effectiveness, and operation and maintenance efficiency. The results showed that customer satisfaction is one of the main factors to assess the effectiveness of Fm services (Y. Li et al., 2020). (Islam et al., 2021) conducted a systematic literature review and identified four sustainable parameters of facility management (FM): people, processes, economics and social. The research results show that cost effectiveness, asset value, environment, practiced culture and design adaptability are widely accepted as sustainable parameters in FM practice (Islam et al., 2021). The aim of the study (J. H. K. Lai et al., 2022) was to develop an accurate model to pragmatically evaluate the performance of facility management (FM) in hospitals. Ten key performance indicators (KPIs) in four categories (safety, physical, financial, and environmental performance) were selected and their practical applicability was verified. (J. H. K. Lai et al., 2022) defines key performance indicators (KPIs) that are useful for hospital facility management (FM). Data collection was carried out using literature review, focus group interviews with experts. As a result, 4 main aspects of FM performance were defined: 'physical', 'safety', 'environmental' and 'financial'. .(J. Lai &

Yuen, 2021).(Thomas et al., 2022) describes the evolution of cleaning services in the context of employee training. The information was gathered using a questionnaire survey.(Thomas et al., 2022). The study (Elhoushy et al., 2020) describes an investigation of the relationship between the benefits and risks of outsourcing in the hotel industry, with data collection conducted in the form of a questionnaire survey. The study (Jiménez-Barreto et al., 2021) describes case studies that investigate the impact of housekeeping communication on guest behaviour during a pandemic and its evaluation (Jiménez-Barreto et al., 2021). An exploration of the reasons for the use of outsourced housekeeping services in households is discussed by (du Toit & Heinecken, 2021). Using mixed methods research, it was found that there are three key motivations: the nature of the supplier of household cleaning services, the services provided by domestic workers and the tripartite working relationship (du Toit & Heinecken, 2021). Students' perceptions of the quality of cleaning at university have been the subject of research (Palm, 2020). The data collection was done by questionnaire survey and data processing was done by ordinal regression (Palm, 2020). (Santa et al., 2023) examines the dynamics of interactions between strategies, process innovation, outsourcing practices and operational quality in the hotel industry in Colombia. Data collection was conducted through a questionnaire survey, and data processing was done through Structural equation modeling (SEM) and Analysis of Moment Structures (AMOS) tool (Santa et al., 2023). The aim of (Espino-Rodríguez et al., 2022) was to investigate the level of outsourcing of the main activities or processes carried out in the hotel and the main benefits perceived by hotel managers. A questionnaire survey was used to collect data, Data processing was done using a structural linear equation model. (Espino-Rodríguez et al., 2022) (Espino-Rodríguez & Taha, 2023) analyzes outsourcing in the hotel sector in Egypt. The data was collected from 114 hotels in two Egyptian resorts. The results show that the most outsourced activities are entertainment, transportation services, information systems and maintenance, while the least outsourced activities are reception, housekeeping, laundry and catering (Espino-Rodríguez & Taha, 2023). The study (Taha & Espino-Rodríguez, 2020) focuses on analyzing the impact of organizational culture on outsourcing levels and sustainable performance. The data collection was carried out through a questionnaire survey Data evaluation was carried out using the structural equation model was carried out using the statistical program SmartPLS 3.2.8 (Taha & Espino-Rodríguez, 2020). Research on the user's perspective on the performance of facilities (badminton halls) is addressed in (Shi et al., 2021). To collect data, interviews were conducted with badminton hall users to determine their perceptions of the importance of the facility and the level of performance of the hall. Using MATLAB, a computer program was designed and incorporated into the analytical hierarchy process to calculate the importance weights of the performance attributes assessed. The results were interpreted using the importance and performance rating matrix(Shi et al., 2021). Based on the above findings, the lack of studies investigating what are the qualitative differences in the perception of service quality within the provider-customer-user relationship can be established.

The aim of this paper is to identify qualitative differences in the perception of cleaning service quality from the perspective of the provider, customer and user (guest) in the hotel industry. To achieve the objective, three research questions were defined:

RQ1: Do customer and service provider perceptions of service quality differ?

RQ2: Does the perception of overall cleaning service quality differ for the hotel guest and the service consumer (operator)?

RQ3: Is the perceived cleanliness of the room related to the overall rating of the stay from the customer's perspective?

Methods and Data

In order to answer the first and second questions, data was collected through interviews with a provider and a customer of cleaning services in a hotel resort in the South Bohemia region.

The aspects to be assessed by the customer and the cleaning service provider were determined as follows:

1. With regular cleaning, the quality of cleaning is excellent, in accordance with the SLA,
2. With regular cleaning, the quality of cleaning is sufficient,
3. With regular cleaning, the quality of cleaning is inadequate,
4. On major replacements, the quality of cleaning is at an excellent level, in line with the SLA,
5. In large exchanges, the quality of cleaning is at an adequate level,
6. In large exchanges, the quality of cleaning is inadequate,
7. Re-cleaning of the apartment based on guest complaints is minimal,
8. Apartment re-cleanings based on guest complaints are very frequent,
9. The cleaning company's response to cleaning/re-cleaning requests is very quick,
10. The cleaning company's response to cleaning/re-cleaning requests is sufficient,
11. The cleaning company's response to cleaning/re-cleaning requests is insufficient,
12. The cleanliness of the outdoor areas of the premises is very good,
13. The cleanliness of the outdoor areas of the premises is adequate,
14. The cleanliness of the outdoor areas on the premises is unsatisfactory,
15. Cleaning staff are always identified with company clothing,
16. The behaviour of the cleaning staff is always courteous, polite, ethical,
17. The behaviour of the cleaning company's staff is unethical, completely unsatisfactory,
18. Cleaning company workers are qualified, regularly trained.

In order to answer the second research question, data collection was also carried out in the form of online reviews with ratings of cleaning services in the selected resort on Booking and Tripadvisor platforms.

To answer the third RQ, a statistical analysis of online reviews from publicly available accommodation platforms (Booking.com and Tripadvisor.com etc.) will be conducted. Reviews containing the words 'cleanliness' and/or 'cleaning' will be selected for analysis. Then, for all reviews, a rating of the quality of cleaning will be defined using content analysis: positive, negative or none. Next, three groups of responses will be created, their content is shown in Table 1.

Tab. 1: Response range requirements for the analysis of online reviews

Evaluation	Mention the cleanliness of the room in the review	Minimum number of reviews
Positive	Only positive	15
Negative	Only negative	15
Neutral	Positive and negative, none	15

Source: Own.

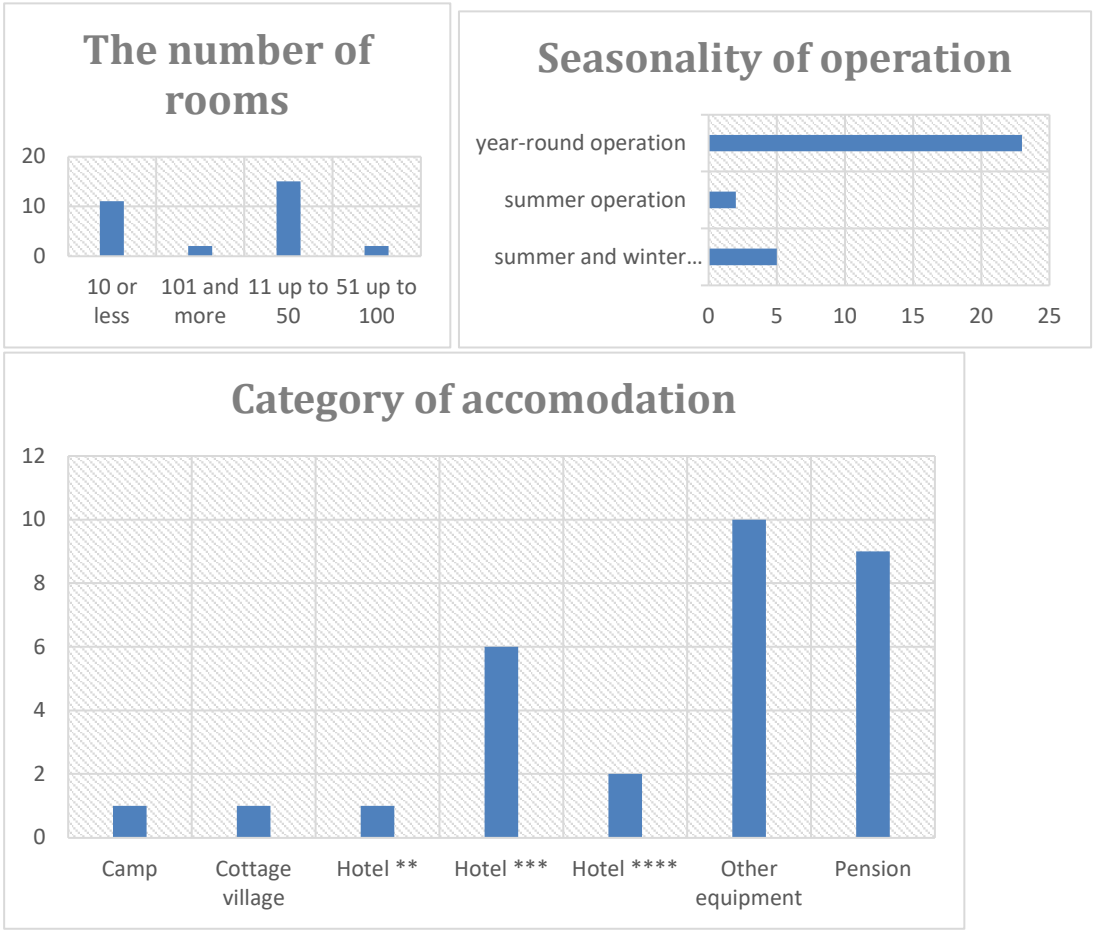
In this case, the data will be processed using a one-factor ANOVA to assess the correlation between the rating of room cleaning and the overall rating of the hotel by guests. The data will be processed in the form of a simple expolatory case study.

