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CONTENTS

ANTON GERUNOV

ESTIMATING VALUE AT RISK DURING THE STORM: A STUDY OF 25 EUROPEAN
MARKETS 1

HONG-WEN TSAI
HUI-CHUNG CHE
BO BAI

USING PATENT BACKWARD CITATION FOR CLASSIFYING STOCK PRICE OF
CHINA STOCK MARKET 12

ANNY ATANASOVA

INFLUENCE OF STRATEGIC PLANNING ON ENTREPRENEURIAL SMALL AND
MEDIUM-SIZED BUSINESS 35

PHILIP R. IVANOV

INFLUENCE OF DEMOGRAPHIC CHARACTERISTICS ON PREFERRED FORMS
OF MOTIVATION 50

MARIYANA KUZMANOVA
ATANAS ATANASSOV

CHANGE MANAGEMENT AS AN INSTRUMENT IN IMPROVING CRISIS
SUSTAINABILITY OF ORGANISATIONS IN THE INFORMATION AND
COMMUNICATIONS TECHNOLOGY SECTOR: THE CASE OF BULGARIA 63

WANG YISHU
WEI XIAYI

WILL FEMALE PARTICIPATION IN TOP MANAGEMENT TEAMS IMPROVE
CORPORATE SOCIAL RESPONSIBILITY EFFICIENCY? 88

ATHANASIA LEONTI

SPECIFICS OF PROJECT ORGANIZATION IN CONSTRUCTION 111

MILEN FILIPOV INSTAGRAM SOCIAL MEDIA MARKETING EXPERIENCES OF COSMETICS RETAILERS IN KAZAKHSTAN	123
SAVICA DIMITRIESKA TANJA EFREMOVA THE WEIRD SIDE OF EXPERIENCE MARKETING	140
TSVETELINA NIKOLOVA THE BALANCED SCORECARD AS AN IMAGE-MAKING TOOL	149
MELINA NEYKOVA INCREASING STUDENT MOTIVATION IN HIGHER EDUCATION DURING A PANDEMIC	158

Each of the articles published in the “Economics & Management” Magazine, edition of the Faculty of Economics at the SWU “Neofit Rilski”, after preliminary selection by the Editorial board, is a subject of preliminary review by two tenured reviewers, specialists in the respective scientific domain.

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ESTIMATING VALUE AT RISK DURING THE STORM: A STUDY OF 25 EUROPEAN MARKETS

Anton Gerunov¹

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Abstract

This paper investigates which approach to estimating a common risk metric - the Value at Risk (VaR)– yields optimal results in times of significant market turbulence. To this end we leverage data on 25 European stock exchanges over a 15-year period ending in December 2020. Using data on the first 14 years, we estimate the non-parametric, the parametric Gaussian and the Cornish-Fisher versions of the VaR and compare those estimates to the actual realization in the last year of the period. A number of error metrics are consulted with both the mean absolute percentage error (MAPE) and the root mean squared error (RMSE) showing that a Gaussian parametric VaR yields the most accurate approximation to the actual value. Some implications of these results are outlined.

Keywords: Value at Risk; VaR; parametric estimation; stock markets; risk; expected loss

JEL Codes: G11; G32

Introduction

Risk is a fundamental feature of all financial assets, and the analyst merely tries to get an approximate evaluation of its magnitude by estimating a number of metrics. They range from rather simple ones such as the standard deviation or the Sharpe ratio, all the way into more sophisticated ones such as Value at Risk (VaR) and Expected Tail Loss (ETL). The Value at Risk, in particular, has turned out to be a widely used metric in the realms of both financial and operational risk and has had an outsized influence on making quantitative risk management decisions. There is, however, no single way to calculate it and the resulting estimates may vary (Guharay et al., 2017). This is particularly true during periods of high market volatility such as the year 2020 which was marked by a global health pandemic and a corresponding downturn in many global economies. Some pundits have gone as far as to remind us that the VaR metric is like an airbag that works only when it is not needed, underlining the dependence of the estimate on past data and underlying

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assumptions that may not hold during a crisis. This short paper looks deeper into this question by probing which of the alternative VaR estimation methods are most accurate during a crisis and can thus be more reliably used. The next section presents a brief literature review, followed by an explication of the data and methodology used. Section four then presents the major results and implications, while section five concludes.

Essence of the Value at Risk (VaR) Metric

The Value at Risk metric is tasked with answering a simple question: assuming that asset returns are essentially a random variable, then what is the maximum loss that can be expected with a certain probability (denoted α). By means of example calculating a daily VaR of 7% for $\alpha = 95\%$ means that a loss of no more than 7% is expected in 95% of cases. Alternatively, losses of more than 7% are to be expected in 5% of the cases, or in 1 of 20 operating days. Formally, VaR_α is defined as follows (Esterhuysen et al., 2008; Jorion, 2006):

$$VaR_\alpha(L) = \inf\{l \in \mathbb{R}: P(L > l) \leq 1 - \alpha\} \quad (1)$$

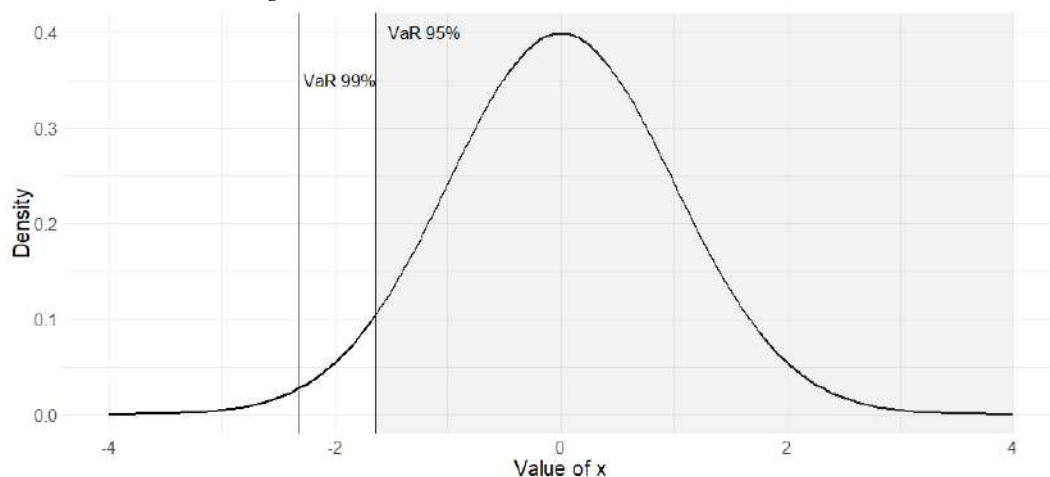
Here, the actual loss realized is denoted as l , and the expected loss as L . Should this expected loss L follow a given well-defined statistical distribution function F_L , then the VaR_α simplifies to the following expression:

$$VaR_\alpha(L) = \inf\{l \in \mathbb{R}: F_L(l) \geq \alpha\} \quad (2)$$

In practical terms, the estimation of the VaR depends on understanding the distribution and variability of asset returns of interest. The parameters of this distribution may be inferred (and mostly are) by using long historical time series or (less often) by means of simulations. Once the distribution is clear, then one easily finds the α -th percentile of the distribution, and this is the VaR. The logic behind this is schematically represented in Figure 1.

It shows a well-defined distribution function, following the Gaussian distribution with a mean of 0 and a standard deviation of 1: $x \sim N(0,1)$. The 95% VaR is at -1.64, meaning that in 95% of the cases, the losses should not exceed 1.64. Conversely, in 5% of the cases losses are likely to exceed this value. Similarly, the 99% VaR stands at about -2.33, implying that in 99% of the cases losses should not be more than 2.33, and in 1% of the cases losses are likely to exceed this threshold.

Figure no. 1 Value at Risk at 95% and 99% levels



Source: Visualization by author

The main challenge in the precise VaR estimation lies not in the calculation of percentiles but in the construction of the underlying statistical distribution based on only sampled data such as stock returns over a certain period. Overall, there have been three major groups of proposed estimation approaches: the parametric, non-parametric and simulation (or Monte Carlo methods) estimation (Guharay et al., 2017; Koike & Hofert, 2020).

The **parametric estimation** uses historical time series to infer the type of statistical distribution and fit its parameters. The most important distinguishing feature is that it assumes the type of distribution (often the Normal one), and then estimates its parameters accordingly. Correct estimation is highly dependent upon a large sample of data that includes different possible regimes of the asset dynamics. At minimum, a full economic cycle with both booms and busts should be included. On top of that the analyst may apply some correction for non-normality or skewness of data such as the Cornish-Fisher method (Kokoris et al., 2020).

The **non-parametric estimation** also uses historical data but does not depend on any assumption about the distribution of returns. Sometimes non-parametric estimation uses simulations and resampling to improve estimation precision. Most importantly, this group of approaches frees the analyst from the need to assume the shape of the distribution beforehand and instead can just let data speak for themselves. This also minimizes errors as it diminishes the cases where wrong assumptions under the VaR calculation. In addition

to those obvious benefits, there is also some research showing that non-parametric methods tend to outperform parametric and semi-parametric ones (Huang et al., 2020).

The third large group of approaches is using a **Monte Carlo-type simulation** for estimating the distribution and calculating the needed percentiles. To do this, analysts may create a small simulation that models the variable under interest and its potential drivers. Those are then parameterized and simulated by taking recourse to drawing random numbers from a set of predefined distributions for those drivers. This procedure is iterated a large number of times, the results are aggregated, and the distribution of returns is derived. In addition to using exclusively Monte Carlo methods for VaR calculation, they are also useful in complementing parametric and non-parametric estimation in cases of insufficient or incomplete data. While all three approaches to calculating the VaR are used it is not clear whether any one of them is superior in every case. This clearly put forward the challenge of choice of approach, particularly in the face of significant market volatility.

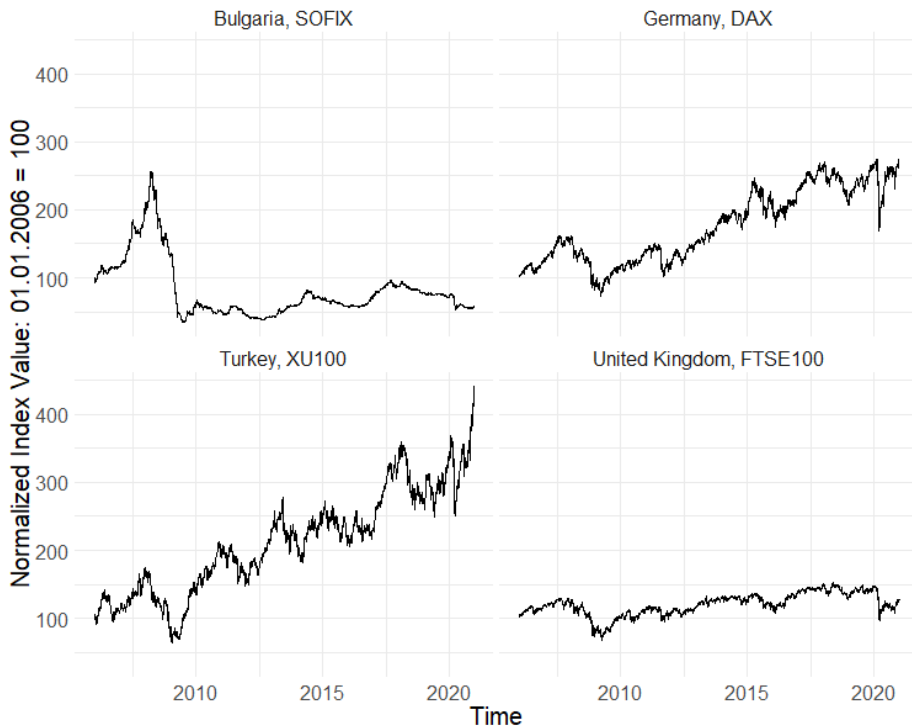
Data and Methodology

In order to compare the three main VaR calculation approaches we use extensive stock market data from 25 European stock exchanges. Those are the Euronext Lisbon, Budapest Stock Exchange, Oslo Stock Exchange, Istanbul Stock Exchange, Bulgarian Stock Exchange, Ukraine Stock Exchange, Slovakia Stock Exchange, Amsterdam Stock Exchange, Vilnius Stock Exchange, Euronext Brussels, Euronext Paris, Moscow Exchange, Bolsa de Madrid, Bucharest Stock Exchange, London Stock Exchange, FTSE 100, Helsinki Stock Exchange, Estonian Stock Exchange, Latvian Stock Exchange, Riga Stock Exchange, Stockholm Stock Exchange, Borsa Italiano, Warsaw Stock Exchange, Deutsche Boerse, Athens Exchange, Prague Stock Exchange, Swiss Exchange, with their respective representative indices (see Table 1). The times series encompass 15 years, starting in January 2006 and ending in December 2020. This period is particularly fortunate as it sees both global economic expansion in the mid-2000s as well as the global financial crisis and ensued from 2008 onwards and the corresponding recovery. Most notably, the period also includes a particularly stormy year – 2020, which was characterized by a global health pandemic and very significant market volatility. All the data is procured through the public repository of Stooq and is processed in the R language for statistical programming.

European stock market could arguably not have any more diverse dynamics than they display in this period under study (see Figure 2). Some of them such as the Bulgarian market (SOFIX) have had a strong growth in the early years, only to dampen afterwards. The Germany index, DAX, has registered robust growth over the period with a clear upward trend. United Kingdom's FTSE 100 have remained quite stable over the last 15

years, while some emerging markets such as Turkey have registered an explosive upward trajectory. Other markets also have their specifics and while it seems that all markets are moved by overall global macroeconomic risk, they also exhibit their own idiosyncratic episodes.

Figure no. 2 Four Selected Normalized European Stock Market Indices over the Period 2006-2020



Source: Stooq Database (available online at stooq.pl)

Those pronounced index dynamics make it particularly interesting to measure their Value at Risk and investigate which of the major contending approaches is most suitable for a period of extreme volatility such as the year 2020. VaR calculations are done withing the implementation proposed by Peterson et al. (2018). Initially, we select data for the period 2006 to 2020 and calculate all the relevant 95% daily VaR metrics for all markets, and then we compare them with the realized baseline 2020 daily VaR. For a more detailed description of calculation approach, please refer to Gerunov (2017).

Formally, we look not only at the absolute error rates (denoted ε) but also at the absolute percentage errors. The overall Mean Absolute Percentage Error (MAPE) gives an idea of what is the average percentage deviation of the calculated VaR metrics when compared to the baseline. We denote the percentage deviation between forecast and baselines for case i as p_i , over a number of forecasts, n . MAPE is thus defined as follows:

$$MAPE = \frac{1}{n} \sum_{i=1}^n 100 * |p_i| \quad (3)$$

Another, and arguably more common, metric to compare forecasts to realizations is the Root Mean Squared Error. It starts by calculating the squares of the errors, ε_i (difference between forecast and realization), and then takes the square root of their mean. RMSE can then be expressed as follows:

$$RMSE = \sqrt{\frac{1}{n} \sum_{i=1}^n (\varepsilon_i)^2} \quad (4)$$

When deciding on the best calculation approach, it is often a useful idea to consider more than one metric as their possible convergence is an indication of the robustness of results achieved. The current study thus leverages both the absolute error rate, the MAPE, and the RMSE.

Results and Discussion

Calculation results for all 25 indices are presented in Table 1. Historical calculation assumes a non-parametric estimation on the 14-year data ending in 2019, while Gaussian assumes parametric estimation, assuming normal (Gaussian) distribution of returns. The Modified estimate supposes a fat-tailed distribution of returns (as one should expect in times of high volatility) and applies the Cornish-Fisher correction. Finally, the baseline for 2020 is the calculated Value at Risk for this year without taking recourse to any assumptions, corrections, or adjustments. Daily VaRs in the European markets vary from 1.7 to around 3% meaning that in 95% of the cases this should be the maximum expected loss. In line with expectations VaRs tend to be higher for emerging and riskier markets, and especially for smaller markets. The highest VaR goes to Greece, followed by Russia, and Italy. The VaR metrics tend to be lower for the countries in the North and West of the continent.

Table no. 1 Value at Risk at 95% Calculated using Three Approaches Compared to Baseline

Country	Exchange	Index	Historical	Gaussian	Modified	Baseline 2020
Portugal	Euronext Lisbon	PSI20	2.01%	2.03%	1.89%	2.27%
Iceland	Iceland All Shares	ICEX	2.25%	2.43%	2.15%	2.87%
Hungary	Budapest Stock Exchange	BUX	2.20%	2.29%	2.27%	3.06%
Norway	Oslo Stock Exchange	OSEAX	2.55%	2.62%	2.57%	2.65%
Turkey	Istanbul Stock Exchange	XU100	1.56%	1.82%	1.78%	1.28%
Bulgaria	Bulgarian Stock Exchange	SOFIX	2.72%	3.12%	2.69%	1.95%
Ukraine	Ukraine Stock Exchange	UX	1.66%	1.83%	1.59%	1.95%
Netherlands	Amsterdam Stock Exchange	AEX	1.96%	2.08%	1.86%	3.07%
Lithuania	Vilnius Stock Exchange	OMXV	1.33%	1.64%	1.14%	0.93%
Belgium	Euronext Brussels	BEL20	1.94%	1.98%	1.84%	3.80%
France	Euronext Paris	CAC40	2.14%	2.23%	1.98%	3.54%
Russia	Moscow Exchange	MOEX	2.53%	3.12%	1.70%	2.39%
Spain	Bolsa de Madrid	IBEX	2.29%	2.38%	2.10%	3.28%
Romania	Bucharest Stock Exchange	BET	2.02%	2.36%	2.17%	2.46%
UK	London Stock Exchange, FTSE 100	UKX	1.73%	1.85%	1.65%	3.34%
Finland	Helsinki Stock Exchange	HEX	2.11%	2.16%	2.03%	3.02%
Estonia	Estonian Stock Exchange	OMXT	1.47%	1.65%	1.28%	1.11%
Latvia	Latvian Exchange, Riga All-shares Index	OMXR	1.82%	2.00%	1.46%	1.18%
Sweden	Stockholm Stock Exchange	OMXS	2.14%	2.19%	2.01%	3.15%
Italy	Borsa Italiano	FMIB	2.49%	2.56%	2.42%	3.34%
Germany	Deutsche Boerse	DAX	2.10%	2.15%	1.92%	3.69%
Greece	Athens Exchange, Athens Composite	ATH	3.15%	3.24%	3.07%	4.00%
Czech R.	Prague Stock Exchange	PX	1.94%	2.20%	1.81%	2.68%
Switzerland	Swiss Exchange	SMI	1.66%	1.78%	1.60%	2.27%
Poland	Warsaw Stock Exchange	WIG20	2.21%	2.33%	2.30%	3.22%

Source: Calculations by author

Those results are unsurprising as those markets are well-established, developed, and liquid. Their institutional foundation and macroeconomic fundamentals spell a lower level of risk that is reflected in practically all metrics – from expected loss to volatility.