Results

The hotel industry in the Czech Republic is an integral part of tourism.

In the South Bohemian Region, in Lipno nad Vltavou there is a relatively high number of accommodation facilities. Their basic characteristics are shown in Figure 1.

Figure 1:Structure of recreational facilities in Lipno nad Vltavou.



Source: Own.

Case study of the recreation centre XY

Table 2 shows the responses to the questions on satisfaction with the level of cleaning services from the perspective of the hotel (C- customer) and from the perspective of the cleaning service (SP- service provider).

Table 2: Comparison of satisfaction with the level of cleaning services from the perspective of the hotel and the cleaning service

Question	Completely agree	Rather agree	Cannot judge	Rather disagree	Completely disagree
1. During regular cleaning, the quality of cleaning is excellent, in accordance with the SLA		C/SP			
2. The quality of cleaning is sufficient when cleaning is carried out on a regular basis	C	SP			
3. On regular cleaning, the quality of cleaning is inadequate					Z/SP

Question	Completely agree	Rather agree	Cannot judge	Rather disagree	Completely disagree
4. For large replacements, the quality of cleaning is excellent, in line with the SLA		C/SP			
5. For large exchanges, the quality of cleaning is at a sufficient level	C	SP			
6. For large exchanges, the quality of cleaning is poor					C/SP
7. Apartment re-cleaning based on guest complaints is minimal	C	SP			
8. Apartment re-cleaning based on guest complaints is very frequent				SP	C
9. The cleaning company's response to cleaning/re-cleaning requests is very fast		C/SP			
10. The cleaning company's response to cleaning/re-cleaning requests is sufficient	C/SP				
11. The cleaning company's response to cleaning/re-cleaning requests is insufficient					C/SP
12. The cleanliness of the outdoor areas of the premises is very good		C/SP			
13. Cleanliness of outdoor areas on site is adequate	C/SP				
14. Cleanliness of outdoor areas on site is unsatisfactory					C/SP
15. Cleaning staff are always wearing company clothing		C/SP			
16. The behaviour of the cleaning staff is always courteous, polite, ethical		C/SP			
17. The behaviour of the cleaning company's staff is unethical, completely unsatisfactory					C/SP
18. Cleaning company staff are qualified, regularly trained		C/SP			

Source: Own.

It can be concluded that the view of service quality of the customer and the service provider is very similar. Slight differences are registered for the aspects Quality of cleaning during regular cleaning, Quality of cleaning during large changes, Frequency of re-cleaning based on guest complaints. In all cases, better service ratings were recorded for the customer than for the service provider. Overall, there was satisfaction with the level of service and its delivery on both the provider and customer side. A summary of customer ratings is given in Table 3.

Tab. 3: Summary of guest ratings on selected platforms

Platform	Number of reviews	Cleaning value	Overall value
Booking	864	8,5/10	8,3/10
Tripadvisor	177		4/5
Google	5514		4,5/5
Hotel.cz	40	92%	92%
Trivago.in	76	8,5	8,4

Source: Own.

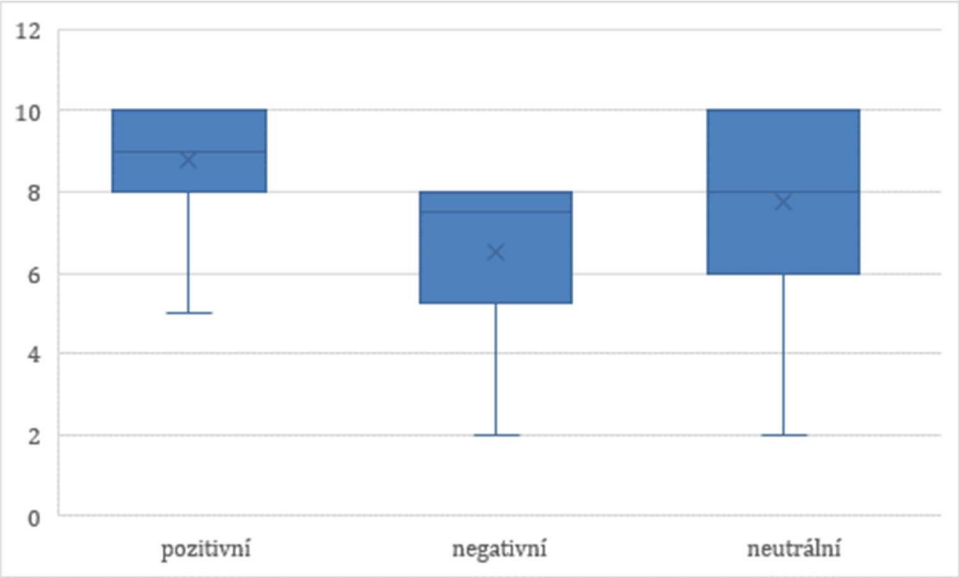
According to the answers, it can be concluded that the operator of the premises itself would rate the level of its own cleaning as excellent or very good. In quantitative terms, this would be a rating of 8-10 out of 10 (depending on the type of cleaning).

It can therefore be concluded that the overall assessment by guests is positive, with the level of cleaning rated very good to excellent by the user. For a more detailed evaluation of the impact of the cleaning rating on the overall rating of the stay, the results of the statistical analysis of the guest reviews are presented below.

As part of the response descriptions, Figure 3 shows the Median of the responses regarding the association between room cleaning rating and overall resort/stay rating.

A total of 63 responses were included in the evaluation, including 16 negative, 15 neutral, and 32 positive.

Fig. 3: Median responses regarding the association between the rating of room cleaning and the overall rating of the resort/stay



Source: Own.

Table 4 shows the results of the evaluation of the effect of mentioning the cleanliness of the room in the online review on the overall rating of the stay/accommodation.

Tab. 4. Results of testing the relationship between mentioning the cleanliness of the room in the online review on the overall rating of the stay

	Tested factor: level of satisfaction with the stay				
	Df	**Sum Sq**	**Mean Sq**	**F value**	**Pr (>F)**
Mention the cleanliness of the room in the review	2	56.46	28.228	9.185	0.000331
Residuals	60	184.40	3.073		

Source: Own.

Based on these results, it can be concluded that there is a direct link between the rating of the cleanliness of the room and the overall satisfaction of the client.

Discussion

The research questions were defined as follows:

RQ1: Do customer and service provider perceptions of service quality differ?

RQ2: Is the perception of overall quality of housekeeping service the same for the hotel guest and the service consumer (operator)?

RQ3: Is the perceived cleanliness of the room related to the overall rating of the stay from the customer's perspective?

The above results suggest that the perceived level of service is similar for both the provider and the customer. With this conclusion, the study builds on the results of (Santa et al., 2023). An interesting finding is that in some aspects the customer perceives the quality of the service performed higher than the service provider. These are the aspects Quality of cleaning during regular cleaning, Quality of cleaning during major changes, Frequency of re-cleaning based on guest complaints.

Regarding the similarity of the perception of the service quality of the holiday resort operator and the guests, it can be stated that in this case the perception is quite similar. The perception of the provider corresponds to higher ratings by customers. The findings are indirectly related to the results of (Jiménez-Barreto et al., 2021) on the association of cleaning service with guest satisfaction.

The quality of the cleaning service is one of the key factors in the success of an accommodation facility. A direct link between room cleanliness and overall accommodation rating has been confirmed. This conclusion builds on (Palm, 2020).

To achieve long-term competitiveness, it is essential to set the evaluation criteria according to the user's requirements. The service delivery system must be transparent and capable of long-term objective re-evaluation, both by the customer (resort operator), the service provider, and the user (resort guest).

Conclusion

The aim of the paper was to investigate the qualitative differences in the perception of the quality of cleaning services from the perspective of the provider, customer and user (guest) in the hotel industry. The key result is to establish the link between the perception of cleaning service quality in a holiday resort from the perspective of the service provider (cleaning company), the customer (holiday resort) and the user (guest of the holiday resort). Based on the case study, it can be hypothesised that the perceived level of cleaning service quality does not differ between the provider, customer and user.

The results of the study define recommendations for corporate practice. The main recommendation is to continuously monitor user feedback and to tailor cleaning requirements according to user preferences. Another recommendation is the long-term monitoring of the quality of cleaning services.

The research has some limitations. The results are valid for facilities of similar type to the research object. The results are also limited to the type of service.

Based on the results, directions for future research can be defined. Since this is qualitative research, it is necessary to support the research questions that arise with quantitative evaluation. It is necessary to conduct a comprehensive evaluation of multiple recreational facilities in order to test the above hypothesis.

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Assessing Global Innovation Index: A Comprehensive Analysis of its Metrics, Methodology, and Implications

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Abstract

The Global Innovation Index (GII) is a crucial instrument for evaluating and tracking innovation performance on a worldwide scale. This research article comprehensively

reviews the GII's metrics, methods, and implications. The study objective is to increase our knowledge of the GII and how it supports innovation-driven economic development.

The paper's introductory paragraphs explain the key components of the GII, including the inputs and outputs that support the innovation ecosystem. It looks at the many indicators used to gauge innovation, such as human capital, expenditure, infrastructure, and market sophistication. The benefits and drawbacks of the GII metrics are examined in this study.

Furthermore, the research delves into the methodology employed in constructing the GII, exploring the data collection process, weighting scheme, and aggregation techniques. This analysis provides insights into the index's reliability, validity, and comparability across countries and regions.

The implications of the GII are then discussed, focusing on its significance for policymakers, businesses, and researchers. The paper explores how the GII can serve as a diagnostic tool, helping governments identify strengths, weaknesses, and areas of improvement in their national innovation systems. Additionally, it examines how the GII can inform strategic decision-making for businesses seeking to invest in innovation-intensive sectors or expand their global reach.

Finally, the research paper concludes by highlighting potential avenues for future research, including the refinement of the GII metrics, the inclusion of emerging technologies, and the examination of the index's relationship with economic outcomes. By providing a comprehensive analysis of the GII, this research paper aims to contribute to the ongoing discourse on innovation measurement and policy

formulation, ultimately fostering an environment conducive to sustainable economic growth and prosperity.

Keywords: Global Innovation Index, economic development, policymakers, emerging technologies.

Introduction

In today's fast-paced global landscape, understanding innovation's role in economic development is crucial (Strakova et al., 2021a; Khyareh & Rostami, 2022). Central to this understanding is the Global Innovation Index (GII), a comprehensive tool for assessing global innovation performance. This research delves into the GII's metrics, methodologies, and real-world implications, aiming to illuminate its significance for policymakers, businesses, and researchers. The GII encompasses diverse metrics, from human capital investment to market infrastructure sophistication, providing a nuanced view of innovation ecosystems worldwide. However, it's not without limitations, which we'll carefully examine. We'll also dissect the GII's methodologies, analyzing data collection, weighting, and aggregation techniques to gauge its reliability and cross-country comparability. The GII's impact extends beyond rankings, influencing policy decisions and business strategies. Governments use it to pinpoint areas for development, while businesses leverage it to identify investment opportunities and navigate global markets effectively.

The Global Innovation Index (GII) is a tool that offers an in-depth view of countries' innovation performance and provides an understanding of the complex factors that influence this performance (Stojanović et al., 2022; Yu et al., 2021). To ensure its reliability and relevance, a GII assessment methodology that includes key processes such as data collection, indicator weighting, and aggregation is important (Talir et al., 2023; Alqararah, 2023). Regarding data collection, Huarng & Yu (2022) mention that data is collected from a variety of sources, including national statistical offices, international databases, and surveys conducted among enterprises, which ensures a comprehensive overview of the innovation environment in each country. The weighting of indicators reflects their relative importance to innovation performance, and the final aggregation of the weighted scores provides an index that allows for international comparison (Brás, 2023; Sicakyüz, 2023).

In the context of global comparisons, research by Oturakci (2023) has shown, based on statistical methods, that countries with high scores in the GII typically exhibit more robust economic growth. This fact was also confirmed by Bate et al. (2023) to identify key determinants of a country's innovation performance. Multi-stage and multi-modal analyses, including multiple linear regressions, hierarchical regression, and analysis of variance (ANOVA), were conducted to explore variations in innovation performance and

identify key determinants for each country category. The results showed that human capital, research, infrastructure, and entrepreneurial sophistication are the key pillars determining countries' innovation performance. They found that investment in key areas such as education, technological infrastructure, and R&D stimulates innovative activity, leading to the development of new technologies and productivity gains. In GII, authors Queirós et al. (2019) and Nasir & Zhang (2024) add that this relationship between innovation and economic growth is critical for policymakers seeking effective ways to boost economic dynamism in their countries.

For policymakers, the GII acts as an important analytical tool to identify the strengths and weaknesses of national innovation systems (Bakhtiar et al., 2022; Costa Cavalcante, 2024). Based on this analysis, they can design targeted policies that promote innovation in key sectors and facilitate the development of technology clusters (Pertas et al., 2022; Erdin & Çağlar, 2023). According to Auboin et al. (2021), through measures such as tax breaks, R&D subsidies, and support for start-ups, governments can effectively shape the domestic innovation environment, which has a direct impact on economic development. Moreover, the multi-criteria analysis of Aytekin et al. (2022) showed that an integrated approach to innovation policy that includes investments in education and research infrastructures can significantly improve a country's overall competitiveness. These investments not only promote the creation of new technologies but also increase the ability of the economy to absorb and commercialise innovations created elsewhere, contributing to more sustainable and diversified economic growth (Strakova et al., 2021b; Scaliza et al., 2022).

Emerging technologies that are considered a key element of the GII assessment, such as artificial intelligence, biotechnology, and renewable energy, represent dynamic fields that are transforming industries and opening up new opportunities for economic development (Abbasov, 2022; Ma et al., 2023). The authors, Dempere et al. (2023), used data from the Global Innovation Index (GII) and its components to show that countries successfully implementing these technologies typically achieve significant improvements in their global competitiveness. Novillo-Villegas et al. (2022) added that countries that actively promote collaborative projects between universities, industry, and government institutions achieve higher rates of technology transfer and faster commercialization of research outputs, further strengthening their economies.

Investments in human capital play a crucial role in GII and are considered to be the cornerstones of countries' ability to generate innovation. Creative and well-educated individuals are the engine for generating new ideas and technological innovation (Talir & Strakova, 2023; Borshch et al., 2023). Research conducted by Hung et al. (2021) shows that integrating international experts into national R&D teams can significantly increase innovation outputs and the commercialization of new technologies. This study highlights the importance of diversity and cross-cultural collaboration in innovation processes, which helps countries create sustainable competitive advantages on a global scale.

The advantages of these indicators lie in their ability to provide quantitative, measurable, and internationally comparable information that allows the identification of key strengths and weaknesses of national innovation systems (Alqararah & Alnafrah, 2024). However, these indicators also introduce some complexities, such as the challenges associated with interpreting data within different economic and cultural contexts, which can affect the way innovation activities are conducted and reported (Alidrisi, 2021; Fleacă et al., 2023). de Miranda et al. (2021) highlight the potential limitations arising from the use of secondary data and methods that can be a source of bias. This means that the interpretation of results, especially those related to the impact of GII on economic and market aspects, should be done with caution.

In conclusion, this paper highlights the GII's pivotal role in shaping innovation policy and fostering economic growth. By understanding its intricacies and implications, we pave the way for future research aimed at refining the index and enhancing its relevance in a rapidly evolving world.

Methods and Data

The Global Innovation Index is an annual ranking of countries by their capacity for, and success in, innovation, published by the World Intellectual Property Organization (WIPO). Many indicators affect the index like Innovation Input, Innovation Output, Institutions, Human capital and research, Infrastructure, Market sophistication, Business sophistication, Knowledge and technology outputs, and Creative outputs. For the purpose of this research study, we will take into consideration only three of them.

For technological development, the index “Knowledge and technology outputs”. For administration, and governmental development there will be used the index “Institutions” and for financial development, there will be used the index “Market sophistication”. Data available for all of these indicators are found in the report provided by the World Intellectual Property Organization (WIPO). This research intends to make a deep analysis of these data to see the relationship among the indicators and their effect on overall global development.

Each of the three indexes taken in the analysis is composed of many other subcategories which provide the overall evaluation of the main category of the index, as follows:

Knowledge and technology outputs

a. Knowledge creation

The Knowledge Index or KI is an economic indicator prepared by the World Bank Institute to measure a country's ability to generate, adopt and diffuse knowledge.

b. Patents by origin/bn PPP$ GDP

c. PCT patents by origin/bn PPP$ GDP

d. Utility models by origin/bn PPP$ GDP

e. Scientific and technical articles/bn PPP$ GDP

f. Citable documents H-index

Initially employed for a single scientist or scholar, the h-index is an author-level indicator that assesses the output and citation effect of the articles. The h-index is correlated with outward signs of achievement including receiving the Nobel Prize, getting chosen for research grants, and holding leadership positions at prestigious universities. The index is constructed using a combination of the scientist's most frequently referenced articles and the number of times those papers have been mentioned in other works. In more recent years, the index has been used to measure the output and influence of scholarly journals as well as a group of scientists, such as a department, university, or nation. Jorge E. Hirsch, a physicist at UC San Diego, proposed the index as a tool for evaluating the relative excellence of theoretical physicists and is referred to as the Hirsch index.

g. Knowledge impact

h. Labour productivity growth, %

Labour productivity represents the total volume of output (measured in terms of Gross Domestic Product, GDP) produced per unit of labour (measured in terms of the number of employed persons or hours worked) during a given time reference period.

i. New businesses/the pop.

j. Software spending, % GDP

k. ISO 9001 quality certificates/bn PPP$ GDP

The only family standard that outlines the specifications for a quality management system that can be certified to (although certification is not required) is ISO 9001. Every firm, no matter how big or little, regardless of their sector, may employ it. Over a million companies and organizations in more than 170 countries have obtained ISO 9001 accreditation.
Several quality management principles, including a clear customer focus, top management engagement and motivation, the process method, and continuous improvement, serve as the foundation for this standard. These concepts are explained in further detail by the quality management principles of ISO. Using ISO 9001 helps to ensure that customers obtain trustworthy, high-quality products and services, which has a number of advantageous impacts for organizations.

l. High-tech manufacturing, %

m. Knowledge diffusion

When knowledge or information is disseminated, it is made known to a large group of individuals or over a large geographic region. When an agent broadcasts his knowledge to the other agents with whom he is directly associated, knowledge dispersion occurs. When agents acquire new information and mix it with their already existing knowledge

stockpiles, knowledge generation occurs. As a result, network dependence is a need for both formation and spread.

n. Intellectual property receipts, % total trade

Charges for the use of intellectual property are payments and receipts made between residents and non-residents for the licensed use of proprietary rights (such as patents, trademarks, copyrights, industrial processes and designs, trade secrets, and franchises), as well as for the authorized use of these rights.

o. Production and export complexity

The Economic Complexity Index (ECI) is a powerful dimensionality reduction technique used to predict and explain future economic growth, income inequality, and greenhouse gas emissions.

p. High-tech exports, % total trade

q. ICT services exports, % total trade

Information and Communication Technology service" refers to forms of technology that are used to transmit, process, store, create, display, share or exchange information by electronic means.