Table no. 2 Error Rates for Different VaR Estimates

Index	Absolute Error			Absolute Percentage Error			Root Squared Error		
	Hist	Gauss	Modif	Hist	Gauss	Modif	Hist	Gauss	Modif
PSI20	0.26%	0.24%	0.38%	12.85%	11.57%	19.81%	0.26%	1.78%	1.66%
ICEX	0.62%	0.44%	0.73%	27.67%	18.02%	33.78%	0.62%	1.81%	1.71%
BUX	0.86%	0.77%	0.79%	39.34%	33.60%	34.97%	0.86%	1.43%	1.50%
OSEAX	0.09%	0.02%	0.08%	3.59%	0.84%	3.12%	0.09%	2.53%	2.54%
XU100	0.28%	0.54%	0.49%	17.89%	29.63%	27.84%	0.28%	1.54%	1.24%
SOFIX	0.77%	1.17%	0.74%	28.17%	37.42%	27.41%	0.77%	2.35%	1.52%
UX	0.29%	0.12%	0.36%	17.24%	6.81%	22.74%	0.29%	1.54%	1.47%
AEX	1.11%	1.00%	1.21%	56.93%	47.97%	65.39%	1.11%	0.96%	0.86%
OMXV	0.40%	0.70%	0.21%	29.93%	43.03%	18.42%	0.40%	1.24%	0.44%
BEL20	1.87%	1.82%	1.96%	96.42%	91.72%	106.7%	1.87%	0.12%	0.02%
CAC40	1.40%	1.31%	1.56%	65.71%	58.89%	79.11%	1.40%	0.82%	0.66%
MOEX	0.14%	0.73%	0.69%	5.58%	23.44%	40.85%	0.14%	2.98%	0.97%
IBEX	1.00%	0.91%	1.19%	43.47%	38.15%	56.56%	1.00%	1.38%	1.19%
BET	0.44%	0.10%	0.29%	21.89%	4.18%	13.21%	0.44%	1.92%	2.07%
UKX	1.61%	1.49%	1.69%	93.57%	80.47%	102.4%	1.61%	0.24%	0.16%
HEX	0.91%	0.86%	0.99%	42.94%	39.58%	48.69%	0.91%	1.26%	1.17%
OMXT	0.36%	0.54%	0.17%	24.42%	32.89%	13.37%	0.36%	1.29%	0.74%
OMXR	0.65%	0.83%	0.28%	35.55%	41.32%	19.51%	0.65%	1.35%	0.63%
OMXS	1.01%	0.96%	1.14%	47.00%	43.66%	57.02%	1.01%	1.19%	1.05%
FMIB	0.85%	0.78%	0.92%	34.03%	30.48%	38.12%	0.85%	1.71%	1.64%
DAX	1.60%	1.54%	1.78%	76.26%	71.90%	92.77%	1.60%	0.55%	0.37%
ATH	0.85%	0.77%	0.93%	27.08%	23.72%	30.43%	0.85%	2.38%	2.30%
PX	0.73%	0.47%	0.86%	37.72%	21.52%	47.59%	0.73%	1.47%	1.34%
SMI	0.61%	0.49%	0.67%	36.75%	27.81%	41.85%	0.61%	1.17%	1.11%
WIG20	1.01%	0.89%	0.92%	45.45%	38.48%	40.07%	1.01%	1.32%	1.40%
ALL	Average Error Rate			Mean Absolute % Error			Root Mean Squared Error		
	0.79%	0.78%	0.84%	38.70%	35.88%	43.27%	0.92%	0.90%	0.98%

Source: Calculations by author

Another interesting insight from the table is that since estimates are based on historical data up to 2019, almost all of them underestimate the level of risk (the 95% daily VaR) that came to be realized in 2020. The baseline 2020 VaR is around 1 percentage

points higher than what the historical estimates would suggest, and this result carries over even when corrections for possible fat tails of the distribution are made. What is notable for the 2020 numbers is that while the risk expectedly rises for embattled markets such as Greece, Spain, and Italy, it also does so for more stable ones such as Germany and Netherlands. Conversely, supposedly risky developing markets such as the Turkey and Russia stock exchanges register surprisingly low VaR values.

Results on the different error metrics are presented in more detail in Table 2. It seems that across the board, the best way to estimate VaR in a volatile market is to use the assumption of a normal (Gaussian distribution). The average absolute error is lowest in the Gaussian estimate (0.78%) and the non-parametric historical one (0.79%) as compared to the modified fat-tailed estimate (0.84%). Results are very similar for the MAPE metric – the estimate based on normality assumption has the lowest MAPE of 35.88%, followed by the historical (38.7%) and the modified one (43.27%). The RMSE numbers follow also reflect the superiority of the Gaussian methods. Its RMSE stands at 0.90%, closely followed by the historical one (0.92%), and more distantly – by the modified estimate with an RMSE of 0.98%. Results obtained are clear-cut, albeit a little surprising.

First, those insights add to the debate of the normality of financial returns distribution. Starting even beyond Taleb's (2007) vociferous critique, research has put doubt on the assumption that returns are normally distributed. This strand of literature continues to this day (Danielsson et al., 2013; Eom et al., 2019) and asserts that some characteristics of financial markets are better described by fat-tailed distribution. This implies that VaR metrics for stormy periods (i.e. at the tail of the distribution) should be better approximated when making a correction for the fat tail. This does not seem to be the case, and the analyst may be better served by resorting to a Gaussian distribution if in doubt.

Second, even if the correction is made, the forecast VaR tend to underestimate significantly the realized one in a volatile year. This hints that irrespective of how sophisticated a correction may be a deep crisis with significant economic repercussions has the potential to generate even larger losses than assumed and thus presents a significantly higher amount of risk. The risk and portfolio managers should then consider reserving appropriate (large) buffers instead of relying on a seemingly sophisticated corrections and assumptions that would allow them to have a very precise idea of risk.

Third, the crisis of 2020 has idiosyncratic effects on different European markets. Some safer ones such as the German one saw a significant growth in risk, while others such as the Turkish one seemed to be get calmer. Conversely, embattled markets with weaker fundamentals such as Italy, Spain, and Greece reacted cyclically. This shows that it is unwise to expect similar effects on all European markets of a given change in global

macroeconomic fundamentals. Country specifics tend to dominate the resulting change in risk and the analyst should take those into primary consideration.

Conclusion

This short paper reviewed three major approaches to calculating the Value at Risk metric and using historical data on 25 European stock market indices created forecasts for the daily VaR in 2020. This year's VaR metric was particularly challenging to estimate as the world was beset by twin health and economic crises. Unsurprisingly all three estimation methods – parametric, non-parametric, and modified Cornish-Fisher one – led to underestimates of the Value at Risk. However, the parametric method assuming a Normal distribution robustly outperforms the other two across a range of error metrics. This gives an indication that risk analysts may rely on the Gaussian assumption for their VaR calculation, at least as long as they can use long time series that encompass the full economic cycle. However, the large error rates serve to underline our uncertainty when forecasting risk and point to the necessity of provisioning for it above and beyond what models imply.

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USING PATENT BACKWARD CITATION FOR CLASSIFYING STOCK PRICE OF CHINA STOCK MARKET

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Abstract

Based on the company integrated database, more than 2,000 China listed companies of RMB common stocks (A-shares) from 2017 to 2020 were studied. The impact of the backward citation count, which defined as the total number of patent backward citations per A-share, and the average backward citation count, which defined as the average number of patent backward citations per A-share's patent, on the stock price was thoroughly analyzed via ANOVA. With regard to the original stock price, either the backward citation count or the average backward citation count was not a good indicator for classifying China A-share's stock price. When considering the stock price in the natural logarithm form, the backward citation count showed its significant impact on the stock price. The A-shares of higher backward citation counts showed higher stock price means than the A-shares of lower backward citation counts. It worked well even under Covid-19 pandemic.

Keywords: China A-share; patent; ANOVA; stock price; backward citation

JEL Codes: C38, C46, G11, G12

1. Introduction

Innovation is an essential driver of economic progress that benefits consumers, businesses and the economy as a whole. The technological innovation is a key driver of economic growth. The stock market usually reflects the economic conditions of an economy.

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China has been the largest domestic patent application country in the world for many years. China Intellectual Property Administration (CNIPA) is now the world's largest patent office. In 2020, there are more than three millions of patent published and/or granted by CNIPA, including 1,517 thousands of invention publications, 53 thousands of invention grants and 2,377 thousands of utility model grants. Meanwhile, China is now the world No.2 economy to have a stock market with the world No.2 transaction volume. China listed companies lead the development of China patents, which the unlisted companies and individuals follow.

With so huge amount of China patents, CNIPA faced the challenges in trying to process more patent applications in a shorter period of time and made some achievements (Liegsalz & Wagner, 2013). Based on patent information, Motohashi (2008) examined China's development of innovation capabilities from 1985 to 2005 by using more than 679 thousands of China invention patent. Motohashi (2009) proposed to see a substantial trend of Chinese firms catching up with Western counterparts via patent statistics in two high-tech sectors: the pharmaceutical industry and mobile communications technology. He found that these two fields show contrasting trends, the rapid catching up can be found in mobile communications technology, while Chinese companies are still lagging behind Western counterparts in the pharmaceutical industry. Hu & Jefferson (2009) used a firm-level data set that spans the population of China's large and medium-size industrial enterprises to explore the factors that account for China's rising patent activity. They found that China's patent surge is seemingly paradoxical given the country's weak record of protecting intellectual property rights. Lei, Zhao, Zhang, Chen, Huang & Zhao (2011) found that the inventive activities of China have experienced three developmental phases and have been promoted quickly in recent years. The innovation strengths of the three development phases have shifted from government to university and research institute and then industry. Liu & Qiu (2016) used Chinese firm-level patent data from 1998 to 2007 which featuring a drastic input tariff cut in 2002 because of China's WTO accession. They found that input tariff cut results in less innovation undertaken by Chinese firms.

Boeing & Mueller (2019) proposed a patent quality index based on internationally comparable citation data from international search reports to consider foreign, domestic, and self citations. They found that all three citation types may be used as economic indicators if policy distortion is not a concern. They also suggested that the domestic and self citations suffer from an upward bias in China and should be employed with caution if they are to be interpreted as a measure of patent quality.

Dang & Motohashi (2015) proposed that China patent statistics are meaningful indicators because China valid patent count is correlated with R&D input and financial

output. Chen & Zhang (2019) studied China's patent surge and its driving forces on patent applications filed by Chinese firms and found that R&D investment, foreign direct investment, and patent subsidy have different effects on different types of patents. They found that R&D investment has a positive and significant impact on patenting activities for all types of patents; the stimulating effect of foreign direct investment on patent applications is only robust for utility model patents and design patents; the patent subsidy only has a positive impact on design patents.

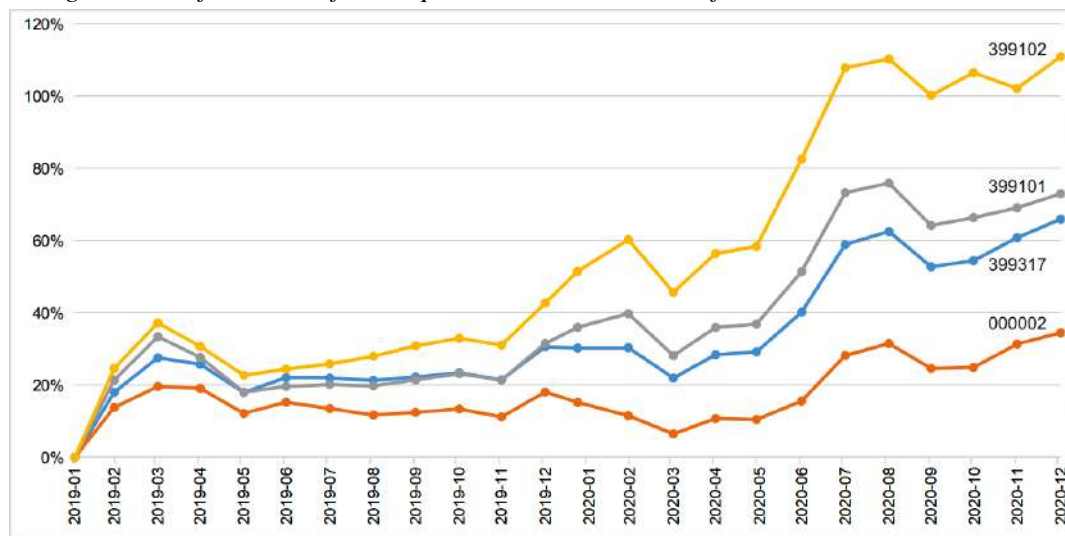
He, Tong, Zhang & He (2016) found that it was difficult in integrating Chinese patent data with company data, so they constructed a China patent database of all China listed companies and their subsidiaries from 1990 to 2010. Chen, wei & Che (2018) used the patent data and stock data of China listed companies of RMB common stocks (A-shares) in Shanghai main board (SH main board) from 2011 to 2017 and found the patent indicators have leading effect on A-share's stock price. Chiu, Chen & Che (2020a, 2020b) focused on the whole China A-shares without distinguishing the stock boards from 2016Q4 to 2018Q3. They found that the patent indicators also have leading effect on the financial indicators including the stock price, return-on-asset (ROA), return-on-equity (ROE), book-value-per-share (BPS), earnings-per-share (EPS), price-to-book (PB) and price-to-earnings (PE). The patent prediction equations for quantitatively giving the predictive values of the aforementioned financial indicators are proposed.

The China A-shares are listed on four stock boards including SH main board, Shenzhen main board (SZ main board), Growing-Enterprises board (GE board) and Small-and-Medium Enterprises board (SME board). The majority of A-shares in SH main board, SZ main board are state-owned companies and big companies; most A-shares in GE board and SME board are small and medium companies. Chiu, Chen & Che (2020c, 2020d, 2020e, 2020f, 2021), Li, Deng & Che (2020a, 2020b, 2021) further studied the patent leading effect on each stock board, proposed each stock board's patent prediction equations on the stock price, ROA, ROE, BPS, EPS, PB and PE, finally proposed patent based stock selection criteria to have stock the performance surpassing the market trend.

COVID-19 is an impact to everything including technology and finance. The World Health Organization (WHO) on March 11, 2020, has declared COVID-19 outbreak a global pandemic. The stock markets around the world including China stock market fluctuated dramatically in 2020. Figure 1 shows the principal China stock indexes performance from Jan. 2019 to Dec. 2020, wherein, 300317 is the stock index consisting of all China A-shares, 000002 is the stock index consisting of all A-shares in SH main board, 399101 is the stock index consisting of all A-shares in SME board, 399102 is the

stock index consisting of all A-shares in GE board. Apparently, stock indexes in 2020 are more volatile though they are in upgoing trend.

Figure 1: Performance of Principal China Stock Indexes from Jan 2019 to Dec 2020



Source: Shanghai Stock Exchange and Shenzhen Stock Exchange in China

In addition, the fluctuation modes of stock indexes are far beyond any patent indicator’s varying trend. Is it possible to correlate China stock market with patent? Tsai, Che & Bai (2021a, 2021b, 2021c, 2021d) discussed the relationship between China patents and China A-shares’ stock performance in 2020. It is found that the A-shares with the higher innovation continuity (Tsai et al., 2021a), the higher patent count (Tsai et al., 2021b), the higher technology variety (Tsai et al., 2021c), or the longer examination duration (Tsai et al., 2021d) have the higher stock return rates.

With regard to the backward citation count of patents, it is usually regarded to be important for evaluating patent’s novelty and non-obviousness. Lai & Che (2009a, 2009b, 2009c) focused on US patents and applied the backward citation count as an indicator for quantitatively modeling US patent values. Though the backward citation count of China patents has been applied for quantitatively giving the predictive values of A-share’s financial indicators (Chiu et al., 2020a~2020f, 2021; Li et al., 2020a, 2020b, 2021), however, the detailed relationship between the backward citation count and A-share’s stock price is not yet discussed. It is therefore the objective of this research to find out, and more particularly, to see whether it is different before and under the COVID-19 pandemic.

2. Methodology

2.1 Company Integrated Patent Database

It is a common phenomenon that a listed company has lots subsidiaries. When a subsidiary's revenue is merged to its parent company as showed in the formal financial report, the subsidiary's patents are inferred to contribute to parent company's financial performance. Therefore, a company integrated patent database is built in this research, wherein, all subsidiaries' patents are merged together with parent company's patents. Furthermore, if a patent is co-owned by parent company and any of the subsidiaries, it is regarded as a single one patent of the parent company for avoiding duplicated calculation. However, if a patent is co-owned by two or more parent A-shares, it is inferred to contribute equivalently to each parent A-share's financial performance, so the patent is duplicated and specified to each of the co-owners for counting.

2.2 Patent Backward Citation

There are four major patent species in China including the invention publication, the invention grant, the utility model grant and the design grant. The design grant is a design application of a product which granted by overcoming the preliminary examination by having a distinct configuration, distinct surface ornamentation or both. The utility model grant is a utility model application of a product which granted by overcoming the preliminary examination. The invention publication is an invention application of a product or a process which published by overcoming the preliminary examination. The invention grant is an invention application which granted by overcoming not only the preliminary examination but also the substantial examination by having novel and distinct technical features of non-obvious effects.

The backward citations in China patent system are the prior arts which examiners officially used in the substantial examination of the invention grant. A patent with more backward citations usually implies to have a stronger patentability of non-obviousness. A company having patents with lots of backward citations usually implies to have good R&D capability and innovation outcome. Therefore the backward citation count (hereinafter, BW citation count) and the average backward citation count (hereinafter, ABW citation count) of an A-share in this research are therefore defined as the number of total backward citations and the average number of backward citations per invention grant respectively.

In order to derive the BW citation counts and ABW citation counts of all A-shares, the patent retrieval interval of one year is applied. For each quarter from 2017 to 2020,

the invention grants are retrieved from the company integrated patent database by the grant date over previous one year, the backward citations corresponding to all derived invention grants are extracted, then the BW citation counts and ABW citation counts for all A-share corresponding to said quarter is calculated. More specifically, for 2017Q1, patents are retrieved by the grant date from 2016/04/01 to 2017/03/31; for 2018Q2, patents are retrieved by the grant date from 2017/07/01 to 2018/06/30; for 2019Q3, patents are retrieved by the grant date from 2018/10/01 to 2019/09/30; and so forth.

By setting the stock price as the dependent variable and either BW citation count or ABW citation count as the independent variable, the R^2 of a linear regression equation is less than 0.1. The linear modeling is inappropriate because of the poor explanatory ability.

The discrete data analysis model is therefore applied. Before dividing the effective samples into different groups, the Kolmogorov-Smirnov test of BW citation counts and ABW citation counts is applied. The result shows that the original data distributions of BW citation counts and ABW citation counts are both seriously skewed, so BW citation counts and ABW citation counts are reformed by the percentile rank (PR) corresponding to each quarter from 2017 to 2020. Two H-groups and two L-groups are generated and discussed in this research as below.

BW citation H-group: A-shares of BW citation count above PR 50;

BW citation L-group: A-shares of BW citation count below PR 50;

ABW citation H-group: A-shares of ABW citation count above PR 50;

ABW citation L-group: A-shares of ABW citation count below PR 50;

2.3 Population and Sample

The population comprises all China A-shares listed in Shanghai exchange and Shenzhen exchange. An effective sample for each specified quarter must meet two conditions:

(1) It was listed to have a definite stock closing price in the last trading day of the specified quarter; and

(2) It must have at least one new invention granted for calculating BW citation count and ABW citation count by the patent retrieval interval as described in sub-section 2.2.

Table 1 shows the effective samples statistics by quarter from 2017 to 2020. Based on the world's No. two stock transaction volume of China, The number of effective samples in each quarter is around 2,000. The sampling rate for effective samples ranges from 50.8% to 64.1%. The analysis in this research should be free of survivorship bias.

Table 1: Effective Samples Statistics in Each Quarter from 2017 to 2020

Year		Effective Samples			
		Q1	Q2	Q3	Q4
2017	A-shares	3,164	3,276	3,380	3,467
	Effective Samples	2,029	1,988	1,718	1,844
	Sampling Rate for Effective Samples	64.1%	60.7%	50.8%	53.2%
2018	A-shares	3,466	3,463	3,463	3,442
	Effective Samples	1,914	1,958	2,018	2,024
	Sampling Rate for Effective Samples	55.2%	56.5%	58.3%	58.8%
2019	A-shares	3,595	3,628	3,648	3,653
	Effective Samples	2,073	2,063	2,064	2,049
	Sampling Rate for Effective Samples	57.7%	56.9%	56.6%	56.1%
2020	A-shares	3,653	3,653	3,641	3,638
	Effective Samples	1,940	1,932	1,930	1,931
	Sampling Rate for Effective Samples	53.1%	52.9%	53.0%	53.1%

Source: This Research

2.4 Analysis of Variance

Analysis of Variance (ANOVA) is applied in this research for discovering:

(1) Whether BW citation count and ABW citation count significantly different between different years?

(2) Whether the stock price between different BW citation groups significantly different or not?

(3) Whether the stock price between different ABW citation groups significantly different or not?

(4) Whether BW citation count and/or ABW citation count good for classifying China A-share's stock price?

ANOVA is a statistical approach used to compare variances across the means of different data groups. The outcome of ANOVA is the "F-Ratio".

$$F = \frac{MST}{MSE} = \frac{\sum n_j (\bar{x}_j - \bar{x})^2 / (k-1)}{\sum \sum (x - \bar{x}_j)^2 / (N-k)}$$

This ratio shows the difference between the within group variance and the between group variance, which ultimately produces a result which allowing a conclusion that the null hypothesis $H_0: \mu_1 = \mu_2 = \dots = \mu_k$ is supported or rejected. If there is a significant difference between the groups, the null hypothesis is not supported, and the F-ratio will be larger and the corresponding p value should be smaller than 0.05.

3. Result and Finding

3.1 BW Citation Count and ABW Citation Count

Tables 2 and 3 show BW citation count mean and ABW citation count mean in each quarter from 2017 to 2020. No matter H-group or L-group, it seems that either BW citation count means or ABW citation count means are different between different quarters and between different years.

Table 2: BW Citation Count Mean in Each Quarter

BW Citation Group	Year	BW Citation Count Mean			
		Q1	Q2	Q3	Q4
H-Group	2017	164.75	137.26	115.75	149.32
	2018	162.01	177.02	187.6	178.97
	2019	82.85	121.76	122.54	162.09
	2020	66.53	145.4	146.72	178.34
L-Group	2017	9.22	8.14	6.52	7.79
	2018	8.27	9.04	9.44	8.81
	2019	5.91	2.89	4.36	4.37
	2020	2.24	4.98	4.92	7.4

Source: This Research

Table 3: ABW Citation Count Mean in Each Quarter

ABW Citation Group	Year	ABW Citation Count Mean			
		Q1	Q2	Q3	Q4
H-Group	2017	5.48	4.89	4.31	4.78
	2018	4.93	5.11	5.30	5.10
	2019	2.39	3.35	3.49	4.48
	2020	4.13	4.00	3.63	2.06
L-Group	2017	3.13	2.48	1.91	2.12
	2018	2.24	2.49	2.71	2.69
	2019	0.85	1.26	1.31	2.00
	2020	1.71	1.57	3.22	0.74

Source: This Research

In order to confirm the inference obtained from Tables 2 and 3, ANOVA is applied. Table 4 shows the results of ANOVA on BW citation count between four quarters in each year from 2017 to 2020. Table 5 shows the results of ANOVA on ABW citation count between four quarters in each year from 2017 to 2020.

Table 4: Result of ANOVA on BW Citation Count between Different Quarters

Year	BW Citation Group	Quarter	BW Citation Count			
			Sum Square	Mean Square	F	p
2017	H-Group	Between Quarters	1,173,736.2	391,245.4	1.545	0.201
		Within Quarters	934,359,449.5	253,282.6		
	L-Group	Between Quarters	3,496.4	1,165.5	63.891	0.001***
		Within Quarters	68,952.6	18.2		
2018	H-Group	Between Quarters	326,038.8	108,679.6	0.196	0.899
		Within Quarters	2,156,822,924.0	555,452.7		
	L-Group	Between Quarters	720.4	240.1	10.371	0.001***
		Within Quarters	93,142.6	23.2		
2019	H-Group	Between Quarters	3,209,978.3	1,069,992.8	3.863	0.009**
		Within Quarters	1,123,824,213.0	277,008.7		
	L-Group	Between Quarters	4,739.5	1,579.8	184.657	0.001***
		Within Quarters	35,796.6	8.6		
2020	H-Group	Between Quarters	6,426,178.5	2,142,059.5	6.196	0.001***
		Within Quarters	1,310,976,893.4	345,721.8		
	L-Group	Between Quarters	13,115.0	4,371.7	384.789	0.001***
		Within Quarters	44,683.5	11.4		

Source: This Research; $p < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

Table 5: Result of ANOVA on ABW Citation Count between Different Quarters

Year	ABW Citation Group	Quarter	ABW Citation Count			
			Sum Square	Mean Square	F	p
2017	H-Group	Between Quarters	644.9	215.0	108.738	0.001***
		Within Quarters	7,352.3	2.0		
	L-Group	Between Quarters	818.5	272.8	480.164	0.001***
		Within Quarters	2,130.9	0.6		
2018	H-Group	Between Quarters	67.0	22.3	8.983	0.001***
		Within Quarters	9,816.1	2.5		
	L-Group	Between Quarters	143.9	48.0	80.565	0.001***
		Within Quarters	2,358.4	0.6		
2019	H-Group	Between Quarters	2,179.5	726.5	358.361	0.001***
		Within Quarters	8,180.3	2.0		
	L-Group	Between Quarters	727.6	242.5	834.890	0.001***
		Within Quarters	1,221.9	0.3		

2020	H-Group	Between Quarters	2,106.4	702.1	311.111	0.001***
		Within Quarters	8,034.3	2.3		
	L-Group	Between Quarters	3,410.5	1,136.8	953.070	0.001***
		Within Quarters	4,968.0	1.2		

Source: This Research; $p^* < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

In Table 4, with regard to BW citation H-groups, the BW citation count variances between four different quarters in 2019 and 2020 are of significance whereas the BW citation count variances between four different quarters in 2017 and 2018 are free of significance. BW citation H-groups in different quarters have significantly different BW citation count means only in 2019 and 2020. With regard to BW citation L-groups, the BW citation count variances between four different quarters in all years are of significance. BW citation L-groups in different quarters have significantly different BW citation count means from 2016 and 2020.

In Table 5, with regard to either ABW citation H-groups or ABW citation L-groups, the ABW citation count variances between four different quarters in all years are of significance. ABW citation groups in different quarters have significantly different ABW citation count means from 2016 and 2020.

Tables 6 and 7 show the results of ANOVA on BW citation count and ABW citation count between four years from 2017 to 2020. With regard to any group of BW citation groups in Table 6, the BW citation count variances between different years are all of significance. With regard to any group of ABW citation groups in Table 7, the ABW citation count variances between different years are all of significance, too. Different years have significantly different BW citation count means and ABW citation count means no matter what group is.

Table 6: Result of ANOVA on BW Citation Count between Different Years

BW Citation Group	Year	BW Citation Count			
		Sum Square	Mean Square	F	p
H-Group	Between Years	60,515.2	20,171.7	1,214.358	0.001***
	Within Years	264,646.6	16.6		
L-Group	Between Years	6,434,754.4	2,144,918.1	5.978	0.001***
	Within Years	5,537,119,411.6	358,784.4		

Source: This Research; $p^* < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

Table 7: Result of ANOVA on ABW Citation Count between Different Years

ABW citation Group	Year	ABW Citation Count			
		Sum Square	Mean Square	F	p
H-Group	Between Years	3,821.6	1,273.9	1,299.162	0.001***
	Within Years	15,779.8	1.0		
L-Group	Between Years	9,041.7	3,013.9	1,199.248	0.001***
	Within Years	38,380.7	2.5		

Source: This Research; $p^* < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

By merging four quarters into one single year, Tables 8 further shows the multiple comparisons of ANOVA on BW citation count between every two years from 2017 to 2020. With regard to BW citation H-groups, BW citation count variances between every two years are of significance. According to the significant mean differences between all BW citation H-groups, 2018 have the highest BW citation count meanwhile 2019 have the lowest BW citation count mean. With regard to BW citation L-groups, BW citation count variances between 2018 and 2017, between 2019 and 2018, between 2020 and 2018, are of significance; while the other BW citation count variances are free of significance. According to the significant mean differences between all BW citation L-groups, 2018 has the highest BW citation count meanwhile 2019 has the lowest BW citation count mean.

Table 8: Multiple Comparisons of ANOVA on BW Citation Count between Different Years

BW Citation Group	Year		BW Citation Count		
	Year (I)	Year (J)	Mean Difference (I-J)	Std. Error	p
H-Group	2018	2017	0.923	0.092	0.001***
	2019	2017	-3.589	0.091	0.001***
	2019	2018	-4.512	0.090	0.001***
	2020	2017	-3.101	0.093	0.001***
	2020	2018	-4.024	0.091	0.001***
	2020	2019	0.487	0.090	0.001***
L-Group	2018	2017	33.763	13.764	0.014*
	2019	2017	-20.809	13.620	0.127
	2019	2018	-54.572	13.441	0.001***
	2020	2017	-8.284	13.844	0.550
	2020	2018	-42.046	13.668	0.002**
	2020	2019	12.526	13.523	0.354

Source: This Research; $p^* < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

By merging four quarters into one single year, Tables 9 further shows the multiple comparisons of ANOVA on ABW citation count between every two years from 2017 to 2020. With regard to either ABW citation H-groups or ABW citation L-groups, ABW citation count variances between every two years are of significance. According to the significant mean differences of ABW citation H-groups, 2018 have the highest ABW citation count meanwhile 2019 have the lowest ABW citation count mean. According to the significant mean differences of ABW citation L-groups, 2018 also have the highest ABW citation count meanwhile 2019 also have the lowest ABW citation count mean.

Table 9: Multiple Comparisons of ANOVA on ABW Citation Count between Different Years

ABW Citation Group	Year		ABW Citation Count		
	Year (I)	Year (J)	Mean Difference (I-J)	Std. Error	p
H-Group	2018	2017	0.099	0.023	0.001***
	2019	2017	-1.075	0.022	0.001***
	2019	2018	-1.174	0.022	0.001***
	2020	2017	-0.683	0.022	0.001***
	2020	2018	-0.782	0.022	0.001***
	2020	2019	0.392	0.022	0.001***
L-Group	2018	2017	0.221	0.036	0.001***
	2019	2017	-1.479	0.036	0.001***
	2019	2018	-1.701	0.035	0.001***
	2020	2017	-1.339	0.037	0.001***
	2020	2018	-1.560	0.037	0.001***
	2020	2019	0.141	0.036	0.001***

Source: This Research; $p < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

In general, no matter H-group or L-group, the A-shares in different quarters of a year have significantly different BW citation count means and different ABW citation count means. No matter H-group or L-group, the A-shares in different years also have significantly different BW citation count means and different ABW citation count means. The A-shares in 2018 have the highest BW citation count means and ABW citation count means while the A-shares in 2019 have the lowest BW citation count means and ABW citation count means. The varying tendency does not show.

3.2 Stock Price Variance

Table 10 shows the stock price means of all groups in each quarter of ever year from 2017 to 2020.

With regard to BW citation H-groups, it seems that the stock price means are different between different quarters and between different years; the same as BW citation L-groups, ABW citation H-groups and ABW citation L-groups.

Table 10: Stock Price Means of Each BW citation groups and ABW Citation Groups

Year	Group	Stock Price Mean (RMB)			
		Q1	Q2	Q3	Q4
2017	BW Citation H-Group	19.42	17.60	18.09	17.33
	BW Citation L-Group	23.23	19.53	20.48	18.47
	ABW Citation H-Group	19.63	18.55	18.99	18.34
	ABW Citation L-Group	23.01	18.63	19.61	17.47
	Total	21.33	18.59	19.30	17.91
2018	BW Citation H-Group	17.30	13.48	12.32	11.23
	BW Citation L-Group	18.22	15.23	13.32	11.03
	ABW Citation H-Group	18.32	14.45	13.34	11.21
	ABW Citation L-Group	17.22	14.30	12.30	11.05
	Total	17.77	14.37	12.82	11.13
2019	BW Citation H-Group	14.27	13.65	15.30	17.17
	BW Citation L-Group	13.26	14.20	15.34	16.13
	ABW Citation H-Group	14.05	14.42	15.73	16.91
	ABW Citation L-Group	13.49	13.47	14.91	16.41
	Total	13.76	13.93	15.32	16.64
2020	BW Citation H-Group	18.56	22.69	23.68	23.34
	BW Citation L-Group	15.54	17.16	18.29	20.22
	ABW Citation H-Group	16.59	20.00	23.97	22.46
	ABW Citation L-Group	17.49	19.66	18.11	21.32
	Total	17.05	19.83	20.97	21.73

Source: This Research

In order to confirm whether the stock price means between BW citation H-groups and L-groups are significantly different or not, Table 11 shows the results of ANOVA on the stock price between different BW citation groups. In 2017, the stock price variances between BW citation H-groups and L-groups in Q1, Q2 and Q3 are of significance. In 2018 and 2019, the stock price variances between BW citation H-groups and L-groups in all quarters are free of significance. In 2020, the stock price variances between BW citation H-groups and L-groups in Q2 and Q3 are of significance while the stock price variances in Q1 and Q4 are free of significance. In general, there are only five quarters in total sixteen quarters from 2017 to

2020 are of significance. It is hard to conclude that BW citation count has significant impact on the stock price.

Table 11: ANOVA on Stock Price between BW citation Groups

Year	Quarter	BW Citation Group	Stock Price (RMB)			
			Sum Square	Mean Square	F	p
2017	Q1	Between Groups	7,383.1	7,383.1	15.746	0.001***
		Within Groups	950,439.1	468.9		
	Q2	Between Groups	1,748.2	1,748.2	4.388	0.036*
		Within Groups	751,326.0	398.4		
	Q3	Between Groups	2,451.3	2,451.3	5.754	0.017*
		Within Groups	731,009.5	426.0		
	Q4	Between Groups	591.8	591.8	1.106	0.293
		Within Groups	984,905.1	535.3		
2018	Q1	Between Groups	399.5	399.5	0.750	0.386
		Within Groups	1,018,033.3	532.4		
	Q2	Between Groups	1,486.9	1,486.9	3.102	0.078
		Within Groups	937,513.1	479.3		
	Q3	Between Groups	502.1	502.1	1.170	0.280
		Within Groups	865,369.8	429.3		
	Q4	Between Groups	20.3	20.3	0.171	0.680
		Within Groups	241,129.5	119.3		
2019	Q1	Between Groups	525.3	525.3	2.596	0.107
		Within Groups	419,119.7	202.4		
	Q2	Between Groups	155.2	155.2	0.223	0.637
		Within Groups	1,433,345.8	695.5		
	Q3	Between Groups	0.6	0.6	0.001	0.980
		Within Groups	2,209,049.9	1,071.3		
	Q4	Between Groups	553.2	553.2	0.445	0.505
		Within Groups	2,543,846.1	1,242.7		
2020	Q1	Between Groups	4,442.9	4,442.9	3.226	0.073
		Within Groups	2,669,102.3	1,377.2		
	Q2	Between Groups	14,747.2	14,747.2	6.872	0.009**
		Within Groups	4,141,513.2	2,145.9		
	Q3	Between Groups	14,015.0	14,015.0	5.703	0.017*
		Within Groups	4,738,210.8	2,457.6		
	Q4	Between Groups	4,676.3	4,676.3	1.351	0.245
		Within Groups	6,677,269.3	3,461.5		

Source: This Research; $p^* < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

With regard to ABW citation count, Table 12 shows the results of ANOVA on the stock price between different ABW citation groups. In 2017, the stock price variance between ABW citation H-groups and L-groups in Q1 is of significance while the stock price variances in the other quarters are free of significance. In 2018 and 2019, the stock price variances between ABW citation H-groups and L-groups in all quarters are free of significance. In 2020, the stock price variance between ABW citation H-groups and L-groups in Q3 is of significance while the stock price variances in the other quarters are free of significance. In general, there are only two quarters in total sixteen quarters from 2017 to 2020 are of significance. It is also hard to conclude that ABW citation count has significant impact on the stock price.

Table 12: ANOVA on Stock Price between ABW Citation Groups

Year	Quarter	ABW Citation Group	Stock Price (RMB)			
			Sum Square	Mean Square	F	p
2017	Q1	Between Groups	5,804.7	5,804.7	12.359	0.001***
		Within Groups	952,017.5	469.7		
	Q2	Between Groups	3.3	3.3	0.008	0.927
		Within Groups	753,070.9	399.3		
	Q3	Between Groups	167.1	167.1	0.391	0.532
		Within Groups	733,293.8	427.3		
	Q4	Between Groups	348.9	348.9	0.652	0.420
		Within Groups	985,148.1	535.4		
2018	Q1	Between Groups	577.4	577.4	1.085	0.298
		Within Groups	1,017,855.4	532.4		
	Q2	Between Groups	11.0	11.0	0.023	0.880
		Within Groups	938,989.0	480.1		
	Q3	Between Groups	542.1	542.1	1.263	0.261
		Within Groups	865,329.9	429.2		
	Q4	Between Groups	13.6	13.6	0.114	0.736
		Within Groups	241,136.2	119.3		
2019	Q1	Between Groups	162.8	162.8	0.804	0.370
		Within Groups	419,482.1	202.6		
	Q2	Between Groups	466.2	466.2	0.670	0.413
		Within Groups	1,433,034.9	695.3		
	Q3	Between Groups	342.9	342.9	0.320	0.572
		Within Groups	2,208,707.6	1,071.1		
	Q4	Between Groups	125.0	125.0	0.101	0.751
		Within Groups				

		Within Groups	2,544,274.3	1,242.9		
2020	Q1	Between Groups	385.6	385.6	0.280	0.597
		Within Groups	2,673,159.6	1,379.3		
	Q2	Between Groups	55.4	55.4	0.026	0.873
		Within Groups	4,156,205.0	2,153.5		
	Q3	Between Groups	16,525.9	16,525.9	6.728	0.010**
		Within Groups	4,735,699.9	2,456.3		
	Q4	Between Groups	581.5	581.5	0.168	0.682
		Within Groups	6,681,364.1	3,463.6		

Source: This Research; $p < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

However, by observing the stock prices in each quarter, the distribution is not normal. Via the Kolmogorov-Smirnov test, the distribution of the stock price is seriously skewed. Therefore, the stock prices of all effective samples are further transformed by natural logarithm for advanced analysis. Table 13 shows the results of ANOVA on the natural logarithm transformed stock price (hereinafter, the LN stock price) between different BW citation groups. In 2017, the LN stock price variances between BW citation H-groups and L-groups in Q1, Q2 and Q3 are of significance. In 2018, the LN stock price variances between BW citation H-groups and L-groups in Q1 and Q2 are of significance. In 2019, the LN stock price variance between BW citation H-groups and L-groups in Q4 is of significance. In 2020, the stock price variances between BW citation H-groups and L-groups in all quarters are of significance. In general, there are ten quarters of total sixteen quarters from 2017 to 2020 in which the LN stock price variances are of significance. It concludes that BW citation count has significant impact on the LN stock price.