Institutions

a. Political environment

The stability of the local administration is a crucial aspect to evaluate while analysing the political climate. Examine the nation's business-friendly policies as well, paying particular attention to things like taxation, anti-trust and competition legislation, union sway, and consumer protection rules.

b. Political and operational stability

Measures of perceived possibility of political instability and/or politically motivated violence, including terrorism, include Political Stability and Absence of Violence/Terrorism.

c. Government effectiveness

Perceptions of the calibre of public services, the calibre of the civil service and the extent of its independence from political constraints, the calibre of policy development and implementation, and the credibility of the government's commitment to such policies are all included in the category of government effectiveness. It is determined by the civil service's proficiency, the government's ability to carry out decisions effectively, the public sector's susceptibility to political pressure, and its capacity to deal with political changes without significantly altering existing policies or interrupting the provision of public services.

d. Regulatory environment

That area of the company's external marketing environment where political and legal pressures influence laws that have an impact on marketing efforts; changes to regulations may bring opportunities or dangers. The "command and control," performance-based, and management-based modes of regulation are the three primary types.

e. Regulatory quality

This indicator assesses the government's capacity to create and carry out sensible laws and regulations that support and encourage the growth of the private sector.

f. Rule of law

The political tenet of the rule of law is that all individuals and institutions within a nation, state, or community, including legislators and authorities, are subject to the same laws.

g. Cost of redundancy dismissal

Costs incurred when a position is eliminated or is no longer necessary, known as redundancy. After redundancy, the position/job leaves the organization. This might be due to corporate downsizing, closure, or just a lack of demand for the work

h. Business environment

i. Policies for doing business

j. Entrepreneurship policies and culture

Market sophistication

a. Credit

b. Finance for startups and scale-ups

c. Domestic credit to the private sector, % GDP

d. Loans from microfinance institutions, % GDP

e. Investment

f. Market capitalization, % GDP

The word "market capitalization" describes a company's value as decided by the stock market. The entire market value of all outstanding shares is how it is described. Investors can use it to determine how big a firm is in comparison to another. Because it represents the price investors are prepared to pay for a company's shares, market capitalization assesses a company's value on the open market as well as the market's opinion of its future prospects.

g. Venture capital investors, deals/bn PPP$ GDP

Investors who join limited partnerships to combine investment funds are known as venture capitalists. They invest that money in fledgling businesses in exchange for ownership holdings in such businesses. Instead of investing early on, VCs often do so

once a firm has begun to generate income. New businesses that may not have access to stock markets or sufficient cash flow to incur loans, are those which receive the support of venture capital. Because both parties gain stock in prospective firms and businesses obtain the capital they need to get started, this arrangement may benefit both sides.

h. Venture capital received, value, % GDP

i. Trade, diversification, and market scale

The scale of the market is the proportion of customers who are appropriate for you and your service(s). You might have to guess, or guestimate, certain statistics while thinking about the size of your market. This is OK, and as you advance, you may strive for better precision.

j. Applied tariff rate, weighted avg., %

The weighted average of the effective applied rates for all items subject to tariffs determined for all traded goods is known as the simple mean applied tariff. The Harmonized System of Trade is used to classify data at the six- or eight-digit level.

k. Domestic industry diversification

Economic diversification is characterized as a change toward a more diverse structure of domestic production and commerce to raise productivity, create employment, and laying the groundwork for long-term poverty reduction growth.

l. Domestic market scale, bn PPP$

Results

In the report provided by the World Intellectual Property Organization (WIPO), this study takes into analysis 135 countries out of 195 in total in the world. Some of them are excluded due to the very low values of the indicators taken into analysis, and some others due to the inconsistency in providing timely information.

The analysis is done on a time frame of 10 years, starting from 2013 to 2020. The relevance of this analysis is thought to be valuable as this period includes the most important world event lately, as the pandemic of COVID 19. Moreover, given the rapid development especially referring to technology, ten years are considered relevant enough to drive some conclusions on the overall development and the predicted future challenges.

The first part consists on the analysis of top ten countries regarding the value of the Global Innovation index. It describes how this ranking has changed during the period of ten years, which of the countries have kept their position, have upgraded or downgraded accordingly, as well as any surprisingly derivating variable that might have been shown. (Tab. 1; Tab. 2; Tab. 3; Tab. 4; Tab. 5)

Tab. 1: Comparison of the global innovation index for the period 2013-2014

Year	2014	Year	2013
Indicator	Global Innovation Index	Indicator	Global Innovation Index
Switzerland	64.8	Switzerland	66.6
United Kingdom	62.4	Sweden	61.4
Sweden	62.3	United Kingdom	61.2
Finland	60.7	Netherlands	61.1
Netherlands	60,6	United States of America	60,3
United States of America	60.1	Finland	59.5
Singapore	59.2	Hong Kong	59.4
Denmark	57.5	Singapore	59.4
Luxemburg	56.9	Denmark	58.3
Hong Kong	56.8	Ireland	57.9

Source: Own.

Tab. 2: Comparison of the global innovation index for the period 2015-2016

Year	2016	Year	2015
Indicator	Global Innovation Index	Indicator	Global Innovation Index
Switzerland	66.3	Switzerland	68.3
Sweden	63.6	Sweden	62.4
United Kingdom	61.9	United Kingdom	62.4
United States of America	61.4	Netherlands	61.6
Finland	59.9	United States of America	60.1
Singapore	59.2	Finland	60
Ireland	59	Singapore	59.4
Denmark	58.5	Ireland	59.1
Netherlands	58.3	Luxembourg	59
Germany	57.9	Denmark	57.7

Source: Own.

Tab. 3: Comparison of the global innovation index for the period 2017-2018

Year	2018	Year	2017
Indicator	Global Innovation Index	Indicator	Global Innovation Index
Switzerland	68.4	Switzerland	67.7
Netherlands	63.3	Sweden	63.8
Sweden	63.1	Netherlands	63.4
United Kingdom	60.1	United States of America	61.4
Singapore	59.8	United Kingdom	60.9
United States of America	59.8	Denmark	58.7
Finland	59.6	Singapore	58.7
Denmark	58.4	Finland	58.5
Germany	58	Germany	58.4
Ireland	57.2	Denmark	58.1

Source: Own.

Tab. 4: Comparison of the global innovation index for the period 2019-2020

Year	2020	Year	2019
Indicator	**Global Innovation Index**	**Indicator**	**Global Innovation Index**
Switzerland	66.1	Switzerland	67.2
Sweden	62.5	Sweden	63.7
United States of America	60.6	United States of America	61.7
United Kingdom	59.8	Nerherlands	61.4
Nerherlands	58.8	United Kingdom	61.3
Denmark	57.5	Finland	59.8
Finland	57	Denmark	58.4
Singapore	56.6	Singapore	58.4
Germany	56.5	Germany	58.2
Republic Korea	56.1	Israel	57.4

Source: Own.

Tab. 5: Comparison of the global innovation index for the period 2021-2022

Year	2022	Year	2021
Indicator	**Global Innovation Index**	**Indicator**	**Global Innovation Index**
Switzerland	64.6	Switzerland	65.5
United States of America	61.8	Sweden	63.1
Sweden	61.6	United States of America	61.3
United Kingdom	59.7	United Kingdom	59.8
Nerherlands	58	Republic of Korea	59.3
Republic of Korea	57.8	New Zealand	58.6
Singapore	57.3	France	58.4
Germany	57.2	Singapore	57.8
Finland	56.9	Dominican Republic	57.3
Denmark	55.9	Ghana	57.3

Source: Own.

Switzerland

As shown in the tables, Switzerland has always ranked the first in top ten countries for the value of the Global Innovation Index. It is the most innovative country and it has ranked as such for the twelfth time in arrow, i.e. in the last twelve years. Switzerland will once again be the world's most inventive economy in 2022. This is the outcome of the World Intellectual Property Organization's (WIPO) annual Global Innovation Index (GII), which was released on September 29. This is the 15th year that it has been published, with the United States coming in second, followed by Sweden, the United Kingdom, and the Netherlands. Germany moved up two spots from last year to seventh place.

The index assesses innovation through factors such as institutes, people resources and research, infrastructure, investments, knowledge adaption and distribution, and creative performance. Switzerland's GDP performance is above forecasts, according to the country report. The balance is also beneficial in terms of the translation of innovation investments into innovation output.

According to Fobes (Konovalov, 2024), some of the primary factors that contribute to Switzerland being the most inventive country in the world are as follows:

1. The educational system: Zurich alone has over 22,000 students from more than 120 countries.

2. A political structure that "guarantees productive stability and allows the Swiss economy to thrive," according to Seedstars.

3. Investments: Total venture capital invested in businesses in 2021 will be €3.1 billion, up 44% from 2020.

4. R&D, world-class research institutes: Switzerland invested $25.5 billion in R&D in 2019.

5. One of the country's benefits has been its geographical location.

6. Highly skilled overseas workers: According to the IMD 2021 World Talent Ranking 2021, Switzerland ranks first among the top ten economies.

7. Values such as creativity, uniqueness, and equality. Despite its achievements, the Swiss technology industry has space for improvement. Looking at how the world's most inventive countries may grow and progress can provide lessons for technology leaders and entrepreneurs all across the world.

United States of America

Recently the USA has ranked third on the Global Innovation Index, but prior it used to be in the fourth or fifth rank, preceded by the United Kingdom and sometimes the Netherlands. The main decline in the values of the index was observed in 2018 because of the rapid upgrade of the Netherlands and Singapore.

Immediately after this, the values of the Global Innovation Index show a huge increase and this I merely due to the measures taken by the government in the development of the technology of the country. The Bureau of Economic and Business Affairs started hosting regular Innovation Roundtables with the American corporate sector in 2018. To further American economic interests, this series examines the difficulties and chances presented by developing technology and the Information and Communication Technology (ICT) industry. The United States government is better able to comprehend cutting-edge technology when it is used more broadly thanks to increased participation and cooperation with the American private sector. Hearing directly from technology businesses' viewpoints during diplomatic discussions aids decision-makers in

formulating effective policy that preserves and expands the technical lead enjoyed by the United States.