Table 13: ANOVA on LN Stock Price between BW citation Groups

Year	Quarter	BW Citation Group	LN Stock Price (RMB)			
			Sum Square	Mean Square	F	p
2017	Q1	Between Groups	8.0	8.0	18.627	0.001***
		Within Groups	871.9	0.4		
	Q2	Between Groups	4.4	4.4	10.693	0.001***
		Within Groups	779.4	0.4		
	Q3	Between Groups	5.1	5.1	12.610	0.001***
		Within Groups	699.2	0.4		
	Q4	Between Groups	1.6	1.6	3.657	0.056
		Within Groups	816.4	0.4		
2018	Q1	Between Groups	2.4	2.4	4.854	0.028*

		Within Groups	925.6	0.5		
	Q2	Between Groups	2.5	2.5	5.166	0.023*
		Within Groups	965.0	0.5		
	Q3	Between Groups	0.6	0.6	1.223	0.269
		Within Groups	915.3	0.5		
	Q4	Between Groups	0.0	0.0	0.108	0.743
		Within Groups	867.9	0.4		
2019	Q1	Between Groups	0.4	0.4	0.911	0.340
		Within Groups	846.2	0.4		
	Q2	Between Groups	0.1	0.1	0.191	0.662
		Within Groups	970.8	0.5		
	Q3	Between Groups	0.8	0.8	1.392	0.238
		Within Groups	1,187.3	0.6		
	Q4	Between Groups	2.5	2.5	4.021	0.045*
		Within Groups	1,250.2	0.6		
2020	Q1	Between Groups	2.9	2.9	4.302	0.038*
		Within Groups	1,299.5	0.7		
	Q2	Between Groups	9.4	9.4	11.765	0.001***
		Within Groups	1,548.7	0.8		
	Q3	Between Groups	6.6	6.6	8.671	0.003**
		Within Groups	1,471.4	0.8		
	Q4	Between Groups	12.3	12.3	15.470	0.001***
		Within Groups	1,527.5	0.8		

Source: This Research; $p < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

Table 14 shows the results of ANOVA on the LN stock price between different ABW citation groups. In 2017, the LN stock price variance between ABW citation H-groups and L-groups in Q1 is of significance. In 2018 and 2019, the LN stock price variances between ABW citation H-groups and L-groups in all quarters are free of significance. In 2020, the stock price variances between ABW citation H-groups and L-groups in Q3 and Q4 are of significance. In general, there are three quarters of total sixteen quarters from 2017 to 2020 in which the LN stock price variances are of significance. It concludes that ABW citation count has no significant impact on the LN stock price.

Table 14: ANOVA on LN Stock Price between ABW Citation Groups

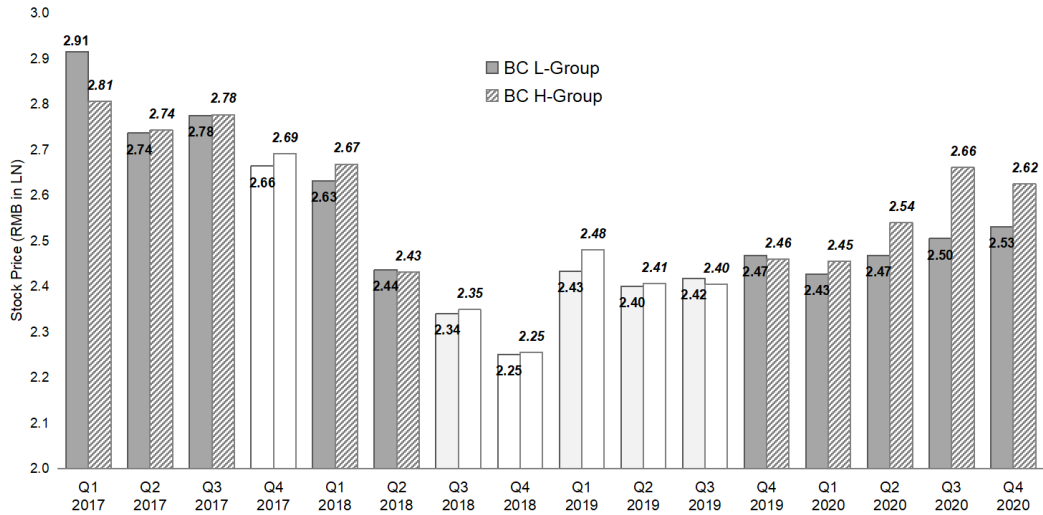
Year	Quarter	ABW Citation Group	LN Stock Price (RMB)			
			Sum Square	Mean Square	F	p
2017	Q1	Between Groups	5.9	5.9	13.766	0.001***

		Within Groups	873.9	0.4		
	Q2	Between Groups	0.0	0.0	0.046	0.830
		Within Groups	783.8	0.4		
	Q3	Between Groups	0.0	0.0	0.002	0.963
		Within Groups	704.4	0.4		
	Q4	Between Groups	0.4	0.4	0.790	0.374
		Within Groups	817.6	0.4		
2018	Q1	Between Groups	0.6	0.6	1.296	0.255
		Within Groups	927.3	0.5		
	Q2	Between Groups	0.0	0.0	0.023	0.879
		Within Groups	967.5	0.5		
	Q3	Between Groups	0.0	0.0	0.087	0.768
		Within Groups	915.8	0.5		
	Q4	Between Groups	0.0	0.0	0.022	0.882
		Within Groups	867.9	0.4		
2019	Q1	Between Groups	1.2	1.2	2.857	0.091
		Within Groups	845.4	0.4		
	Q2	Between Groups	0.0	0.0	0.034	0.854
		Within Groups	970.8	0.5		
	Q3	Between Groups	0.1	0.1	0.158	0.691
		Within Groups	1,188.0	0.6		
	Q4	Between Groups	0.0	0.0	0.047	0.829
		Within Groups	1,252.6	0.6		
2020	Q1	Between Groups	0.4	0.4	0.562	0.453
		Within Groups	1,302.0	0.7		
	Q2	Between Groups	2.5	2.5	3.063	0.080
		Within Groups	1,555.7	0.8		
	Q3	Between Groups	11.8	11.8	15.487	0.001***
		Within Groups	1,466.2	0.8		
	Q4	Between Groups	4.0	4.0	4.966	0.026*
		Within Groups	1,535.8	0.8		

Source: This Research; $p < 0.05$, $p^{**} \leq 0.01$, $p^{***} \leq 0.001$

Since BW citation count has significant impact on the LN stock price, Figure 2 further shows the comparison bar chart of LN stock price means of BW citation H-groups and L-groups from 2017 to 2020, wherein, the blank bars indicate that the mean differences between BW citation H-groups and L-groups are free of significance in those quarters.

Figure 2: Comparison of Stock Price Means between BW citation H-groups and L-groups



Source: This Research

With regard to ten quarters in which the mean differences are of significance in Fig. 2, there are seven quarters in which BW citation H-groups have higher LN stock price means than BW citation L-groups, while only three quarters in which BW citation H-groups have lower LN stock price means than BW citation L-groups. Finally, it concludes that the A-shares in higher BW citation count groups have higher stock price means than the A-shares in lower BW citation count groups mostly. In most situations, the BW citation count could be applied for classifying China A-share's stock price. More particularly, in 2020, the LN stock price mean differences between BW citation H-groups and L-groups show an enlarging trend though it is under Covid-19 pandemic. Covid-19 somehow changed the listed companies performance by changing human living style and the industry development.

4. Conclusion and Recommendation

Based on the company integrated patent database of China A-shares and the stock price data in sixteen quarters from 2017 to 2020, the impact of patent backward citation on the stock price before and under COVID-19 pandemic was thoroughly analyzed via ANOVA. The BW citation count is defined as the number of total patent backward citations of the A-share. The ABW citation count is defined as the average number of backward citations per invention grant of the A-share. Thousands of A-shares in each quarter were divided into two citation groups according to the percentile rank of their BW citation counts and ABW citation counts, wherein, H-group stands for the group in which

the A-shares having BW citation counts above percentile rank 50 while L-group stands for the group in which the A-shares having BW citation counts below percentile rank 50. The following conclusions were arrived:

(1) China A-shares of BW citation L-groups in different quarters had significantly different BW citation count means every year from 2017 to 2020, whereas China A-shares of BW citation H-groups in different quarters had significantly different BW citation count means only in 2019 and 2020. China A-shares of ABW citation H-groups in different quarters every year from 2017 to 2020 had significantly different ABW citation count means, the same as the A-shares of ABW citation L-groups.

(2) China A-shares of BW citation H-groups in different years from 2017 to 2020 had significantly different BW citation count means, the same as the A-shares of BW citation L-groups. China A-shares of ABW citation H-groups in different years from 2017 to 2020 had significantly different ABW citation count means, the same as the A-shares of ABW citation L-groups.

(3) From 2017 to 2020, the A-shares of BW citation H-group had the highest BW citation count mean in 2018 among all BW citation H-groups, the same as the A-shares of BW citation L-group in 2018. The A-shares of BW citation H-group had the lowest BW citation count mean in 2019 among all BW citation H-groups, the same as the A-shares of BW citation L-group in 2019 among all BW citation L-groups.

(4) From 2017 to 2020, the A-shares of ABW citation H-group had the highest ABW citation count mean in 2018 among all ABW citation H-groups, the same as the A-shares of ABW citation L-group in 2018. The A-shares of ABW citation H-group had the lowest ABW citation count mean in 2019 among all ABW citation H-groups, the same as the A-shares of ABW citation L-group in 2019 among all ABW citation L-groups.

(5) Via ANOVA, the stock price variances between different BW citation H-groups and L-groups were free of significance in most quarters from 2017 to 2020, the same as the stock price variances between different ABW citation H-groups and L-groups. Neither BW citation count or ABW citation count had impact on the stock price.

(6) By the natural logarithm transformation on the stock price, the LN stock price was reformed. The LN stock price variances between different BW citation H-groups and L-groups showed significance in most quarters from 2017 to 2020, whereas the LN stock price variances between different ABW citation H-groups and L-groups were still free of significance. In addition, the A-shares in BW citation H-groups had higher LN stock price means than the A-shares in BW citation L-groups mostly.

(7) In most situations, the A-shares in higher BW citation count groups had higher LN stock price means than the A-shares in lower BW citation count groups. The patent

backward citation count could be applied as an indicator for classifying China A-share's stock price, whereas the average backward citation count could not. More particularly, it worked well under COVID-19 pandemic in 2020.

The finding would improve the understanding of China patents and the innovation behaviour of China A-shares over the recent years. It would also contribute the state of the art in the listed company evaluation.

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INFLUENCE OF STRATEGIC PLANNING ON ENTREPRENEURIAL SMALL AND MEDIUM-SIZED BUSINESS

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Abstract

This article is dedicated to the application of strategic planning in entrepreneurial small and medium-sized enterprises (SMEs). The aim of this paper is the impact analysis of strategic planning on small businesses.

The issues of the essence and importance of the development of business strategies and strategic business planning, the definition of the strategic process, the main elements of the strategic business plan, and other issues are considered. Opinions of various authors on the researched issues are presented. The author's opinion on strategic business planning is expressed as a process in which the goals are set and the strategies are defined, including the necessary resources for realization of the vision and mission of the companies and achievement of the expected results in the unsustainable environment and raising competition. Based on the results of a survey of entrepreneurs (owners and managers) of small and medium-sized enterprises in Bulgaria, conclusions are made about the impact of strategic planning on the financial and economic results of enterprises. It is concluded that enterprises in that category, regardless of their size (micro, small or medium), will achieve higher results if their activities are guided by strategic planning documents.

Keywords: *Entrepreneurial small and medium business; SMEs' strategies; strategic business planning; company-wide strategic plan; functional strategic plans; influence of strategic business planning on the company's activity*

JEL Codes: *M21, L26, O20*

Introduction

An important factor for entrepreneurial small and medium business prosperity is the implementation of strategic planning. It is very important especially in the conditions of strong competition and environmental unpredictability in which companies strive to create market positions and gain competitiveness. In support of this statement is Lasher's opinion that "strategic thinking provides the basis for analyzing and understanding

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business" (Lasher, 2001, p. 31). Strategic analysis and its subsequent activities related to the formulation of strategies and strategic planning give focus to the company in the long run. In this meaning, the strategy should provide conditions for the mission of the company, determining the "socio-economic purpose, the reason why the company exists and its philosophy" and for this reason having a fundamental character (Madgerova et al., 2012, p. 110).

The purpose of this article is to analyze the impact of strategic planning on small and medium enterprises. For its achievement, literature sources have been studied and with the help of statistical methods data from an internet-based survey among owners and representatives of small and medium enterprises in Bulgaria have been analyzed.

Literature review

Perceived in the 70s of the 20th century as an opportunity to counteract the "increasing changes in the external environment of the company, which are becoming more dynamic and deep" (Dimov et al., 2011, p. 84), as well as to overcome the "shock of several increases in oil prices, the resulting energy crisis and high (double-digit) inflation" (Dimov et al., 2011, p. 84), nowadays strategic thinking is the basis of corporate governance, leading to long-term and sustainable success. It is associated with the long-term business approach and the business development perspective. Launching the idea that with certain modifications it is equally suitable for both large and small companies (Lasher, 2001, p. 21), strategic business planning has an essential role for the business. Todorov also expresses a similar opinion. He points out: "Medium-sized enterprises adopt and can largely apply strategic tools in the form of company strategies. In small enterprises, it is difficult to talk about strategies in the true sense of the word, and as far as they exist, these "strategies" are unwritten, i.e., they are in the head of the owner (especially in micro-enterprises)." (Todorov, 2011, pp. 63)

Due to the special importance of strategic planning for corporate development, its problems are in the attention of several scientists. The main questions raised in the scientific literature are those about the nature and importance of strategy development and strategic planning, their impact on corporate activity, its results and effectiveness, defining the strategic process, the main elements of the strategic plan, and others. In these aspects are the views of Shaw et al (1998), Marinov et al (2001), Lasher (2001), Hussey (2001), Kourdi (2005), Vargo & Seville (2011), Todorov (2011), Karel et al (2013), Mirzakhani et al (2014), Mwamisha, Gichinga (2016), Turner & Endres (2017), Agwata & Kariuki (2018), Yaneva (2020) and many others.

The literature analysis shows that the authors are unanimous about the importance of business strategies. On this basis, it is stated that every company has a strategy, although it is not always developed intentionally, purposefully, and in writing (Lasher, 2001, p. 20).

The scientific literature offers numerous definitions of business strategies. Some of them reveal the authors' views on strategy and strategic decisions such as:

- "an organized way of thinking about business management in the long run" (Lasher, 2001, p. 12);

- "how the company reacts to the reality around it to fulfil its mission and related tasks", "the way it acts" ("Lasher, 2001, pp. 20-21);

- "a set of means by which the organization moves closer to achieving its long-term goals." (Hussey, 2001, p. 12);

- "the choice that determines the direction of development and success of an organization." (Kourdi, 2005, p. 1)

- "the general program of action and allocation of priorities and resources in the interest of achieving the large-scale goals of the company" (Marinov et al., 2001, p. 215);

- embodying the "trajectory of movement towards the achievement of goals (long-term in principle), including the necessary resources." (Todorov, 2011, p. 52);

- revealing "the approach to achieving the ultimate goal and mission of the enterprise" (Madgerova et al., 2012, p. 112)

The development and implementation of a business strategy are associated by the authors with the management of economic resources to succeed in combating competition (Lasher, 2001, p. 19). Agwata and Kariuki (2018, p. 781) state that "strategy is needed to focus effort and promote coordination of activities". The strategy implementation "contributes to the most appropriate use of resources and capabilities of the company, to anticipate risks and to show flexibility and adaptability to changes in the environment" (Madgerova et al., P. 112)

Kourdi (2005, p. 39) emphasizes the complex nature of the strategy definition task, which manifests itself "due to the complex and changing set of challenges and good opportunities that the organization faces over time". The analysis and planning are essential elements of the strategy development process. They play an important part in strategic decision-making and are particularly important for achieving high results in strategy implementation.

According to Hussey (2001, p. 12), the chosen strategy must lead to long-term strategic success. In this regard, he points out that "a strategy that is formulated without a well-thought-out way to implement it will hardly be successful." The author identifies five elements that are necessary to achieve such success, namely: 1) analysis, which is the

basis for formulating the problem, for evaluating the strategic alternatives, for developing the plan for implementing the strategy in life and for re-evaluating the alternatives taking into account the obtained result; 2) creative strategic thinking; 3) strategic decision-making process; 4) ensuring the implementation of decisions 5) the abilities of leaders implementing decisions (Hussey, 2001, pp. 25-31) In this case, he believes it is important that strategies are properly implemented so that managers can assess their success, as well as apply appropriate approaches to monitoring and control, to establish the correctness of actions. (Hussey, 2001, p. 30).

Lasher has a similar opinion regarding the successful implementation of the strategy. Linking strategic thinking to the long-term business approach and the perspective of its development, Lasher clarifies that the unplanned "approach to long-term thinking often leads to chaotic business with exciting but short lives" and points out that "strategies that are not analyzed and carefully planned, are most often revealed as a series of random decisions, most of which are taken under pressure" (Lasher, 2001, p. 21).

Strategy is an important element that plays an essential role in the business management process. In our opinion, this is the main reason why "every company has a strategy, even if it is not developed deliberately and purposefully." (Lasher, 2001, p. 20) Yaneva's conclusion (2020, pp. 87; 91) is also in this regard about the role of marketing strategies, which is part of the overall management strategy. She points out that they "help to determine the strategic positions of the company, their fuller and more effective use, their expansion and/or the creation of future favorable opportunities for development. It presents the strategic alternatives, ways and actions for achieving the set goals in a long-term period" and is "a key tool for achieving corporate goals and company prosperity" (Yaneva, 2020, pp. 87; 91).

Strategy development is an essential part of the strategic planning process. The literature points out that strategic planning is related to the development of a strategy (or strategies) for the development of the organization, and "in turn, the strategic plan is a process of creating strategies." (Marinov et al., 2001, p. 215). According to Hussey (2001, pp. 12-13), "strategic planning is a detailed description of both the long-term goals and the strategy for achieving them".

The definitions of strategic planning complement each other and characterize it as a process, including the development of the strategy, the strategic plan, the provision of resources and means for its implementation and the achievement of the expected results. Strategic planning: 1) has a complex character; 2) focuses on the main problems of the company; 3) details the strategic goals and formulated strategy; 4) creates an opportunity to achieve business sustainability in conditions of uncertainty of the environment and

coherence between goals, resources and capabilities of the enterprise on the one hand and environmental factors, on the other. (Madgerova et al., 2012, pp. 109 - 110)

According to Todorov (2001, p.27), strategic planning as the main phase of strategic management includes "development, evaluation, and selection of strategic plans, taking into account both the strengths and weaknesses of the company, including resources and the expected change in the environment." Mirzakhani et al. (2014, p. 152) consider strategic planning as a process in which decisions are made and activities are carried out to create effective strategies to achieve organizational goals.

According to Agwata and Kariuki, the strategic plan as a roadmap indicates the direction in which the organization should develop and the necessary resources. At the same time, they believe that in the implementation of the strategic plan is necessary to emphasize its "mission, vision and goals in visible areas" (Agwata, Kariuki, 2018, p. 782) Similar is the view of Shaw, Brown and Bromiley (1998, p. 47), who believes that "the plan must tell us how the company can overcome obstacles and win."

Vargo and Seville (2011, p. 3) link strategic planning "with the mid-term future of the organization" and "enhancing its success" by identifying the means to do so, namely "dealing with weaknesses and threats" and "the strengths and opportunities that present themselves to the organization".

Important scientific issues that are highlighted in the scientific literature are also the impact, role, benefits and effectiveness of strategies and strategic planning. It is emphasized that the implementation of the goals and activities set through strategic planning "has a long-term impact on the organization." (Marinov et al., 2001, pp. 215-216) The strategic planning itself leads to "significantly greater changes in the organization and the directions of its action", concentrates efforts and resources to achieve the set strategic goals, "penetrates and influences all activities of the organization" and "supports the coordination of all activities." (Marinov et al., 2001, p. 216). And this "helps the management to identify the main trends in the change of the environment and to react to them adequately, i.e. it connects the company's goals with the peculiarities and requirements of the environment." (Marinov et al., 2001, p. 216)

Karel, Adam and Radomír (2013, pp. 57; 70-71) define strategic planning in terms of its role "for gaining competitive advance and better economic results." Yaneva (2020, pp. 197-198) also emphasizes the role of the strategic plan, which in her opinion is expressed in "the rationalization of the company's goals", "anticipating, neutralizing or minimizing market risks and threats, overcoming company weaknesses", as well as for "the effective management of resources, coordination between functional areas and facilitation control over the implementation of all company activities."

The benefits of applying strategic thinking are discussed extensively by Lasher (2001, pp. 30 - 32). According to him, strategic thinking "determines the achievement of a less chaotic, smoothly managed organization, within which everyone has an idea of where the company is going and what is the individual contribution to its development." the ability of companies to cope with changes in the environment. A significant benefit is that strategic thinking provides an opportunity to make analyzes before problems arise, which is a prerequisite for quickly reaching rational and well-thought-out solutions. It helps to gain an advantage. Lasher points out that if implemented correctly, the strategy will help the company to gradually shape its participation in the competition day after day, year after year will be able to respond quickly and decisively to any problem and will be able to avoid costly mistakes, especially early stage of the business or before it has started. (Lasher, 2001, pp. 30 - 32)

According to Marinov et al. (2001, pp. 220-221), the strategic plan shows companies how to take advantage of opportunities, how to reduce the adverse effects and dangers of the environment and increase the strengths of the organization, how to allocate resources between units, departments and activities of the organization, how to compete with other organizations and how to most effectively manage the activities in the organization. To the benefits of strategic planning can be added that it "makes it possible to identify ideas for future business development, its most important goal and from the various strategic alternatives to choose the most appropriate"; it contributes to the achievement of "business sustainability in the conditions of uncertainty of the environment and coherence between the goals, resources and capabilities of the enterprise and the factors of the environment." (Madgerova et al., 2012, pp. 109-110)

Some researchers also focus on the effectiveness of strategies and strategic planning. For example, Hussey emphasizes that the key element for the effectiveness of the strategy is the long-term perspective and explains that to this end "any strategy must contribute to the movement of the organization towards its long-term goals" (Hussey, D., 2001, p.13). Mwamisha and Gichinga report that "strategic planning if done effectively will ensure the sustainability" of the businesses. According to them, "the use of strategic plans has helped most organizations to be able to achieve organizational direction through following the set goals, objectives, vision and mission." (Mwamisha, Gichinga, 2016, pp, 652; 653) Yaneva points out as an important condition to achieve the effectiveness of strategic (marketing) planning knowledge of "the characteristics and factors of the external and internal marketing environment. Strategic marketing analysis occupies a key place here." (Yaneva, 2020, p. 201)

The analysis of the presented views gives us reason to conclude that strategic planning is a process in which goals are set and strategies are defined, including the

necessary resources and appropriate ways to achieve the expected results. This ensures the long-term sustainability of the company over time in conditions of dynamic changes in the environment. Strategies and strategic plans are key factors for the realization of the vision and mission of any company, whose behaviour and actions are subordinated to the long term.

As a result of the development and implementation of strategies and strategic plans, entrepreneurial small and medium-sized businesses become more stable in a highly volatile environment and ever-increasing competition and gain greater success. In this sense, the availability of strategy and strategic planning provides an opportunity to gain a competitive advantage and long-term successful business management.

Analysis of the impact of strategic planning on small and medium-sized enterprise business

The analysis of the strategic planning impact on small and medium-sized enterprises is based on a survey conducted in April 2021. Entrepreneurs (owners and managers of enterprises) of this category are covered by the method of the respondents. The results of the survey reveal the following profile of the enterprises included in the survey:

1) location/address registration by administrative districts: enterprises from 13 administrative districts out of a total of 26 in Bulgaria are represented, with enterprises from Sofia-capital district predominating - 33.3%, followed by Blagoevgrad district - 20.5% and Sofia district - 10.3%; the relative share of enterprises from other districts (Burgas, Varna, Ruse and Haskovo, Veliko Tarnovo, Dobrich, Pleven, Plovdiv, Razgrad and Stara Zagora) is almost twice lower;

2) size of the enterprise based on the number of employees: the main share is occupied by micro-enterprises - 89.7%, followed by small enterprises with a share of 7.7% and medium-sized enterprises - with a share of 2.6%;

3) type of economic sector: the largest share of enterprises is in the services sector - 40.4%; just over 17% are those in the field of trade, about 12.7% are companies in industry and construction, 6.4% are companies in the field of tourism, about 4.3% is the share of companies in the sector "Computer and information systems "and 2.1% each are occupied by transport, agriculture and education.

The conducted survey provides us with an opportunity to answer the following questions:

1. Do companies have a strategic plan?
2. Do companies have a development strategy and what is it?

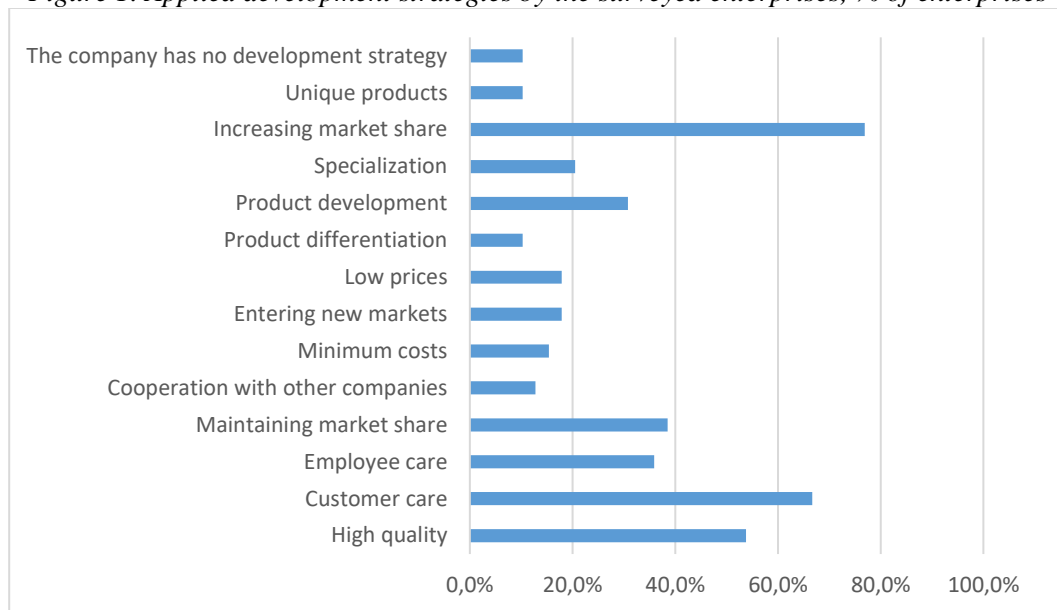
3. In connection with the development of strategic business plans do companies make analyzes of the environment and the internal state?

4. How do the surveyed business owners and representatives assess the impact of the implementation of the selected strategies and strategic plans on the condition and results of the activities of the managed company?

The results of the answers to the first question show that a significant part of the companies applies strategic planning for the development of the business activity. They occupy 41% of all surveyed businesses. In our opinion, this result is relatively good when it comes to small and medium-sized enterprises and especially micro-enterprises, which in this case are almost 90% of those surveyed and which are known from practice that is not always developed and managed by strategic plans. At the same time, the presence of 59% of surveyed companies that do not have a strategic plan reveals the lack of business thinking and understanding of business, in the long run, taking into account the uncertainty of the environment.

In contrast to the above result, the survey shows that just over 10% of enterprises do not have a developed strategy, while the remaining nearly 90% carry out their activities based on a certain strategy. Figure 1 shows that the largest share of companies that implement a strategy aimed at increasing market share - almost 77%, followed by those implementing strategies "Customer care" - 66.7% and "High product quality" - 53.8%. The share of companies that are guided by the strategies of "Maintaining market share" (38.5%), "Employee care" (35.9%), and "Product development" (30.8%) is also significant. Some of the companies refrain from implementing such important strategies for small business (especially if it develops as an entrepreneurial one), such as specialization (20.5%), low prices (almost 18%), entering new markets (nearly 18%), cost reduction (just over 15%), cooperation with other companies (nearly 13%), product differentiation (10%) and offering unique products (10%). There is no coincidence that Drucker emphasizes that the greatest influence on business are the strategies of specialization, diversification and integration. And also "the scale and form of these strategies chosen for business should increase business efficiency to such an extent that he to be able to completely change all its characteristics" (Druker, 2002, p. 264).

Figure 1. Applied development strategies by the surveyed enterprises, % of enterprises



Source: Author's survey, 2021

As has been already mentioned, it is essential for the formulation of an effective strategy and a good strategic plan to perform preliminary analyzes, which according to Lasher are the first step in the algorithm of the overall strategic process, which includes business planning, implementation of strategy and business activity control. According to him, the analysis consists of the "careful study of the conditions of our environment and our place in it" (Lasher, 2001, p. 25). The view of the need for preliminary analyzes is complemented by the opinion of Todorov (2001, p. 26), who defines strategic analysis as "Inventory, clarification of the important characteristics of the enterprise, its strengths and weaknesses compared to the most important competitors and the impact of the environment". The analysis of the external environment and the company's potential is considered as a basis for revealing the "opportunities for its future development, its advantages and disadvantages concerning competitors", taking into account that "this should allow to reveal and evaluate possible alternatives for the development of the company and to choose the most appropriate one - to achieve the set goals, as well as to determine the priorities of the company." (Dimov et al., 2011, p. 85)

The analysis of the results obtained from the survey reveals the following (see Figure 2):

1) Enterprises perform analyzes on some key indicators, except 30% of companies that do not perform any analyzes;

2) the largest is the share of enterprises that analyze the change in product prices - 32.5% of all companies and sales of the company's products - also 32.5%;

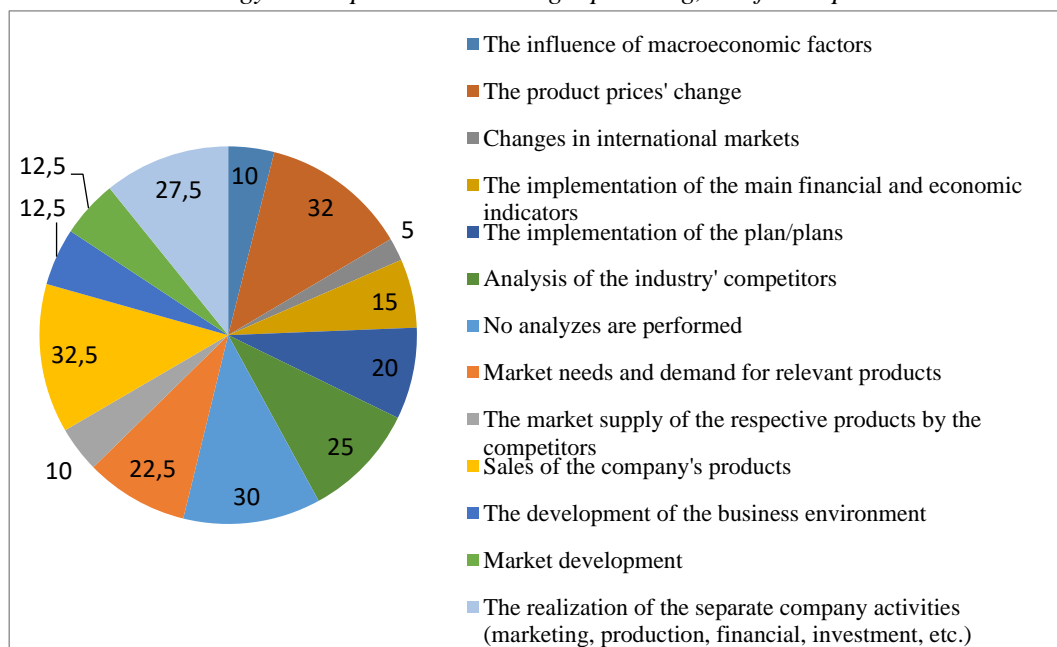
3) the share of enterprises that analyze the implementation of individual company activities (marketing, production, financial, investment, etc.) occupies the next place - 27.5%;

4) the competitors in the branch are subject to analysis of 25% of the surveyed companies, followed by the analyzes of the market needs and demand of the respective products (22.5%);

5) some enterprises attach importance to the analyzes of the implementation of the plans (20% of the surveyed companies) and the implementation of the financial and economic indicators (15% of the companies);

6) as can be seen from the figure, the other types of analyzes are performed by a small number of companies and even only 5% of the surveyed companies monitor changes in international markets.

Figure 2. Types of analyzes performed by the surveyed enterprises in the process of strategy development and strategic planning, % of enterprises



Source: Author's survey, 2021

Based on the opinions of the owners and business representatives who participated in the study, the impact of strategic planning on the condition and performance of

enterprises is assessed. The main evaluation indicator chosen by us is "Influence of the respective developed strategic documents on the financial and economic condition and market positions of the company". The survey provided detailed information on the impact of selected development strategies, the overall strategic business plan, as well as the impact of some of the functional strategic plans - marketing, production, finance, investment and innovation (see Figures 3 and 4).

Figure 3 presents the assessment of the surveyed owners and business representatives for the impact of the adopted strategies and the overall strategic plan on the results of the company's activity, respectively the business condition. The obtained results show the following:

1) the share of respondents who did not give their assessment in terms of the impact of the strategy is significant - over 32%, while the share of respondents for the strategic plan is only 3%;

2) the presence of a certain number of enterprises that do not have the relevant document should be taken into account (as mentioned above, a little over 10% without a strategy, and 59% of the studied enterprises without a strategic plan);

3) in this regard, the other answers are important for the conclusions on this indicator, the analysis of which reveals the assessment of the impact of these strategic documents. The figure shows that 37% of the evaluators consider the strategies to be of great importance and have contributed to the improvement of the financial and economic indicators and respectively over 27% are those who agree regarding the strategic plan of their company. The answers reveal that the strategies are insignificant for the company indicators are 15%, and those regarding the strategic plans are 7.5%. The values of the negative answers are very low ("does not affect") (5% for the strategies and 3% for the strategic plans, respectively), which to some extent shows the positive attitude of the evaluators to the considered planning documents.

Figure 3. Assessment of the impact of strategies and strategic plans on the state of the enterprise,% of respondents



Source: Author's survey, 2021

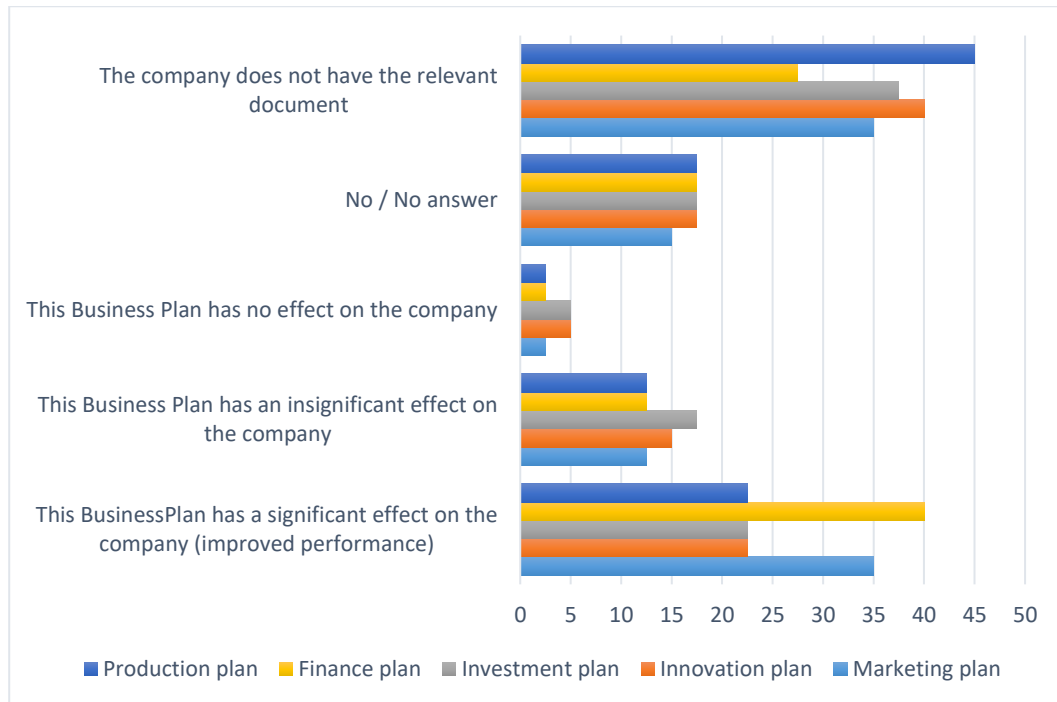
When assessing the impact of the different types of functional strategic plans, no responses were received from a significant number of participants in the survey (Figure 4). The results show that there are companies that do not develop such plans. Respondents give the following assessments (Figure 4):

1) positive assessments prevailing, revealing the great influence of the functional plans on the state of the company's activity and the improvement of the financial and economic indicators. The most significant is the share of these assessments in terms of the impact of the financial plan (40% of the answers), followed by the assessments of the impact of the marketing plan (35%). To a lesser extent, but also positively, the impact and other monitored strategic plans were assessed.

2) Significantly smaller is the share of respondents who believe that strategic company plans for individual activities do not have a significant impact on the state of enterprises - for the financial, production and marketing plan this share is 12.5%, while for the innovation plan it increases to 15%, and for investment - to 17.5%.

3) The positive assessment of the surveyed owners and representatives of the small and medium business can be seen from the insignificant share of the answers, showing that this type of plan does not have any impact on the financial and economic results - respectively 2.5 for financial, production and marketing plan and 5% for the innovation and investment plans.

Figure 4. Assessment of the impact of certain types of strategic plans on the state of the enterprise, % of respondents



Source: Author's survey, 2021

Conclusion

Literature review and survey results reveal strategic planning is an important key element of the management of any business. As a result, the company's sustainability is increased in a constantly changing environment and conditions are created for increasing competitiveness and long-term successful business management. Strategic planning is especially necessary for small businesses because of the benefits and efficiencies it provides.

Based on the results of the survey, the following main conclusions can be made:

1) The assessments of the respondents reveal that the development and implementation of strategies and strategic plans are essential for the financial and economic condition of enterprises that implement strategic planning, which is expressed in the improvement of performance indicators.

2) The implementation of strategic plans for particular business activities (marketing, production, finance, innovation and investment) also has a positive impact on financial and economic results.

3) Enterprises, regardless of their size (micro, small or medium), will achieve higher results if they adopt and are permanently guided in their activities by strategic planning documents.

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INFLUENCE OF DEMOGRAPHIC CHARACTERISTICS ON PREFERRED FORMS OF MOTIVATION

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Abstract

Within the worsening economic conditions, people become one of the most important aspects of the company success. Therefore, everything related to the proper management and development of human resources is crucial for the company. Motivation is one of the most important factors in the aspect of the management of human resources. Hence, the factor, influencing motivation, could play a vital role in the management of the staff. Namely, our main goal in the current article is to investigate the influence of demographic characteristics on the preference of certain motivational types. The study was held in the form of a survey among N=448 respondents in a governmentally owned railway company. For the investigation of the linkage between demographics and motivational preference, we conducted regression and correlational analysis. Our main findings proved, relatively weak, but still statistically significant influence of demographic traits on motivation.