There was a slight decrease in the index in 2020 due to the pandemic and after this, the index continued to increase recently. Nowadays the American economy leads the world in innovation. Global innovation and the creation of cutting-edge and new technology are driven by American businesses. The State Department is dedicated to breaking down obstacles abroad, safeguarding intellectual property, and keeping the United States on the cutting edge of technology. Giving academics, technical specialists, and business executives the tools, they need to take advantage of the enormous prospects in the digital economy is more crucial than ever. The Bureau of Economic and Business Affairs advocates for a level playing field so that American entrepreneurs and high-tech businesses can prosper in international markets. America has always been at the forefront of innovation worldwide and will keep empowering the American private sector to uphold that position. (Evaluation of Innovation Performances Using the Entropy Based Gray Relational Analysis Method: G7 Group Countries Example, 2020).

United Kingdom

The UK was also a country with a very high value on the Global Innovation Index. Ranking between third and fourth place, sometimes overrun by the USA and some other times by the Netherlands, it has shown to be one of the main drivers of innovation in the world. This position comes mostly as a reflection of the governmental measures to promote innovation and technology. Let's not forget also the role of education which is a big driver of tremendous developments worldwide.

What is surprising in the UK is that except for a slight increase in the year 2019, after the pandemic, the index showed a decline and it continued with the trend till the recent years. This pattern is the same as in Switzerland and Sweden. Is it possible that now the innovation is in the hands of the USA or probably there might be other new countries that are showing up their willingness and adaptability to innovation? This is yet to be seen and analyzed by scholars.

The credits of the United Kingdom as a runner of the innovation are directed but not limited to the following:

A global innovation centers

The United Kingdom is one of the most inventive nations in the world, ranking within the top five in the Global Innovation Index 2019. Many of the world's largest and most dynamic corporations, such as Google, Facebook, Amazon, and Coca-Cola, have chosen the United Kingdom as their European headquarters. In 2017, over 590,000 new businesses were established in the United Kingdom. According to Forbes, this reflects the UK's inventive spirit, enterprising workforce, and business-friendly atmosphere--the most business-friendly environment of Europe's major economies.

As a standard, excellence centers

The United Kingdom is home to four of the world's top 10 universities: Oxford, Cambridge, University College London, and Imperial College London, and is ranked second in the world for university excellence on the Global Talent Competitiveness Index (GTCI). What is the significance of this? The cutting-edge technology and knowledge accessible at these university and research centers attract innovative firms. According to the World Economic Forum, cooperation between academics and industry is the most successful of Europe's main economies since it is encouraged by the public sector. Universities not only produce the critical thinking required to improve company performance, but they also contain innovative R&D centers focused on commercializing innovations. The UK Government established the Global Entrepreneur Programme (GEP) to encourage ambitious entrepreneurs to extend their businesses from the UK in an effort to accelerate the rate of innovation.

Tax benefits for entrepreneurs

Foreign-owned enterprises account for more than half of all R&D company expenditure in the UK. This is due in part to the UK's significant financial and tax incentives for innovation. Small and medium-sized enterprises can benefit from venture capital programs, which provide large tax breaks for investors and contribute to the UK being the finest environment in Europe to start, fund, and build a firm. The R&D expenditure tax credit provides enterprises engaging in UK R&D projects with attractive incentives of up to 230%.

Keep your thoughts safe

Apart from the United States, the United Kingdom boasts a world-class intellectual property framework that has produced 78 Nobel Prize winners in scientific fields. This intellectual property regime safeguards innovators' names, ideas, products, designs, and written words. The UK Patent Box also provides corporations with a corporation tax rate of 10% on income from ideas patented in the UK, as opposed to the existing rate of 19%. If you have an invention or idea and are contemplating investing in the UK, our UK Investment Support Directory will help you identify a legal IP specialist.

Government assistance for your business

Innovate UK, the UK government's innovation agency assists businesses in developing new ideas and commercializing them. It can assist you with obtaining funding, connecting with researchers and other collaborators locate prospective clients and foreign partners to collaborate on innovations. Innovate UK has helped a lot of firms expand and is a fantastic source of support for business innovation.

Create world-class infrastructure by innovating.

The UK's digital infrastructure network supports a software and technology industry greater than the rest of Europe combined, with the finest superfast internet service of any major European country. The United Kingdom ranks first in the World Economic Forum's Networked Readiness Index 2016, which assesses a country's ability to employ information and communication technologies to enhance economic and social well-

being. Furthermore, the UK invests £6 billion per year in research councils and universities, while a network of Catapult Centers assists emerging technologies in becoming commercially viable. (Innovation's Performance: A Transnational Analysis Based on the Global Innovation Index, 2024).

The Netherlands

The trend of the Global Innovation Index of the Neverlands has been the same as the three above-mentioned countries. It reached its peak in 2017 and could rank second in 2018 but it is surprisingly downgraded in 2021. This year ranks better than the Netherlands, which continues to upgrade. The other five positions are interchanged through the years among the Republic of Korea Finland, Denmark, Singapore, and Germany.

Dutch advantages

The Netherlands, in particular, performs well in terms of business sophistication, placing first in this area. Other areas where the country excels include knowledge and technology outputs and creative outputs, where it ranks second and third, respectively. In addition to the three highly ranked pillars, the logistics performance indicator and the sub-pillars of information and communication technology and business environment show strength. The Netherlands also outperforms the top 25 GII economies in the sub-pillars of education, knowledge absorption, online creativity, and knowledge dissemination, among other things.

Weaknesses in the Netherlands

In terms of shortcomings, in the Netherlands, they tend to be reserved for specific indicators, such as the ease of obtaining credit and the cost of redundancy dismissal, wage weeks. The exception is the postsecondary education sub-pillar, which is regarded as a weakness.

Republic of Korea

Korea's Clean Energy Technology Roadmap identifies milestones for clean energy technology development to attain a low-carbon society, and it aids in the realization of the Korean government's energy policy objectives. To refocus Korea's energy R&D on clean energy, the Clean Energy Technology Development Strategy was established by 7 government ministries, including the Ministry of Trade, Industry, and Energy and the Ministry of Science, ICT, and Future Planning, as well as approximately 200 experts from industry, academia, and research institutes. The program envisions "converting the new climate regime crisis into an opportunity for economic growth through clean energy technology innovation." The roadmap's objectives are as follows: 1) reacting to climate change through reducing greenhouse gas emissions 2) generating new energy firms, and 3) propelling global technological innovation.

Strategies:

Utilize innovative technologies and technological convergence to enter the new market.

They intend to disrupt the existing market by introducing breakthrough technologies that increase performance, reduce costs, and hasten commercialization. Furthermore, by collaborating with the humanities and social sciences, we will increase social acceptance, allowing energy research and development to enter the market. The confluence of energy technology and other technologies will overcome the "Valley of Death" and the "Darwinian Sea," i.e. market penetration failure.

Implement new regulations from the government about the energy sector.

The Korean government is trying to launch a new energy industry. To achieve Korea's goal of lowering greenhouse gas emissions and developing a future development engine based on energy prosumers, low-carbon generation, electric cars, and eco-friendly processes, the "2030 Strategy for Boosting New Energy Industry" was established in November 2015. A new investment plan in the energy industry has also been developed by KEPCO (Korea Electric Power Corporation) which includes smart meters, frequency-controlling ESS, electric vehicle charging stations, and energy big data. The plan will be carried out by these rules.

Reduce time to commercialization with demonstrations abroad

The development of certification standards and demonstration programs will start at the R&D stage to speed up the time it takes for new technologies to reach the market. Enhancements will be made to international demonstrations depending on local and regional settings. For instance, we will carry out our customized power system demonstration, which conforms with local legislation, policies, markets, and power grids, through smart-city demonstration, which represents the varied urban features of each city.

Establish a renewable energy business ecosystem with people from diverse areas.

For distributed energy transactions, we require an energy platform that considers users, power capacity, and energy suppliers. The involvement of numerous industry participants, including electronics manufacturers, solution providers, and IT firms, will result in the expansion of the clean energy sector's ecosystem. Additionally, we will require established businesses to participate in materials technology for the new energy industries.

Conclusion

The comprehensive analysis of the Global Innovation Index (GII) presented in this paper sheds light on its metrics, methodology, and implications for innovation-driven economic development. Through an exploration of the GII's components, including inputs and outputs, various indicators used for evaluation, and the methodology behind its construction, this research provides valuable insights into the index's reliability, validity, and utility for cross-country comparisons.

One of the key takeaways from this analysis is the significant role of the GII in informing policy decisions, guiding strategic investments, and fostering innovation ecosystems worldwide. Governments utilize the index as a diagnostic tool to identify strengths and weaknesses in their national innovation systems, while businesses leverage it to identify investment opportunities and navigate global markets effectively.

The study also highlights the limitations of the GII, acknowledging areas for improvement such as the inclusion of emerging technologies and the refinement of metrics to better capture innovation dynamics. Moreover, it underscores the importance of ongoing research to enhance the relevance and applicability of the index in a rapidly evolving global landscape.

Looking ahead, the paper identifies potential avenues for future research, emphasizing the need for continued refinement of GII metrics, exploration of the index's relationship with economic outcomes, and consideration of emerging trends in innovation. By contributing to the ongoing discourse on innovation measurement and policy formulation, this research aims to foster an environment conducive to sustainable economic growth and prosperity.

In conclusion, the comprehensive analysis presented in this paper underscores the pivotal role of the Global Innovation Index in shaping innovation policy and driving economic development. By understanding its intricacies and implications, policymakers, businesses, and researchers can work together to harness the power of innovation for the benefit of society as a whole.