Keywords: *workplace motivation; preferred motivators; demographics*

JEL Codes: M12; M54

Introduction

Motivation is a highly complexed process within the work place. Motivation is a process of taking a voluntary decision to undertake a particular purposeful action or inaction under given circumstances. It is of a subjective nature, runs within an individual's mind, and is reduced to the personal appraisal of all the impacts on him/her, of the signals sent by the economic, organizational and social environment of the enterprise (Dimitrova, Sotirova, p. 168). The problems of the matter interest scholars ever since management has been acknowledged as a separate science. Motivating employees is one of the most

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important processes within the management of human resources. Often times, namely the highly motivated staff is the tremendous difference between the good and great companies. The last is ever truer in complexed economical condition; such are the current due to the COVID-19 Pandemic. Now, more than ever, managers must find ways to keep motivation in high levels in their companies and to apply the most favorable forms of it. Therefore, in the examination of motivation in the workplace, it is in high importance that managers acknowledge the employees not only as an instrument for fulfilling company goals, but as well as individually form person with its preference on motivation. The preference on their site could be influenced by numerous of factors both within the person and as a consequence of his social interaction. Moreover, knowing the factors that have a significant impact on the relationships and motivation could contribute to the formation of a correct view on the innovation culture in organizations (Kyurova, Koyundzhiyska-Davidkova, p. 130). Creating conditions for constant enhancement in the organization requires that all employees share the wish for improvement, which depends on their motivation (Angelova, 2019). The preference on their site could be influenced by numerous of factors both within the person and as a consequence of his social interaction. Hence, factors such as – personality traits (Bipp, 2010, p. 29); autonomy support (Gellet at all, 2017, p. 1167); leadership (Keating, Harper and David, 2013, p.34-35); leadership empowerment (Zang, Barton, 2010, p. 17); age and lifespan (Kanfer, Ackerman, 2004, p. 455-456), social interaction and cultural dependencies (Wood, Bandura, 1989, p.378-380), (Bandura, 2002, p. 280-282), (Roe, Zinovieva, Dienes, Horn, 2000, p. 675-677), could highly influence work motivation. The authors, which examine such influence, tend to notice the high importance in the demographic and personal characteristics of the individual. Among the formally mentioned studies, we aim to examine some of the most important demographic and personal characteristics in our current study.

Firstly we will define motivation, then we will examine former work on the thematic and lastly we provide our methodology, provide and analyze our results.

Motivation could be defined in various ways. The most common way to describe motivation is as a complexed process, which is highly depended of the interaction between the human and the environment. Motivation is the basis of employee behavior and performance. (Filipova, 2016, p. 80) Alternately, as Deckers (2010) describes it, a process initiating, directing and maintaining goal-directed behavior (p. 6). Form the other hand, motivation can be considered as a set of energetically powers, initiating the work behavior and determining its power, direction, intensity and duration (Pinder 2008, p.13). The basis for the motives of employee behavior is the need for both psychological and physiological sense of lack of something in the individual. (Filipova, 2015, p. 73) Consequently, motivation can be accepted as directing psychological process, built by various energetical

powers, having the goal to affect behavior in a way, determining the direction, intensity and persistence of individual's behavior (Ivanov, Usheva 2021, p. 98).

Another example of the motivation within its aspect of interaction with the environment is the so called concept of flow in workplace. Seeman & Seeman (2015) define the motivation as a intrinsic process, which is influenced by four factors – skill, capacity to work, challenge and work load (p.5). According to the authors, if the managers manage to balance these four factors, employees tend to self-motivate in their work. In this regard, Yaneva (2007) emphasizes that the work efficiency and the use of the employee's full potential is invariably related to his identification with the company and its goals (p.428). Hence, motivation can be also a process, which is more intrinsic than extrinsic. Intrinsically motivated staff are the focus of the latest research in motivational theories. Deci (1975) describes this process as a behavior in which there is not expected reward in result of the direction or results of the behavior and in which, the person is motivated more from the action itself than a possible reward (p. 23-24). Therefore, in some conditions the process of motivation and motivating does not need any form of reward when it is applied in the work environment. Deci and Rayan (2000) define motivation as an intrinsic process, in within three forms of needs must be fulfilled – competence, autonomy and relatedness (p. 231).

Therefore, motivation could be accepted as a constant interaction between the individual and the environment, but as well and as a constant pursuit of need fulfilment. Namely, needs could be described as an psychological irritation in the individual, which forces him to act in the direction, which he believes that will fulfil the desired. Needs are examined by many authors and their importance in work motivation a consequence of the work of many authors. Therefore, the views for the needs essence tend to differ. For example, Maslow (1954), describes 5 – psychological, safety, social, respect and self-actualization (p. 77-97). On the other hand, based on his work, Alderfer (1969) proposes only tree – existence, relentless, growth (p. 144). Hogan and Warremfeltz (2003), described – biological, needs for acceptance and approval, status, power and control over resources, predictability and order (p. 77). Needs and their fulfilment are a crucial part of motivational theory. In the current study, we will examine into what extend the preferred motivational types tend to differ in different people, based on their differences in demographic or individual aspect. Yaneva (2020) underlines that the need for additional training as a development perspective that increases the employees' work motivation (p.47).

As we mentioned above, motivation could be influenced by various aspects of individuals' life. In the further part of the paper we will examine more examples of this interaction. Our goal with this approach is to provide examples of previous work, which examines the motivational dependency in the aspect of demographic and individually based

factors. Among a study of 777 people, Hart et al. (2007) proved a link between basic personality traits and the achievement motivation people tend to have (p. 271-272). The Authors provided prove that given personality traits tend to increase intrinsic motivation and others, increase extrinsic motivation for work. Therefore, people with different personality traits are expected to prefer different kinds of motivational forms. On the other hand, personality traits could be different for different demographic groups. Costa, McCrae & Lockenhoff (2019) based on a review of numerous empirical studies, conclude, that personality the presence of certain personality traits differs in different age groups (p. 442). Therefore, not only personality traits can influence motivation, but also demographic profiles could influence indirectly motivation true their influence on personality. A more direct approach of influence of demographic characteristics, namely age is chosen by Shane and Heckhausen (2019) they conclude that age could influence control strivings; different trajectories across individual organizational and societal levels; the type off intensity of motivational strategies and the influence of them on adaptiveness; how goals are formulated; which motivational and volitional strategies are most relevant and effective within each phase of the goal cycle; how individuals optimize their development throughout their work life (p. 129). Hence, age can greatly influence the way people act in their work. Therefore, true the channels of the influences, mentioned above, we can conclude that age can affect also the preferred forms of motivation. In another aspect, Usheva (2015), states that the specific environmental conditions affect directly and indirectly human motivation for creative activity (p. 10). Hence, the environment and demographic characteristics, could lead to reduction or increase in creativity.

Another example of age influence on individuals on their competitiveness true out their life development. Mayr, Davidson, Kuhs & Harbaugh (2012) proved that with age increasing, propensity for competitiveness increases to certain age, to decrease to older age from 54 years to retirement. The author acknowledge different results in men and women, stating that overall, men are more competitive that women (p. 280). Consequently, if there is a higher propensity for one's competitiveness the preferred forms of motivation could differ. For example, in the early states of carrier development, people could desire more material stimulation, more gratification and pride from their work. Controversially, in later states of the career, people could strive for more calm work environment, providing them with enough opportunities for mastery and relatedness.

According to Dimitrova, with an aging workforce and a constantly declining population, good working conditions prolong the working lives of workers and create an environment in which valuable professionals are retained. In many professions and sectors, due to the demographic collapse, there is already a significant shortage of human capital, and at the same time there is a reluctance of the younger generations to focus on certain

areas of activity. The education system and the labor market also cannot create new specialists with the necessary speed. This requires paying special attention to the motivation of the older generation in companies.

As it was firstly acknowledged by Herzberg (1968), different kinds of professions tend to have different perforations on their behavior. The author stated that in some jobs, which are related to higher overall skills and certain levels of mastery, salary can be accepted as a hygiene factor. Controversially, in jobs with less requirements for skill and mastery, salary can be accepted as a motivator. In line of this Bandiera, Barankay & Rasul (2005) proved a strong increase of productivity among workers in fruit manufacturing company after the implication of piece rate motivational shames. Moreover, the authors prove that the increasing of hours worked, had poorer effect on overall results, compared to the time after the implementation of the motivational scheme (p. 928–929). The last could be stated also when it comes to different levels in the organizational structure of the companies. Where workers on lower levels, could have different preferred forms of motivation than workers on higher or management levels. Lifespan is a very important aspect when studying work force. Moreover, it influence is in the interest among many scholars in the past and also present research. Hence, Rudolph (2016) states that lifespan perspectives are becoming a dominant paradigm for understanding the role of age in work contexts, and the reviewed research in generally supportive of a number of predictions derived from various lifespan perspectives (p.151). Therefore, age and lifespan are very important once studying also the forms, which must be applied in the work environment.

With the above-mentioned studies, we aimed to underline the vast variety of influences on motivating people. It is easy to say, that if a person is in a certain state of his life development, to be motivated by given set of motivators when working. For example, young workers, without owned home, small children which they need to care of, are more favorably motivated by material stimulation. Controversially, employees, already fulfilled their overall life goals, will tend to be motivated by more non-material stimulation and will strive for more mastery, and fulfilment in work. There would be exception in this, but overall, life development and demographic traits in general have a great influence on the preferred motivators in work. Therefore, studies, examining the connection between the mentioned variables are with a high meaning when studying human motivation and its later implication on practice.

Methodology

The research was conducted in the form of an online survey in June 2020. The response group is part of a governmentally owned railway company in Bulgaria (n= 448).

In order to examine the workplace motivators, we gathered 38 examples from different theoretical sources and practice examples. The motivators were formulated into corresponding questions, using a 5-point Likert scale in order to examine the strength for each motivator, subjectively for each respondent. Then we divided the motivators into 6 modules as follows: 1. Work Environment (**WE**) ; 2. Remuneration (**R**); 3. Safety (**S**); 4. Personal development (**PD**) ; 5. Affiliation and social aspects (**ASP**); 6. Respect and self-respect. Interest and challenge, autonomy and leadership (**RS; IC; AL**).

The **first** module had the goal to describe motivators linked with the environment to work, such as good working time, confirmable workplace, interior, ergonomics etc. The **second** module was linked to every material compensation which people can gain in their workplace. **Third** module had the goal to describe aspects of motivation, linked to the safety at work and safety which work provides in the life of individuals. The **fourth** module was designed to describe the necessity for people to improve and develop themselves. This module, described the higher set of needs and intrinsic motivation to work. **Affiliation and social aspects**, described the necessity of human contact in work. **The last** module was the most complex one. Our main goal was to describe intrinsic motivation and higher level needs. Therefore, the higher the personal attestation of the module, the higher the necessity for the motivators within it. For the attestation of modules, we calculated the mean average of the rating for each motivator and for each respondent.

In our study we examine demographics as follows – gender; age; educational degree; marital status; children to which the respondents must take care of; work experience inside the current organization an overall; hierarchy position.

For examining the influence of demographics on preferred motivation, we conducted regression analysis to examine the statistically significant influence among the response group and then we conducted a correlational analysis to evaluate the strength of this influence among our response group.

Results and discussion

Firstly in our result section, we will provide information regarding the demographics of the individuals in our response group. Later we will provide information regarding the descriptive statistics in the aspect of the preference of the modules and lastly, we will examine the influence of demographics on the preference of the modules.

The respond group is relatively equally divided by **gender** – 52% from the respondents are women and 48% are men. Among them, the largest part is above are the following **age groups** – 45 years old (53%); second largest age group is between 36 and 45 years (32%); the third largest age group is between 26 and 35 years (13%); the smallest age group is between 18 and 25 years old (2%). Therefore, the vast majority of the respondents are mid and before retirement age. When we investigate the **educational degree** we conclude that the largest part is with Masters degree (83%); second largest is with Bachelor degree (12%); only 4% are with high school education and only 1% are with higher degree that masters. As it comes to **marital status** the majority of the respondents are married (63%), or are living with someone in jointly home with someone (18%), and relatively small group are not married or living in a jointly home (19%). When evaluating the **presence of children** the largest part of the respondents do not take care of any children (38%), second largest group has 1 child that they are taking care of (34%), the third largest group has 2 children that they take care of (27%) and the smallest group is with 3 or more children which they take care of (1%). When we examine the **overall work experience** the largest art is with more than 15 years' experience (78%), the second largest is with between 11 and 15 years' experience (11%), third largest group is with between 6 and 10 years of experience (8%), the smallest represented group is with between 1 and 5 years of experience (3%). When investigating the **work experience in the current company**, the largest part is with more than 15 years in the company (43%), the second largest groups is with between 11 and 15 years in the company (15%), the third largest is with between 6 and 10 years (14%), and the smallest group is with between 1 and 5 years working in the company (28%). The last aspect of the demographics which was studies was **the position in the hierarchy**. The largest group on this trait is on a non-management position (58%), the second largest group are respondents on mid management position (29%), the third largest group is with respondents on low management position (supervisor, team leader etc.) (9%), the smallest represented group is on high-level management position (4%).

Now we will provide results related to the average attestation of the overall evaluation of the preferred motivators among our respond group. For the purpose of this, we will examine the descriptive statistics for the degree of preferred motivators among our respond group.

Table 1 – Descriptive statistics of the attestation of the preference of the modules

WE		R		S		PD		ASP		RS; IC; AL	
Mean	3,64	Mean	3,07	Mean	3,66	Mean	3,54	Mean	3,94	Mean	3,63
Standard Error	0,04	Standard Error	0,05	Standard Error	0,05	Standard Error	0,05	Standard Error	0,04	Standard Error	0,04
Median	3,75	Median	3,00	Median	3,75	Median	3,60	Median	4,00	Median	3,73
Mode	4,17	Mode	2,17	Mode	5,00	Mode	4,60	Mode	4,00	Mode	3,73
Standard Dev.	0,93	Standard Dev.	1,12	Standard Dev.	0,97	Standard Dev.	0,97	Standard Dev.	0,81	Standard Dev.	0,83
Sample Var.	0,87	Sample Var.	1,25	Sample Var.	0,93	Sample Var.	0,95	Sample Var.	0,66	Sample Var.	0,68
Kurtosis	-0,75	Kurtosis	-1,15	Kurtosis	-0,66	Kurtosis	-0,52	Kurtosis	0,46	Kurtosis	-0,09
Skewness	-0,38	Skewness	0,06	Skewness	-0,35	Skewness	-0,48	Skewness	-0,82	Skewness	-0,56
Range	4,00	Range	4,00	Range	4,00	Range	4,00	Range	4,00	Range	4,00
Minimum	1,00	Minimum	1,00	Minimum	1,00	Minimum	1,00	Minimum	1,00	Minimum	1,00
Maximum	5,00	Maximum	5,00	Maximum	5,00	Maximum	5,00	Maximum	5,00	Maximum	5,00
Sum	1631,97	Sum	1375,72	Sum	1641,92	Sum	1585,38	Sum	1763,20	Sum	1626,30
Count	449,00	Count	449,00	Count	449,00	Count	449,00	Count	449,00	Count	449,00

Source: Own research

As we can see the most preferred module is **affiliation and social aspects**. Therefore for the overall results in the group we can state that the linked to social aspects motivators could have the greatest effect when motivative the personnel. Controversially, the least preferred module is **remuneration**. Hence, in overall results, we can state that material stimulation could not motivate employees in the required state. Based on the above-mentioned empirical research on lifespan and workplace motivation, we could state that the largest part of older employees tends to not value remuneration at high levels. This we will investigate in the later part of our result section.

For the connection of demographics on the preference of modules among the group, we conducted a regression analysis for estimating the statistically significant influences of demographics. Therefore, we formulated an overall *Hypothesis* that different demographic traits influence the preference of modules in the group. Hence, if we prove a significant link between any of the demographics and the modules, formulated, we will accept the alternative hypothesis and reject the null hypothesis. We will represent the result in Table 2, it depicts the statistically significant connections between the demographics and the preference of modules.

On the table we see the module preference on the left and the different demographics on the right. We represent only the correlational coefficients, which were proven to be statistically significant. For the rest of the insignificant results, we didn't provide information for correlation, because such was not proven as significant.

As we can see in Table 2, **Work environment** was affected only by the *presence of children* for which the respondents are taking care of. Moreover, the connection, despite week, is negative. Hence, we can state, that if the children are more, the overall preference of the work environment is expected to be less. We give these results to the preferential of

other motivators in work. Despite that we could prove any, there are proofs in other researches for the different preferred motivational types, based on the lifespan development. Therefore, we partially proved the work of the authors, when it comes to family and lifecycle development.

Table 2 – Correlations between demographics and preference of modules

<i>Modul./Demo.</i>	GEND.	AGE	EDUC.	MARI.	CHILD.	OVR.EXP	CO. EXP.	HIERAR.
WE	-	-	-	-	r= -0,10*	-	-	-
R	r= -0,07*	-	-	-	-	-	-	r= 0,06*
S	-	r= 0,12**	-	-	-	-	-	-
PD	-	r= -0,07*	-	-	-	-	-	r= 0,25**
ASP	-	-	-	-	-	-	-	-
RS; IC; AL	-	r= 0,05*	-	-	-	-	r= 0,10*	r= 0,13*

Remarks: $P < 0.05$.*; $P < 0.01$ **

Source: Own research

Remuneration proven a statistically significant connection between *gender* and *position in the companies' hierarchy*. It has been proven a positive influence of gender on preference of remuneration. In our study, we marked women as 0 and men as 1, so that we could carry out our regression analysis. Hence, we prove that for men remuneration is more valuable factor in motivation. When it comes to the investigation of the influence of the hierarchy position, we proved a weak positive, but statistically significant influence on the preference of remuneration. Therefore, we can state that within the higher positions, the preference of this module as a motivator tends to be higher.

As it comes to the results of influence of demographics on **safety** preference, we proved significant influence from *age* of the respondents. The influence is again relatively weak, but statistically significant. Based on the results of the analysis, we can conclude that with age increase, the preference of safety increases as well. We tend to give this to the calmer way of leaving of people in later part of their life. As we stated above with the advancement of the age, people tend to seek calmer and non-stressing environment for their work. Therefore, the results partly proved this.

Results proved a significant influence of *age* and *position in the hierarchy* on the preference of **personal development**. With age, the influence is weak and negative, meaning that with age increase the strive for development partially decreases in our group of respondents. Within the influence of the hierarchy position, the influence on preference of this module is moderate and positive. Therefore, when the individual is climbing the corporate ladder, his preference for personal development as a part of the motivational scheme in the company rises.

As for **affiliation and social aspects**, we couldn't prove any statistically significant connection with the demographics in our group. Hence, the preference of this module is influenced by other factors, which we simply do not investigate here.

We proved a weak, but statistically significant influence from *age*; *experience in the company* and *position in the hierarchy* on **Respect and self-respect. Interest and challenge, autonomy and leadership**. The overall goal of this module was to investigate the intrinsic motivation and higher order need satisfaction. From our results was proven that with age increase, the preference of the module increases as well. Therefore, for older individuals, the higher level needs and intrinsically based factors tend to motivate in a greater amount. This is true also for experience in the company and the position in the hierarchy. Hence, people with more experience and higher position in the hierarchy of the company tend to prefer this module in a greater state.

Our results partly proved the formally mentioned research results in the survey. Overall, we proved, although weak influence of the demographics, a statistically significant one.

Concluding remarks

The current article was aimed to underline the high importance of motivation in the aspect of human resource management. We acknowledge the work of many authors, investigating the highly complexed problematics of motivation in the work place. It was underlined that motivation is influenced by numerous aspects within the interaction of the individual with the environment. Because of the literature review, we could conclude that socially based and demographically based influences on motivation are both strongest and most important in studying motivation in work. People interact every day with other individuals, which in one way or another could lead to behavior modulation, which can result in a certain tilt in preferred motivational type. The same can be stated for the demographics of the individuals. As they tend to formulate different types of behavior, it was logical to say that they can formulate a different kind of motivational preference.

As was mentioned, motivation could be influenced also from wide variety of temporary factors. This partially rejects the influence of demographics in certain amount, but overall demographics can have a greater influence on motivation than those temporary factors. Despite the temporarily influencing factors, motivation can be highly affected by decision-making, leadership, feedback, culture, personality traits and many others. Therefore, researches such as the one in the current article, can have a significant influence on how motivation is applied in the workplace.

The results of our survey and the regression and correlation analyses, confirmed the following:

Firstly, we proved that with the increasing of the children for which the individuals take care of, the preference of work environment decreases in a small amount.

Secondly, for men, remuneration is more important as a motivator, than to women.

Thirdly, remuneration is more important for people with higher position in their company.

Fourthly, with age increase, the reference of safety tends to increase as well.

Fifthly, with age increase the preference of personal development as a motivational factor strongly decreases.

Sixthly, for people of older age the preference of Respect and self-respect. Interest and challenge, autonomy and leadership as a motivator weakly can increase.

Seventhly, with the increase of the experience in the company, the preference of Respect and self-respect. Interest and challenge, autonomy and leadership as a motivator weakly can weakly increase.

Lastly, with the climbing of the corporate ladder, individual value more Respect and self-respect. Interest and challenge, autonomy and leadership as a motivator.

As a final conclusion, we can say, that motivation can be influence of demographics in a relatively weak, but statistically significant way. And the investigation in such influences is with high importance for the practical implication of motivation in the modern workplace. This is evermore true in highly complexed economic environment such as the current. This will be evermore valid for companies and sectors, which rely on their employees for the company success in greater amount. The last does not excludes sectors in which the workforce is linked more to the physical operation in the company. Therefore, motivation and the factors that could influence it within the workplace are highly important. Hence, researching motivation is crucial for the proper execution of it in practice. The last can be involved in greater work engagement, more effort and better execution of the work task. Consequently, to better overall results of the companies.

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CHANGE MANAGEMENT AS AN INSTRUMENT IN IMPROVING CRISIS SUSTAINABILITY OF ORGANISATIONS IN THE INFORMATION AND COMMUNICATIONS TECHNOLOGY SECTOR: THE CASE OF BULGARIA

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Abstract

The paper presents the results of an empirical survey conducted in the ICT sector in Bulgaria. An effective change management model was developed which also aims to improve the organisations' crisis sustainability. The model allows to classify organisations in the following 4 groups according to their position in the "Change management competencies" – "Using change to improve crisis sustainability" matrix: availability of change management competencies - active use of change in order to improve crisis sustainability (square 1), inefficient response to change – insufficient use of change to improve crisis sustainability (square 2), dependency when managing change – active use of change to improve crisis sustainability (square 3) and inability to manage change – inactive use of change to improve crisis sustainability (square 4). This makes it possible to conduct well-founded evaluation related to the efficiency of the activities in the field of change management and to formulate well-grounded recommendations for improving the crisis sustainability of the organisations.

Keywords: *change management; crisis management; integration; crisis sustainability; ICT sector*

JEL Codes: *L29; M19*

Introduction

The crisis-related processes over the past years have led to raising the topical issue about the efficiency of decisions organisations make in the field of change management and the improvement of their crisis sustainability. This, on its part, enhances the importance of change management in the process of securing opportunities for long-term

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development of modern organisations. Thus, organisations are forced not only to look for opportunities to keep their competitive advantages but also to improve the activities related to overcoming crisis situations. This subject matter is extremely topical in Bulgaria where special importance is attached to the following issues: improving the decisions related to overcoming crisis events, improving organisations' flexibility, stimulating innovations, improving the organisations' management system, efficient monitoring of the business environment, guaranteeing business continuity etc.

This, for its part, calls for the implementation of a new approach in management theory related to change management as an instrument used to enhance the crisis sustainability of organisations. Crisis management is closely related to change management, i. e. in its essence change management should be interpreted as crisis management because a crisis is a change process which concerns the viability of the organisation and calls for urgent decisions about changes in the tactical and strategic plan.

The aim of the present paper is to develop a model for efficient change management and improvement of crisis sustainability which is to be adopted in the organisations in the information and communications technology sector in Bulgaria.

To achieve this goal the following tasks have been carried out:

1. Studying the specialized literature and the international experience in the field of change management with respect to improving the crisis sustainability of organisations.

2. Creating a model for efficient change management of the practices and improving the crisis sustainability of the organisations.

3. Conducting the empirical research – a questionnaire-based study of the practices related to change management as an instrument to improve crisis sustainability of organisations in the information and communications technology sector. This is the ground for outlining problem areas and practical opportunities related to improving practices in the research area.

Specifically, in this paper, first a literature review in the inspected research area is presented. Second, the research methodology is clarified. Third, the survey results are classified. Finally, important conclusions concerning managerial theory and praxis are drawn.

Literature Review

Winford "Dutch" Holland describes the 80-ies of the past century as "*the discovery of change*", the 90ies – as "*the management of change*" era and the period after 2000 he designates as "*mastering the change*". (Holland, 2001, p. 21) In this way he points out

that change has become a standard managerial activity which facilitates the process of adapting the organisation to the changes in the environment and helps organisations display more actively its inner potential.

A set of *principles* are to be observed in the change management process. (Milner, 2006, p.14) In the first place, an in-depth analysis should be conducted of the causes which lead to changes as well as the possible ways to conduct them, including an assessment of their efficiency. Second, a compulsory element of the organisational culture is the readiness for constant changes and the willingness to acquire new knowledge and skills.

Third, it is appropriate to stimulate evolutionary changes by paying special attention to every successful interim change. Fourth, the development of adequate (positive) strategies to counteract every source of opposition is of key importance. Therefore, it is especially useful to involve all associates in the process of conducting the changes in order to limit likely opposition. The good awareness of the results and the issues that remain unresolved in the change process play a strong motivating role. Fifth, the change process in the organisation should be considered to be long-term and special attention should be paid to the “melting” and “freezing” stages (Lewin, 1951).

Practical ideas related to building the effective change management model and improving the crisis sustainability of organisations can be found in the Kotter model, which includes the following stages (Kotter, 2007):

- o Establish a sense of urgency.
- o Form a powerful guiding coalition.
- o Create a vision.
- o Communicate the vision.
- o Empower others to act on the vision.
- o Plan for and create short term wins.
- o Consolidate improvements and produce more change.
- o Institutionalize new approaches.

A crisis is a disruption of the continuous development, a turning point or a climax in a dangerous situation characterized with strong ambivalence (contradiction) of development opportunities (Fink, 2002, p.15). "A crisis is a disruption that physically affects a system as a whole and threatens its basic assumptions, its subjective sense of self, its existential core". (Pauchant & Mitroff, 1992, p. 12) In other words, a crisis should be seen as a disruption in the equilibrium in the organisation as a result of the influence of factors from the external and/or internal environment. It is recommended that in case of complexity the reasons for the crisis be identified mostly within the organisation, i.e. the internal perspective in terms of crisis management is the leading one. After all, good

managers should continuously monitor for changes in the business environment and in the internal variables in the organisation and based on them identify possible risks related to the occurrence of a crisis. (Gilpin, D. R., & P. Murphy, in Coombs & Holladay, 2010)

The integration of the change management activities and crisis management requires paying special attention to crisis sustainability of organisations in the context of the concept of sustainable development of society. The term sustainability, for its part, includes "endurance, perseverance – it is called stability, observed in changes (disruptions) in the balanced, constant (habitual) system state and activity which causes forces which recover the initial precondition for functioning of the system". (Stanulov, 2002, p. 37) Human development and the scientific and technical revolution naturally give precedence to humanization of interpersonal relations and the need for synchronizing the interests of the different groups of influence on the organisation. In this regard the harmonization of the social space presupposes the regulation of external effects or external spending which are essentially social since they have considerable impact on the individual enterprises, households and the population of each country. This is the only way that sustainability and progress can be guaranteed within the individual social groups and to create conditions for the achievement of their goals. (Karpuhina, 2004, pp. 173-174) All that is in line with the sustainable development concept which essentially means "a change process where the exploitation of resources, the flow of investments, technology orientation and institutional changes are in coordination and strengthen the current and future potential needed for meeting human needs and desires". (Kovachev, 2001, p. 214)

Crisis sustainability is the ability of the system (organisation) to restore its equilibrium after handling the disruptions in its development trajectory. Crisis sustainability should be discussed in the context of the self-preservation law, namely: each system, consciously or spontaneously aims to preserve its quality definiteness. The mechanism for the realization of the self-preservation law includes the sustainability of the system to external and internal disruptions which lays out the condition for the strategic existence of the system. Quality sustainability is characterized with the number and diversity of components and links which form the structure of the system, i.e. the more complex the structure, the more sustainable it is in terms of external and internal impact. In this respect the "punctuated equilibrium" theory is of interest (Romanelli, Tushman, 1994). According to the authors of the theory the long stages of stability in the development of the organisation are interrupted by short, volcanic stages which question the entire reference framework of the organisation and require significant changes in the system. This organisation development model should be seen as permanent.

Over the past years the role of crisis decisions related to forecasting, slowing down and mitigating crisis (occurrences which to a great extent endanger profitability, reputation and the natural functioning of the organisation) has been growing; through providing opportunities for managing the processes of overcoming crisis and minimizing their adverse consequences etc. In this way management requires successful implementation of new crisis management methods which differ from the traditional and aid managers in their efforts in successful organisation development with "the iceberg of vulnerability of modern organisations" being in the centre of attention (Dalton & Dann, 2013, p.5).

Efficient crisis management requires that all associates of the organisation be involved in its activities depending on responsibility levels. Usually organisations have 3 levels of responsibility (it is possible to have 2 levels). In the event of crisis event the coordinating body (the crisis management team) determines its degree of importance. The levels of responsibility are interconnected with the degree of significance of crisis events and the activities undertaken by the respective level for handling the crisis situation. To achieve this goal the crisis events are represented as a pyramid. At the base of the pyramid are events defined as slightly unfavourable for the organisation. They involve the lowest risk, are quickly solved and this enquires the least resources and costs. Up the pyramid are the more complex issues which are perceived as crisis events. As a rule they require coordination because they usually affect and/or require the intervention of several units of the organisational structure. The top of the pyramid involves third-level crisis events which concern the entire organisation and bear the highest degree of risk for its usual functioning.

The information about the crisis event can be received from various sources: organisation's associates, the mass media, clients etc. In all three cases of crisis events crisis plans are applied in order to preserve the viability and the sustainability of the organisation. The information channel that the crisis management team uses is usually incorporated in the crisis plans. Every structural unit has at its disposal an operational crisis plan which is annual and regularly updated (at least once a year) depending on the changed conditions or the occurrence of crisis events. The operational crisis plans are developed on the basis of the strategic crisis plan of the organisation which is for a 3 to 5-year period and is also subject to an annual "smooth" update (after the first year the plan gets updated by including the sixth year from its initial development etc.). The strategic plan helps to achieve strategic goals as part of the crisis planning: keeping the organisation's reputation, enhancing its crisis sustainability and others. Consequently, the crisis management teams play an important role in enhancing the crisis sustainability of modern organisations because they conduct a varied set of activities related to forecasting

pre-crisis situations; developing crisis plans and programmes; using various management methods in times of crisis; conducting crisis trainings etc. This allows for the crisis management to be fully realized: pre-crisis management (timely identifying the crisis symptoms, including the solution of related problems); management in times of crisis (stabilizing the unstable situations, timely solution of problems, minimizing losses and missed opportunities etc.) and management of processes related to overcoming the crisis.

The authors of the present publication introduce an innovative solution to an issue that is important to managerial theory and practice. The specialized literature does not present methods which can be used to determine the quantitative gauges of organisations' propensity to change and thus improve their crisis sustainability. The innovative method, developed by the authors, is mostly universal and can be implemented successfully in different types of organisations in individual countries. This provides a solution which can be used to search for opportunities for quantitative evaluation of modern organisations' propensity to change and in this way to improve their crisis sustainability.

Research methodology

The developed model is a tool used to evaluate change management in the organisation and to improve its crisis sustainability, including the process of allocating reserves for its improvement. Identifying the difficult areas makes it possible to formulate a series of decisions for improving the activity in the research area by creating an environment of commitment and trust in people responsible for conducting the changes in the organisation.

The model is based on ideas categorized by Kuzmanova (2012). The development of modern organisations is accompanied by constant changes. Ignoring them can lead to unpredictable unfavourable consequences and conflicts and to threaten the long-term upward development of the organisations. With respect to that particular importance is attached to skills related to conducting planned changes and forecasting their results considering the complex nature of the organisational changes. Special attention should be paid to the study of the following connections and interdependencies: development concept – aims of the changes – crisis sustainability – competencies – results from the changes. The in-depth analysis of the specified links is the basis for taking flexible managerial decisions and enhancing the potential of the modern organisations which is determined by internal factors (marketing, production, finance, research and development, human resources, managerial style etc.). This way the efficient change management is directed towards increasing the potential of the organisation in terms of

the above mentioned factors with the changes in the business environment in mind. To achieve this goal various analysis techniques can be used. (Simeonov, Lambovska, 2012).

The development of the organisation is characterized with continuous change of its competition, consumers, technologies and other framework conditions which influence the results from its performance. In this respect it is of extreme importance to efficient management to conduct constant monitoring and control of the entire system of factors and the closely related to their impact adapting of the organisational structure, strategy and competencies. Along with that, the strategic change has long turned from an exception into a regular managerial procedure which poses a multitude of challenges to the management of the organisation. Overcoming the changes in its surrounding environment and the establishment of its competitive advantages presupposes a continuous desire to achieve flexibility and adaptation in terms of the changing environmental factors.

Thus the considered elements of effective management allow for:

- ❖ Generating additional opportunities for efficient activity of the organisation focusing on its key competencies.
- ❖ Timely identification of crisis situations and difficulties in the own business and the competitors' business.
- ❖ Using to the maximum the market opportunities where the organisation functions or intends to enter.
- ❖ Timely introduction of new technology norms and standards.
- ❖ Timely evaluation of important to the organisation social and political changes, including legal regulations, changes in the consumer needs and others.

Elements of the model

Organisations can be structured in different groups according to their skills in the field of change management and enhancement of crisis sustainability. (see Figure 2) The basic option of the matrix includes appropriate metrics which are based on the following elements:

1. The indicators used to specify the measurable keys to successful change: aim setting, leadership, structure, abilities, culture, organized in Table 1.
2. Indicators related to the use of change to enhance the crisis sustainability of the organisation.

Figure 1. shows the key elements of the developed model for efficient change management and enhancing the crisis sustainability of organisations.

Figure 1. Efficient change management

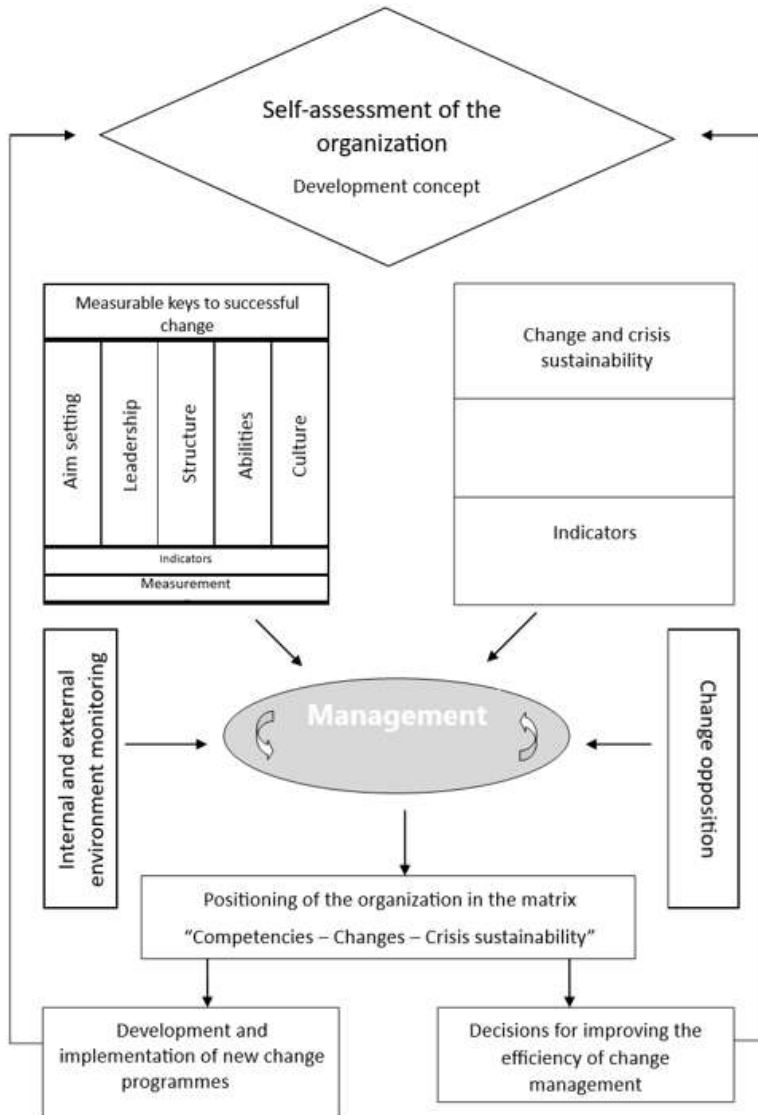


Table 1. is an indispensable part of the developed model and it presents the structured indicators which specify the measurable keys for successful organisational change and the indicators related to improving the crisis sustainability of the organisation.