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Multicultural Training as a Tool Increasing the Work and Management Efficiency in an International Environment: Qualitative Survey of Czech Businesses Experience

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Abstract

Cooperation with people, both managers and employees, coming from different national cultures is becoming increasingly common in business practice. It often brings with it new perspectives, stimuli, or inspiration, but sometimes it also becomes the cause of misunderstandings, resulting from different culturally conditioned customs and expectations. In extreme cases, it can even result in cultural clashes and conflicts in the workplace. To avoid or overcome them successfully requires usually to be aware and know the different traditions of corporate behaviour in individual cultures and to apply and respect the main rules of successful intercultural cooperation and communication. The article deals with important prerequisites for successful employees´ cooperation in a multicultural setting including work in multicultural teams and leading these teams, the focus being the use of intercultural trainings. Using the method of a qualitative survey, it aims, in its analytical part, to find out to what extend do mid-sized and bigger Czech companies deal with the issues of a multicultural management through multicultural training. It looks at the main topics, methods and effectiveness of these trainings and formulates recommendations on how to organize these trainings in the most efficient way.

Keywords: People management, multicultural work and management environment, management skills, employee training and development, training fffectiveness

Introduction

With the rapidly advancing globalization of the economic world, the ability to cooperate with people from different national cultures is becoming an important part of both employee and management skills (Alsola, 2023). Crucial prerequisite of this skill is to know and understand work and management practices typical and/or common in diverse cultures and to respect their differences (Čuhlová, 2019).

Also, it often requires the ability to admit that different culturally conditioned approaches and customs, as far as work and management are concerned, can lead to the same, or even better results as "home" approaches (Maddux et al., 2021). Appropriate managerial ability is often referred to as management in conditions of cultural diversity or intercultural management (Adeshola et al., 2022; Lu et al., 2022).

Several skills are part of intercultural management (Akpapuna et al., 2022). Their most important issues include ability (Paresashvili et al., 2021) to

- communicate and cooperate in an international corporate environment,
- adapt to new international trends,
- understand and respect the different expressions, customs and values of different national cultures and understand the diverse needs and customs of foreign partners, customers, and consumers,
- understand differences in national corporate cultures, the source of which are differences in legal regulation or labour market conditions.

In the case of managers, they are then followed by abilities (Hussain 2018; Chang & Tharenou, 2004) to

- manage multicultural work groups or organizations and use international differences for their higher performance,
- to prevent problems of intercultural communication and solve problems and misunderstandings in this area in a prompt manner,
- use tools aimed at changing attitudes towards cultural differences. These mainly include training (Salzman, 2018) to support intercultural communication and overcoming its misunderstandings (Seward, 2019).

When working or doing business with people from different national cultures, language skills or knowledge of common "national stereotypes", i.e., extended, generalized and, in most cases, greatly simplified ideas about the characteristics of members of certain nations, are thus usually not enough (Dias et al., 2017).

Examples of common national stereotypes are ideas regarding, for example, Americans as informal and individualistic, Germans as careful, precise, and narrow-minded, Japanese, or other Asians as polite but tough, French as somewhat less hardworking, with a tendency to greater social distance, Scandinavians as socially considerate and informal, the British as cold and rather closed, the Dutch as gentle, etc. (Wilczewski et al., 2019). Broader stereotypes about the differences between geographically defined

cultures, for example the cultures of "southern" and "northern" countries, "eastern" and "western" countries, etc., are also similar (Dustin et al., 2019; Vallone et al., 2019).

These and other stereotypes may reflect certain differences in national cultures, but they may not apply to all persons or organizations of a given country. Above all, however, they may not reflect the significant differences that can exist - and very often do exist - between individual persons or organizations within individual countries and cultures (Perkins, 2020).

Similarly, national cultural "self-stereotypes", i.e., the widespread and overgeneralized ways in which members of certain nations perceive themselves, can also be misleading. These are mostly generalizations about their difference from the characteristics of members of other cultures. One of the peculiarities of self-stereotypes is that characteristics or assumptions that one's own national stereotype perceives as strong or positive are sometimes perceived by members of other nations as weaknesses (Varela, 2019).

For example, in the Czech environment, the often-valued ability to improvise or deal with new or non-standard situations is often interpreted by foreign workers as carelessness or a lack of systematicity. An example can be the surprise and astonishment that sometimes arises for foreign partners in a situation where, after having agreed on a certain procedure with the Czech employees, they discover that the domestic employees went ahead differently and did not inform the foreign partners about it. The cultural misunderstanding consists in the fact that what Czech employees perceive as their flexibility is understood by some foreign managers as rather a manifestation of unreliability or disloyalty.

At the same time, some manifestations of national culture may remain relatively unnoticed in the given national environment and only come to the fore when they are confronted with the customs or approaches of other cultures. An example is the feeling of problems as threats to which one must adapt, or, on the contrary, as challenges that can bring with them new opportunities.

In contrast to common national stereotypes, for successful international cooperation with members of diverse cultures it is usually significantly more important to know and understand the differences associated with national customs and traditions, which are reflected in differences in managerial style, working habits or attitudes to work (Pauliene et al., 2019).

It can be, for example, differences regarding the method of decision-making or co-decision-making in the company or at the workplace (the degree of its centralization or, on the contrary, decentralization), the emphasis on the formal authority of managers, the use of teamwork, space for independence or personal initiative of employees, etc. Similar differences sometimes affect work attitudes, for example work motivation and morale of employees, or specific ways and methods of human resource management, for example criteria and methods applied in selecting and accepting people, methods of

promotion, evaluation, remuneration or dismissal of employees, etc., which are not captured by common and simple national stereotypes (Perkins, 2020).

Similarly, national cultural differences can condition the typical needs and requirements of employees, for example the need for job stability, justice, personal recognition, identification with the organization, personal independence, personal development opportunities, etc. (Tudoran et al., 2022). Their approaches to work flexibility (for example, the willingness to change jobs) can also be different or move to another location), work responsibility or honesty, requirements for participation in decision-making, their tolerance for higher differentiation in reward or in relation to changes. Working in a multicultural corporate environment requires not only understanding these national differences, but in many cases also influencing and managing them (Steenhuis, 2019).

Main distinctive features of national corporate cultures

Based on international comparative surveys, national corporate cultures reflected in the way of management and decision-making, intra-company relations, but also the behaviour of organizations externally can be largely described and explained because of four main cultural manifestations. These manifestations or features of national corporate cultures can understandably be interconnected in diverse ways.

The main different manifestations of national corporate cultures, which the analyses point to, relate primarily to

- to what extent there is a higher or, conversely, weaker power or social distance between workers of various levels in individual corporate cultures,
- to what extent there is or is a usual tendency to avoid risk and uncertainty,
- whether there is a tendency towards individualism or collectivism,
- to what extent there is an intense pressure on performance in the company.

The higher power or social distance between superiors and subordinates that prevails in each culture refers to the extent to which companies originating from certain national cultures tend to centralize decision-making powers at higher levels of corporate management, or to what extent on the contrary, it applies a tendency to delegate certain decisions to lower management levels. At the same time, the markedly unequal distribution of decision-making powers can also be reflected in significant differences in the social status of workers, or in their social distance (Brett et al., 2020).

The different propensity to avoid risk and uncertainty reflects the extent to which businesses of diverse cultures try to avoid situations where certain procedures are not fully described or adjusted in advance. Companies from cultures for which this tendency is higher usually create detailed corporate rules for most situations and do not tolerate different procedures or ways of behaving. The opposite is the case with national cultures, for whose businesses it is common to leave some procedures open and adapt them to the situation, i.e., not to be afraid of improvisation.

A higher level of individualism in the national corporate culture is manifested by a higher tendency to evaluate and reward employees primarily as individuals, i.e., based on their individual performance. The opposite is the tendency to support team cooperation, to prevent excessive or unnecessary rivalry among employees, and to evaluate and reward workers to a considerable extent also based on their joint results, cooperation, or willingness to be replaced (Sogancilar & Ors, 2018; Steenhuis, 2019).

The different pressure of companies on performance is manifested mainly by a higher or lower emphasis on performance, cost control and time use. In cultures with a higher pressure on performance, it also occurs at the expense of the interests and needs of workers or their mutual relationships.

Distinctive features of national corporate cultures, corresponding to the above typology, can be illustrated by companies from different areas. For example, North American companies are characterized by a relatively small distance between superiors and subordinates, higher individualism, a higher level of pressure on performance and a lower or medium level of fear of uncertainty. Japanese companies, on the other hand, are characterized by greater distance between superiors and subordinates (greater respect for authority and centralization of decision-making), but at the same time, higher collectivism, or a greater tendency to avoid uncertainty.

Businesses from German-speaking countries are characterized by a smaller to medium distance between superiors and subordinates, medium individualism, medium or higher pressure on performance, a higher degree of fear of uncertainty; for Romance countries, medium to high individualism, higher distance between superiors and subordinates, lower level of fear of uncertainty and lower pressure to perform, for Nordic countries medium to higher individualism, smaller distance between superiors and subordinates, low to medium fear of uncertainty and rather average pressure to performance, for Russia a high distance in relations between superiors and subordinates, a medium level of individualism, lower to medium pressure on performance and a high level of the tendency to avoid uncertainty, etc.

However, national cultural differences are understandably not immutable. The evidence is that certain national management approaches are being successfully extended in other countries as well.

Thus, for example, the teamwork practiced today in most "Western" businesses was originally largely inspired by Japanese traditions of informal self-control and non-directive management. Similarly, the above-mentioned feeling of problems as a threat in the conditions of our businesses is gradually changing into an understanding of them as a challenge that can bring with it new opportunities.

The culture of multinational companies

Multinational companies are mainly confronted with the need to reconcile the influences of different national cultures (Isotalus & Kakkuri-Knuuttila, 2018). The fundamental questions of the creation of their organizational cultures therefore include to what

extent they will leave space in their branches or subsidiaries for the influence of national cultures corresponding to the local environment or how much they will try to ensure that a strong and common central corporate culture prevails in their branches, usually the culture of the mother country companies (Liu et al., 2020).

According to the strength of the influence of national cultures or the corporate culture of the central company (or the culture of the parent company), these companies can therefore be divided into two basic groups (Ward et al., 2018):

- polycentric culture. It is a culture that respects the influence of the local environment and thus allows the emergence of corporate subcultures in individual countries. It arises in conditions where all branches of the company are relatively independent from the point of view of corporate culture, they are governed mainly by local customs, and the head office's interventions in their culture are limited. Employees and managers are selected preferably from local sources (Mantel, 2023).

The advantage of this type of corporate culture is sensitivity to national peculiarities. However, in countries with quite different customs compared to the culture of the parent company, within this model, problems may arise when contacting the employees of the parent company with the adoption of a culture that is not following the mindset of the local employees. This situation may force the need for programs leading to the facilitation of international communication and cooperation, for example in the form of creating teams to solve global issues, strengthening the unified vision of the entire company, etc.

- uniform, or global culture. It is the opposite of the earlier model. In this case, the international company shows a strong corporate culture that is uniform in all its subsidiaries. Sharing identical values, rules and goals strengthens the corporate identity, the company is usually perceived from the outside as a "strong player".

The advantages of this model are mainly in easy mutual communication (Tabassi et al., 2018). The condition is primarily the simplicity, clarity, and comprehensibility of the entire system, which should not conflict with national differences. The management of a multinational corporation that decides to introduce this model should approach its introduction sensitively and gradually, especially if it is not about setting up a completely new company but taking over an existing company.

Sources of intercultural problems

Dealing with employees of foreign companies often tend to confirm or reinforce certain national cultural stereotypes (Enshassi & Burgess 2006). The reason is often that the perception and evaluation of people tends to be selective - it focuses mainly on features that correspond to established stereotypes or that seem to confirm them and does not register those that contradict them.

At the same time, less attention is often paid to the stereotype with which members of one's own nation are perceived, or to what extent one's own national stereotype

coincides with the way domestic employees are perceived by members of other nations (Gressgård, 2011).

Different expectations

More serious problems can arise in a multicultural environment because of misunderstandings that stem from different expectations that one or the other party is often not fully aware of. These are expectations about how employees or their superiors will - or should - behave in certain situations (Kamales & Knorr, 2019).

For example, managers from English-speaking countries, like managers from Scandinavia, usually expect greater independence from employees. It may also refer to the habit or ability of their co-workers to obtain some of the information they need for their work on their own. They are often not used to the fact that employees only start working when they have all the information they need for their work. Likewise, they may not be completely used to telling employees exactly what to do (Halse, 2021).

These expectations, if they are not clarified in time, may conflict with the expectations of employees of another culture, who wait to work until they have received all the information they need for their work from their supervisor (Karjalainen, 2020).

A similar "conflict of expectations" can also arise between employees who assume that their supervisor will specify their tasks in detail, and managers who expect that if employees are not completely sure of their tasks, they will come to ask them.

For employees who are not used to this approach, this management style may even lead to fears that if they come to ask a question to their superior, they will look incompetent in his eyes. Rather than asking him about something, they will make mistakes in their work in the hope that they will not be found out.

Differences in personnel management methods

The implementation of certain foreign or international personnel management methods that are not usual in another country can also cause problems. An example is the introduction of employee evaluation systems based on very direct and open "feedback" or methods requiring employees to openly evaluate themselves (Pongrácz & Sipos, 2018).

In countries whose culture expects or encourages a more indirect and "softer" way of assessment, these demands may sound undesirable, unreasonable, or even harsh (Kotsona, 2021).

The influence of prejudice

The most serious difficulties arise when relations with other nationalities are burdened by prejudices that lead to a one-sided view, or mistrust that prevents cooperation (Kung et al., 2023).

The most serious problems occur when employees or managers are not willing to respect cultural differences (for example, because they feel personally threatened when confronted with the demands of another culture), or when these differences cause them to react inappropriately defensively. In both cases, the tendency to reject the customs of diverse cultures can be combined with the tendency to uncritically emphasize one's own, "positive" cultural difference (Lindheim, 2021).

Solution of intercultural problems by training

Basic tools for overcoming intercultural communication and cooperation problems include training (Bhawuk, 2020; Möller, 2020). Its goal is to increase understanding and/or acceptance of cultural differences, overcome cultural prejudices, strengthen openness to adopting practices from different cultures and build mutual trust between their representatives (Egan & Bendick, 2008).

The main requirement for multicultural training to become an effective tool of cultural management (Dobbin & Kalev, 2018) is to be “tailor made”, i.e. to focus on the specific and most important cultural misunderstandings and communication barriers between or among employees from different cultures in the company as well as to serve as an instrument for drafting specific rules of multicultural communication on which their participants can agree (Bhawuk & Landis, 2020; Hart et al., 2019).

The benefits of cultural diversity

Cultural differences do not always have to be a problem. Quite on the contrary, cultural diversity often has an incredibly positive effect on the performance of work groups and teams (Kadam et al., 2020).

Although it usually places greater demands on communication (sometimes even verifying whether all members of the group understand how certain topics or problems are perceived by others), one of its indisputable benefits is that it brings new or different views and perspectives to the organization. With them often comes greater openness to innovative ideas, higher flexibility, or increased creativity (Pencheva & Sokolova, 2018).

However, the effectiveness of work groups composed of people with diverse cultural backgrounds also depends on the nature of their tasks, the extent of their shared experience and the way their cultural diversity is managed (Ratasuk & Charoensukmongkol, 2019).

Multicultural teams are therefore generally more suitable for solving tasks connected with the creation of innovations, and less so for solving tasks of a routine nature. However, at the same time, the prerequisites for their higher performance may also

include the extent to which the cultural differences that exist within the work group are used by its management as their strengths and are thus not deliberately removed.

However, the rules of managing multicultural teams also include that group members should be selected based on their abilities and experience and not based on nationality (Thrassou et al., 2018).

Methods and Data

The purpose of the analytical part of this article, based on a qualitative analysis using management questionnaires and semi-structured management interviews, mainly with human resource managers of mid-sized and bigger businesses, was to find out what importance do the companies surveyed put on multicultural training to prevent intercultural misunderstandings and increase the effectiveness of international cooperation including teamwork.

More specifically, the research questions covered the following issues:

(i) do the companies surveyed feel the need of intercultural trainings to prevent cultural misunderstandings and cooperation barriers in work and management?
(ii) what importance do they attribute to cultural training as a cultural management tool?
(iii) what type of training in terms of its focus/contents and training methods used do they consider most useful?

Data collection was conducted in the second and third quarter of 2023, using targeted sampling, focusing on subjects which either operate internationally and use intensive cross-border cooperation or employ locally people and/or managers coming from different countries and cultures.

The subjects surveyed were based mainly in Prague and central Bohemia. A total of 32 companies were included in the research whereby the number of local, both domestic and foreign employees in these companies ranged from 323 to 745 persons. Most of the companies operated in manufacturing, energy, logistics, trade, finance, and personal services industries.

Results and discussion

The main results of the analyses of the data obtained from questionnaires´ answers and interviews statements of managers in the surveyed companies were the following:

(i) most companies surveyed did not deliberately try to prevent the occurrence of intercultural misunderstandings and and/or culturally based communication barriers before they had appeared. At the same time, more than a third of the companies surveyed, claim that even though their employees frequently must

cooperate with individuals from differing national cultures they do not feel the necessity to foster their cooperation by intercultural trainings.

(ii) more than two thirds of the companies which have experienced intercultural barriers in their employees´ and/or managers´ cooperation have decided to organize some sort of intercultural trainings.

In these companies, targeted training was regarded as the basic tool for overcoming the problems of intercultural communication and cooperation. Their goal was to increase understanding of cultural differences, overcome cultural prejudices, strengthen openness to adopting practices from different cultures and build mutual trust between their representatives. The surveyed companies have so far, a limited experience with interculturally targeted couching, mainly due to a lack of coaches available.

(i) the companies which declared the highest need of intercultural training were either those which relied on frequent international teamwork and those whose foreign managers who were not locally based oversaw local managers and/or employees. The percentage of companies falling into this category which used multicultural training was relatively high, namely 69 percent.

(ii) intercultural trainings, according to the managers of the companies surveyed, to be effective should be focused primarily on two areas of topics, namely on the change of employees' attitudes towards cultural differences, and on understanding of the basic practical and day-to-day rules of successful intercultural communication and cooperation.

(iii) the trainings of the first group, aimed at changing attitudes towards cultural differences because of fears, mistrust or negative attitudes towards members of other nations can usually be very effective reduced if focused on management practices and work behaviour in other countries.

Training of this kind should therefore explain to employees what they should expect when working with members of other nations and what they should be prepared for. An example is how their foreign colleagues perceive and interpret certain work or management situations, what management style (e.g., in project management) they are used to, what are their typical expectations regarding the role of employees and managers, etc.

Also, they should make it clear why representatives of other, often very different, national corporate cultures are successful in fulfilling their tasks despite their differences, and what can be the cause of unnecessarily negative attitudes towards other national customs.

An example can be a successful intercultural training, used by one of the companies surveyed, focused on cooperation with German partners, which emphasizes the importance of clear corporate rules and relationships in German companies. Although the culture of German companies is gradually changing in connection with the globalization of economies, their employees are generally used to following the instructions of their superiors as they are formulated.

Therefore, they are usually not used to discussing their decisions with managers (unless they are explicitly asked to do so). However, at the same time, their superiors give them precise instructions on how to proceed and what results they expect from them. They also make sure that employees have all the essentials they need for work, that they understand their work procedures well, that their roles in work teams are clearly defined, etc.

Another goal of this training is to stress the emphasis that German companies place on the use of working hours and compliance with deadlines. Maximum commitment is therefore expected here during working hours. However, neither employees nor managers are usually expected to work longer than the working hours require. Deadlines are considered binding, and non-compliance is considered a serious offense.

As for typical social distance, the training stresses higher social distance between employees and managers in German companies which, however, is gradually decreasing, especially in new businesses and in high-tech sectors, slower or more careful implementation of changes, including due to concerns about disruption of existing social relations, the habit of communicating directly and clearly. In work matters, it is therefore not customary "to take napkins" when pointing out shortcomings, when rejecting certain proposals or requests, etc.

A similarly focused training used by one of the companies surveyed looks at some typical manifestations by which Czech workers draw attention to themselves in the German environment - both in a positive and a negative sense, for example considerable practicality, but at the same time a somewhat slower personal pace, a looser attitude towards tasks and deadlines, higher sensitivity to national differences, etc.

- Training focused on the practical rules of successful intercultural communication and cooperation should explain and emphasize the rules that should be followed during intercultural communication. These trainings, according to managers of the companies surveyed, are suitable primarily for leaders of multicultural teams. The rules of intercultural cooperation in these teams can sometimes, as more than one third of the surveyed companies claimed, be at least partly derived by their attendees themselves.

Properly oriented trainings of this type include the main principles and assumptions of managing multicultural groups and teams. These are principles of a universal nature and therefore do not depend on the specific nature of different cultural customs or expectations.

The main skills that these intercultural trainings should focus on for successful international cooperation - and that leaders of multicultural teams should gain, include, according to the managers who organized, attended, or led them, the following abilities or habits:

- patience and ability to listen. Working in an intercultural environment can be slower and can sometimes be frustrating or tiring, especially at first. Its participants should therefore prepare for the increased demands associated with working in this environment and arm themselves with patience,
- establishing rules. Working in an intercultural environment usually requires establishing clear rules of cooperation or communication, even when this slows down the progress of the work at the beginning. Examples can be rules regarding punctuality or time management, the way meetings are conducted, expressing disagreement, etc. It is always better if these rules are set by the intercultural group itself than if they are determined "from above".
- asking questions. If the participants of intercultural cooperation do not understand something in mutual relations or the way of working, or if they do not understand why someone behaved in a certain way, they should not feel inhibited in asking about it. Asking a question and clarifying what appears to be unclear prevents the tendency to form prejudices and alerts the other party to possible sources of misunderstanding.
- mutual respect. The basis of successful intercultural communication is the mutual respect of the parties. If we show it to the other party, it is easier to get it. At the same time, we will strengthen openness in mutual relations.
- the importance of written documents. The ability to understand a foreign language is usually higher if it is a written text. When working in an intercultural environment, it is therefore appropriate to record the main results or conclusions of negotiations or joint work in writing. This reduces the probability that different parties will have different ideas about the results or conclusions of the negotiations.
- understanding different attitudes to time. Distinct national cultures differ in their approach to time: for some, "time is money", others approach time more freely. Similarly, different national cultures may also differ in the priority that work takes among their values, for example in relation to family.

As a result, as the interviewed managers claimed, members of distinct national cultures may differ in their expectations of the extent to which other members of the group will - to meet deadlines or tasks - sacrifice their free time.

Members of cultures for which meeting deadlines is a priority can therefore help when negotiating or working with people whose tendency to meet deadlines is weaker if they create certain time reserves.

- abilities of dealing with humour. Some jokes can sound like insults in an intercultural environment - due to the different sense of humour. Jokes or picking on certain people should therefore be approached more carefully in this environment. However, humour can also serve to overcome mutual mistrust, for example when it focuses on certain international cultural stereotypes.
- information verification. The easiest way to limit problems in intercultural communication is to verify whether there were no misunderstandings during

cooperation or information exchange, in the understanding of the agreement, contents of instructions, etc. Verifying whether all parties understand mutual communication in the same way can save considerable time associated with eliminating the consequences mutual misunderstandings in the future, the interviewed managers stressed.

- positive attitude. If problems arise in intercultural communication, mutual blame should be avoided. Instead of conflicts, it is necessary to analyse the causes of problems and to jointly search for ways and solutions to prevent similar misunderstandings in the future.
- self-reflection. Successful intercultural communication requires the ability to look critically at one's own communication, management, or motivational abilities. Part of it is the ability and willingness to think about how to improve intercultural cooperation.

Most companies which used intercultural training as a tool to deal with intercultural misunderstandings and/or interculturally based communication barriers (74% of them) claimed that these training should ideally be organized as a preventive tool, i.e., before intercultural communication problems arise. At the same time, however, they usually admitted that the effectiveness of these trainings tends to be higher once the employees get first experience with intercultural cooperation, especially in teams.

The analyses of the research questions which followed from the questionnaires answers and interviews statements were the following:

(i) most companies surveyed did not deliberately try to increase the effectiveness of their soft skills training and do not make principal difference between soft and hard skills training activities. Only 18% of the companies surveyed claimed that soft skills training, due to the substance of these skills and specific requirement of their training do deserve special approach. Most companies (63%) did, however, feel the importance of soft, mainly communication and management skills and tries to come up with more and individualized methods of their development covering mainly coaching. At the same time most of these companies are convinced the training of employees in the field of soft skills should be entrusted to persons who have both the professional and personal prerequisites for it. When it comes to external lecturers, it is important to make sure of these assumptions, and not just trust the claims of educational companies. In the case of internal lecturers, the trainers themselves need to be trained first.

(ii) unlike trainings in hard skills, more than a half of the companies surveyed (69%) feel that one of the most important ways how to increase the effectiveness of soft skills training in the involvement of employees (participants) into their planning, both in terms of their focus and methods used. Another preferred method used in soft skills training is the role-playing method. Rather that methods increasing the effectiveness of training both

these methods are rather used as an instrument raising employee interest in training and employee satisfaction with their execution.

(iii) only a minority of companies surveyed (15%) clearly specify the goal of the training in terms of specific social skills used in a concrete situation. Related to this, only a minority (38%) of companies surveyed do use a method evaluation an increase in skills trained. Practically all of them (95) do, however, get feedback from participants of training, though this feedback typically does not concern an objective evaluation of newly learned skills.

(iv) Though more than a half of the companies surveyed (78%) have a relatively clear idea of the area the training should be focused on, the leave great space to the lecturer in terms of the specific contents of the training. Most of the (71%) do not feel the need to monitor the training, either through a HR specialist or a line manager.

(v) About a third of the companies surveyed claimed that higher effectiveness of soft skills training requires to establish standardized content, uniform procedures, and proven principles on which trainings of these across the company skills are based. Also, according to their experience, it is advisable to create written manuals for employees, the aim of which is to specify the main steps of the newly learned skills and sometimes even the most common problems concerning their use they may encounter at work, including their solutions. These requirements are, however, as they admit, not always fulfilled.

(vi) The prevailing view (70% of companies surveyed) is that it is usually not enough to explain or demonstrate new skills to employees. If they are to learn new skills, they need to acquire them based on their own practice and/or experience. For positions where employee failures can cause serious problems (including senior positions), training should be based on practicing simulated situations. One of the goals of this training is to alert employees to potential mistakes before they can make them while performing their tasks.

(vii) When developing soft skills, it must be assumed that a few days of training alone is not enough to acquire them. Longer-term attention, support, and feedback from a superior or external coach and sometimes even repeated trainings is also important.

(viii) Most companies (68%) agreed it is important for the employees to gain trust in the newly learned soft skills. An important part of a soft skills training covers thus convincing the employees that the skill they are learning are really appropriate, important and efficient. The reason for this maybe they have doubts as to whether the new skills are really more effective than the skills they used before. Overcome the employee distrust in the new skill should be based on practical illustrations. An example, quoted by a company, is a situation where a lecturer/superior advises an employee, handling complaints, not to argue with the persons who complain. The reason for this is that it is very likely to calm them down sooner. However, the employee does not agree with this procedure. He argues that if he does not argue with them about the

content of their complaint, he will show them that his position is weaker and thus strengthen their position.

(ix) Objections to a certain course of action are often even stronger found on the part of the leaders. Their views on, for example, how to manage their subordinates sometimes differ significantly from what their trainers, organizations or coaches is right. Even these situations, and usually even more than the previous one, must be handled in a soft skills training. Companies are, however, continually coming to the view that training is not an effective way to solve this issue. Almost a half (45%) of the companies surveyed agree that this is an issue which can be best handled by coaching.

(x) Resistance to changing habitual procedures (and sometimes even prejudices) should be regarded as natural and the superior should anticipate it in advance. Most companies surveyed (79%) claimed the superior should give the employee time to familiarize himself with the new soft skill procedure and gradually accept it as his own, and he should not promote the adoption of the new procedure too quickly. Too much pressure on employees can increase their resistance to adopting a new procedure. This rejection can then be difficult for them to take back.

(xi) At least in theory, most companies surveyed agreed that for all major soft skills training programs, appropriate model situations, must be created to verify that employees have learned the new skills. These situations should assess their ability to solve certain model social situations. If employees are unable to solve these model social situations, they need to either continue training or have a coach help them learn them.

Conclusion

The research found that the surveyed companies in their majority use training as the basic tool for preventing as well as solving the problems of intercultural communication and cooperation. Also, according to the survey findings, the surveyed companies believed that targeted trainings are most effective instrument of multicultural management.

Their goal is to increase understanding of cultural differences, overcome cultural prejudices, strengthen openness to adopting practices from diverse cultures and build mutual trust between their representatives.

Intercultural trainings, according to the experience of the surveyed companies, should be focused primarily on two areas of topics, namely on the change of employees' attitudes towards cultural differences, and on the basic practical rules of successful intercultural communication and cooperation, mainly in intercultural teams. These rules of successful intercultural communication and cooperation can sometimes, after the first experience with intercultural teamwork be derived by their participants themselves.

The research showed that the main requirements of successful intercultural trainings are the same, regardless on the industry in which the company operate. The cultural differences they explain should, however, correspond to individual nations and the practical rules of intercultural cooperation should meet the needs of the company.

The survey found that most companies with intensive multicultural management experience feel the need to organize such trainings once they encounter intercultural communication barriers in their employees´ cooperation. The effectiveness of these training tends, namely, be higher if the participants of multicultural training have not lost mutual trust and can develop the rules of multicultural communication under the management leadership at least partly by themselves.

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