Table 1. Indicators used to specify the measurable keys to successful change and improving the crisis sustainability of the organisation

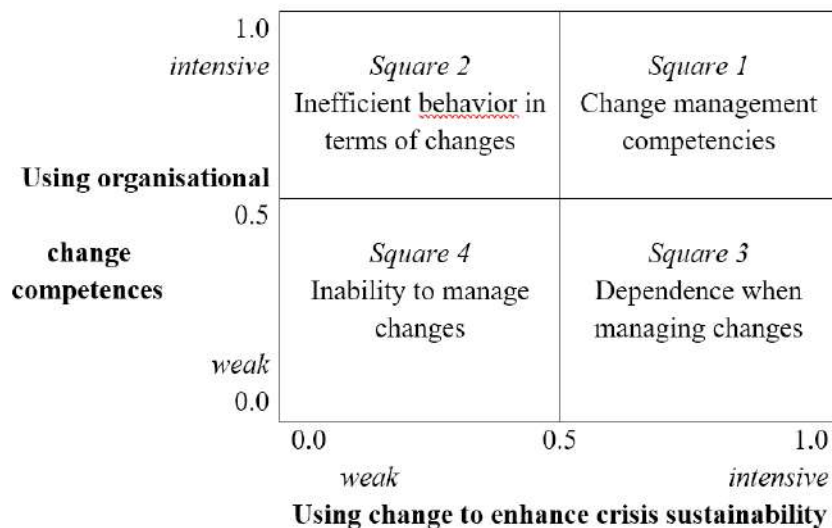
Measurable keys/ Indicators	
№:	Description
I Using the organisational competencies for change	
1. AIM SETTING	
1.1.01.	Active participation of the associates in the process of developing an adequate system of goals to stimulate the desired changes in the organisation.
1.1.02.	Timely identification and interpretation of the signals for change in terms of external and internal environment.
1.1.03.	Monitoring the degree to which the strategic organisational goals are achieved. Continuous analysis of the deviations.
1.1.04.	Developing and using a flexible system of standards in the process of formulating and implementing the system of organisational goals.
1.1.05.	Efficient resource allocation based on clearly defined priorities.
1.1.06.	Binding the material and moral motivation of the people in the organisation with their contribution to achieving the system of organisational goals.
LEADERSHIP	
1.2.01.	2. Continuous study of the communication between the manager and the employees in the organisation.
1.2.02.	Managers have a clear vision about the future of the organisation.
1.2.03.	Leaders have outstanding skills, are good at team work and do not panic in times of uncertainty and stress.
1.2.04.	Managers actively support the change initiatives in the organisation.
1.2.05.	Use of new methods to stimulate innovation in the organisation.
Measurable keys/ Indicators	
№:	Description
1.2.06.	Managers' skills to successfully involve associates from different hierarchical levels in the change process.
STRUCTURE	
1.3.01.	Structure stands out with flexibility in terms of changes in the environment.
1.3.02.	3. Structure facilitates performance aiming to achieve the system of goals in line with the expectations of the main groups of influence on the organisation.
1.3.03.	Structure stimulates innovative decisions in the organisation.
1.3.04.	The organisation employs a well-structured system for delegating rights and for determining the responsibility areas for the changes implemented.
1.3.05.	There is coordination between the decisions and actions of all structural units in the organisation in the process of conducting the changes.
1.3.06.	Structure facilitates the movement of information flows along the horizontal and vertical axis.
ABILITIES	
1.4.01.	Individuals and teams in the organisation are included in active training processes.
1.4.02.	Broad participation of associates in the process of developing and implementing the organisations' development strategy. Delegating rights to lower management levels.
1.4.03.	4. Ability of the organisation to manage changes and to shape its own future. Flexible transformations in the organisation.
1.4.04.	Project teams are formed in the organisation to implement the necessary changes
1.4.05.	Continuous strive for more comprehensive use of the knowledge potential and for

	perfection.
1.4.06.	An efficient information and communications system, encouraging changes, functions in the organisation.
	CULTURE
1.5.01.	Culture stimulates innovative decisions and changes.
1.5.02.	Culture facilitates coordination of activities in the organisation in the process of change management.
1.5.03.	The morale in the organisation stimulates experiments and creative ideas.
1.5.04.	5. The organisation encourages the efforts of those who develop and implement change programmes.
1.5.05.	The people in the organisation are motivated to participate actively in the dialogue aimed to find balance between stability and changes.
1.5.06.	Risk taking, mistakes and efficient conflict solutions are tolerated.
	Measurable keys/ Indicators
Nº:	Description
	II. Using change to improve the crisis sustainability of the organisation
2.1.	The company enhance the crisis sustainability by using the opportunities in the business environment and the organisation's strengths.
2.2.	Improving business processes in order to minimize the impact of the crisis processes on the organisation.
2.3.	Opportunities to measure the results from the management are sought.
2.4.	The managers support the decisions for change.
2.5.	The management of the development of the organisation is aimed at providing flexibility and improving its crisis sustainability.
2.6.	Conducting policy of improving the activity of the organisation and of enhancing its crisis sustainability.

Source: own elaboration.

The results from the conducted survey are entered into the matrix, shown in Figure 2.

Figure 2. Change management competencies – enhancing crisis sustainability



Based on the results from the positioning in the matrix illustrated in Figure 2, organisations can be classified as follows:

- ✓ Organisations incapable of managing change. They use change inactively to enhance crisis sustainability.
- ✓ Dependent organisations – implement change with the help of external consultants. They use change intensively in order to enhance crisis sustainability.
- ✓ Organisations which are inefficient in change management – they are unable to create advantages through implementing changes. They use change inactively to enhance crisis sustainability.
- ✓ Organisations that manage change effectively. They use change intensively to enhance their crisis sustainability.

Taking into consideration managers' skills to direct changes towards enhancing crisis sustainability, the organisations exhibit different behavior. Figure 2. illustrates that only organisations in square 1 can rely on long-term success since they have the necessary competencies to manage change and enhance their crisis sustainability.

Therefore, it is appropriate to conduct a self-assessment which should provide an answer to the following questions:

- In which square of the matrix from Figure 2 can the organisations analysed be positioned?
- What competencies should be developed to manage successfully the strategic changes in the studied organisations? What are the key factors for success?
- What are the sequential steps in the algorithm which will let organisations improve their positions in comparison with the best at change management?
- What difficulties should be overcome in that respect?
- What costs are involved in the above mentioned activities and processes? What is their efficiency? With respect to that it is of great importance to develop controlling – a change management system.

It is possible to deepen the analysis through focusing on the details of the change gene and in this way to conduct analyses and comparisons between the individual structural units of the organisation. On that basis it is possible to identify the strategically important areas for change, development and improvement of the organisations studied.

The survey provides empirical evidence, closely related to the hypotheses formulated in the research:

Hypothesis 1: Organisations in the information and communications technologies sector use intensively the organisational competencies for change?

This hypothesis is related to the response to the "To what degree do organisations in the information and communications technology sector use the organisational competencies for change? question".

Hypothesis 2: Organisations in the information and communications technologies sector use changes intensively to enhance their crisis sustainability.

This hypothesis is related to the response to the "To what degree organisations in the information and communications technologies sector use changes to enhance their crisis sustainability? question".

The main advantages of the developed model can be classified in the following way:

In the first place, innovative approach is used – studying the efficiency of the management system of the organisations and fully using their potential along the triad key competencies – changes – crisis sustainability.

In the second place, the model is used to stimulate changes and to facilitate activities related to enhancing the crisis sustainability of the organisations in times of diverse internal and external changes which accompany their development.

In the third place, the model is to a great extent universal and can be flexibly implemented in different types of organisations, including their individual structural units.

In the fourth place, the focus in the model is on long-term successful development of modern organisations since it helps to provide flexibility and adaptability in the management process.

In the fifth place, the use of the model stimulates the continuous training in the organisation and synchronizing the managerial decisions with the developed system of priorities.

In the sixth place, the model helps synchronize the short-term, mid-term and long-term managerial decisions and reduces the risk of taking wrong decisions.

Along with that some limitations and difficulties related to using the developed model should be pointed out.

Firstly, the implementation of the model requires additional knowledge and skills on the part of managers.

Secondly, there are difficulties related to the development of a single measurement scale.

Thirdly, it is necessary to improve the human resources management and other systems on time.

Survey results

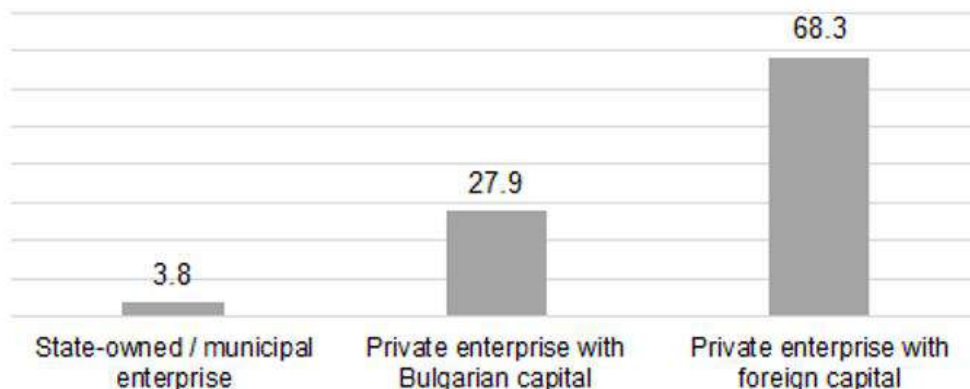
To collect the necessary data a survey was carried out among representatives of businesses performing in the ICT sector by using a representative sample of all enterprises.

In this case the general totality from which the sample of ICT enterprises was made is the Business register of the statistical entities. The general totality includes all working enterprises on the territory of the country whose core activity is in the field of information and communications activities. These enterprises are entered into the Business register of the NSI and their number in 2013 was 11,534.

The main advantage of the representative samples is that they allow for the generalization of the entire general totality (for all enterprises in the ICT sector) on the basis of the conclusions drawn from the research.

The survey included 108 representatives of enterprises in the ICT sector. They perform in enterprises with different form of ownership, as follows: The biggest share is the one of the private enterprises with foreign capital (68.3%); followed by the private enterprises with Bulgarian capital (27.9%). The state-owned/ municipal enterprises have the lowest relative share (3.8%) (see Figure 3.)

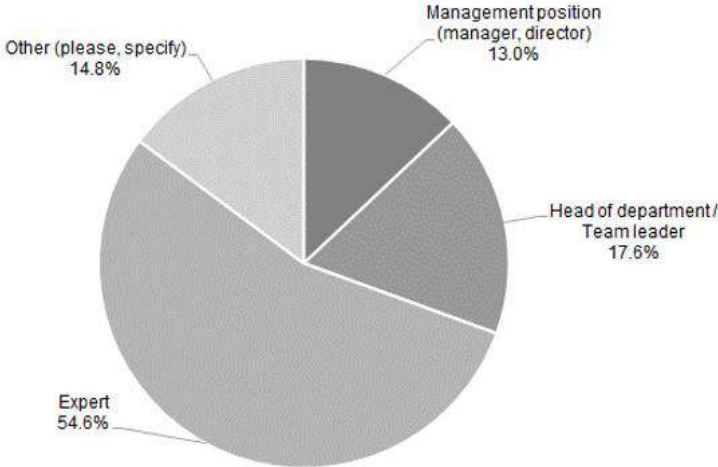
Figure 3. Organizational structure according to the type of ownership



Source: Own calculation

54.6% of the respondents work as experts; 17.6% are team leaders or heads of departments; 13% are top managers and 14.8% marked another role (coordinators, crisis events managers, lecturers, software engineers and other). (see Figure 4.)

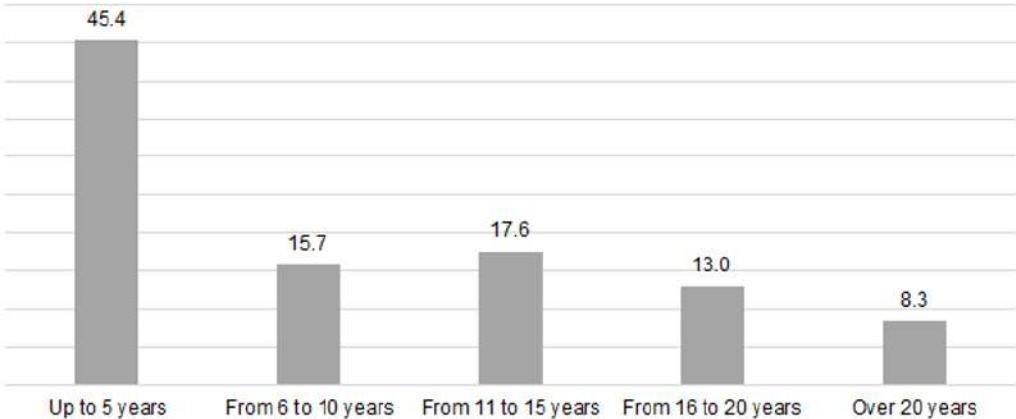
Figure 4. Distribution of the respondents according to their position in the organization (%)



Source: Own calculation

The distribution of respondents according to their total work experience is as follows: up to 5 years – 45.4%; from 6 to 10 years – 15.7%; from 11 to 15 years – 17.6%; from 16 to 20 years – 13.0%; over 20 years – 8.3% (see Figure 4)

Figure 5. Distribution of the respondents according to their total work experience (%)



Source: Own calculation

Results related to the model of efficient change management and enhancing the crisis sustainability of the organisations in the information and communications technologies sector

Section G of the questionnaire is dedicated to the model of efficient change management and enhancing the crisis sustainability of the organisations in the information and communications technology sector.

Table 2. illustrates results from the implementation of the "Cronbach's alpha" method for evaluating the consistency of the initial measures in the model. The data presented in the table shows that the calculated values of Cronbach's alpha are close to 1. Therefore, the discussed measures are well selected and it is appropriate to be grouped by common indicators.

Table 2. Results from the application of the "Cronbach's alpha" method for evaluating the correlation of the initial measures in the model

№	Measure	Cronbach's alpha
G1	Aim setting	0.728
G2	Leadership	0.778
G3	Organisational structure	0.891
G4	Abilities	0.879
G5	Culture	0.874
<i>G1_G5</i>	<i>Grouping of measures</i>	0.854
G6	Use of changes to enhance crisis sustainability of organisations	0.887

Source: Own calculation

Table 3. illustrates the distribution of respondents based on their understanding of aim setting as an element of the gene of change discussed earlier in the article. The results in the table show that the respondents support the activities related to creating preconditions for change management in their organisations in terms of aim setting to a very great extent: the support in all its aspects exceeds 80%. Just 0.9% of the respondents have marked "Completely disagree", related to "Monitoring the degree of completion of the organisation's strategic goals. Continuous analysis of the deviations". The "Completely disagree" answers vary within the 1.9 – 8.4% range.

Table 3. Distribution of respondents according to their understanding of aim setting (%)

№	Statement	Completely agree	Mostly agree	Undecided	Mostly disagree	Completely disagree	Total
A	Active participation of associates in the process of developing an adequate system of goals to stimulate the desired changes in the organisation.	30.8	52.3	8.4	8.4		100.0
B	Timely identification of the signals for change in terms of external and internal environment.	29.9	57.9	10.3	1.9		100.0
C	Monitoring the degree of implementation of the organisation's strategic goals. Continuous analysis of the deviations.	38.3	45.8	8.4	6.5	0.9	100.0
D	Development and use of a flexible system of standards in the process of formulating and implementing the system of goals of the organisation.	30.8	46.7	16.8	5.6		100.0
E	Efficient resource allocation based on clearly defined priorities.	43.9	43.9	7.5	4.7		100.0
F	Binding the material and moral incentives for the people in the organisation with their contribution to achieving the system of goals of the organisation.	48.1	39.6	7.5	4.7		100.0

Source: Own calculation

The analysis of the results in Table 4. also confirms the relatively big support on the part of the respondents for the statements related to leadership as an element of the gene of change in the organisations under consideration. The number of answers "Completely agree" fluctuates within the 38.0 – 60.2% range. The share of respondents who said "Mostly disagree" is relatively small (between 2.8 and 7.4%). Only 0.9% is the share of respondents who gave "Completely disagree" answer for the statement "Management has a clear vision for the future of the organisation".

Table 4. Distribution of respondents based on their understanding of leadership (%)

No	Statement	Completely agree	Mostly agree	Undecided	Mostly disagree	Completely disagree	Total
A	Continuous study of the leader-employee communication in the organisation.	38.0	44.4	11.1	6.5		100.0
B	Management has a clear vision about the future of the organisation.	39.8	43.5	8.3	7.4	0.9	100.0
C	Leaders have outstanding qualities, are good at team work and do not panic in times of uncertainty and stressful situations.	60.2	30.6	6.5	2.8		100.0
D	Management actively supports the initiatives for change in the organisation.	40.7	46.3	8.3	4.6		100.0
E	Use of new methods to stimulate innovation in the organisation.	39.8	44.4	12.0	3.7		100.0
F	Managers' skills to involve successfully employees at different hierarchical levels in the change process.	52.3	33.6	8.4	5.6		100.0

Source: Own calculation

When analysing the results in Table 5. we should point out that there is a variety in the answers given by the respondents. However, the positive answers prevail. There are no "Completely disagree" answers. The values of the "Mostly disagree" answer vary between 9.3% ("The structure facilitates the working process in terms of achieving the system of goals in line with the expectations of the main groups of influence on the organisation.") and 17.6% ("The structure stimulates innovative decisions in the organisation."). The agreement in the opinions of the respondents is comparatively big: more than 60% of the respondents expressed their support for the statements in the questionnaire.

Table 5. Distribution of respondents based on their understanding of corporate organisational structure (%)

No	Statement	Completely agree	Mostly agree	Undecided	Mostly disagree	Completely disagree	Total
A	The structure stands out with flexibility in terms of changes in the environment.	25.9	49.1	12.0	13.0		100.0
B	The structure facilitates the working process in terms of achieving the system of goals in line with the expectations of the main groups of influence on the organisation.	30.6	39.8	20.4	9.3		100.0
C	The structure stimulates innovative decisions in the organisation.	29.6	38.0	14.8	17.6		100.0
D	The organisation boasts a well-organized system of rights delegation and of defining the areas of responsibility in terms of the changes conducted.	34.3	38.9	14.8	12.0		100.0
E	There is coordination between the decisions and the actions of all structural units in the organisation in the process of conducting the changes.	29.6	38.0	20.4	12.0		100.0
F	The structure facilitates the movement of information flows along the horizontal and vertical axis.	33.3	33.3	23.1	10.2		100.0

Source: Own calculation

Table 6. presents the distribution of respondents based on their understanding of the abilities of the employees as an element of the gene of change in the organisations under consideration. The analysis of the results leads to the conclusion that positive responses prevail although there are various opinions about the discussed measure. 85.2% of the respondents support the statement "An efficient information and communications system functions in the organisation and it facilitates the changes." The responses "Mostly disagree" and "Completely disagree" vary between 7.4 ("The organisation operates an efficient information and communications system which facilitates changes.") and 21.3% ("The organisation conducts intensive training of individual associates and teams.").

Table 6. Distribution of respondents based on their understanding about abilities (%)

№	Statement	Completely agree	Mostly agree	Undecided	Mostly disagree	Completely disagree	Total
A	The organisation conducts intensive training of individual associates and teams.	32.4	39.8	6.5	19.4	1.9	100.0
B	Active participation of associates in the process of developing and implementing the strategy for organisational development. Delegating rights to lower management levels.	32.4	39.8	6.5	19.4	1.9	100.0
C	Ability of the organisation to manage changes and to shape its own future. Flexible transformations in the organisation.	33.3	44.4	12.0	9.3	0.9	100.0
D	Project teams are formed in the organisation to implement the necessary changes.	36.1	31.5	14.8	17.6		100.0
E	Constant strive for wider use of the knowledge potential and for perfection.	42.1	37.4	10.3	9.3	0.9	100.0
F	The organisation operates an efficient information and communications system which facilitates changes.	45.4	39.8	7.4	7.4		100.0

Source: Own calculation

The same goes for culture as an element of the index of change in the organisations (see Table 7.). The values of the "Completely disagree" response change within the 0 ("Culture stimulates innovative decisions and changes.") and 3.7 ("People working in the organisation are motivated to participate actively in the dialogue aimed at finding balance between stability and changes.") range. The share of respondents who support the statements referring to culture is big: from 58.3% ("Desire to stimulate experiments and creative ideas dominates in the organisation.") to 78.7% ("Culture stimulates innovative decisions and changes.").

Table 7. Distribution of respondents based on their understanding about abilities (%)

№	Statement	Completely agree	Mostly agree	Undecided	Mostly disagree	Completely disagree	Total
A	Culture stimulates innovative decisions and changes.	40.7	38.0	8.3	13.0		100.0
B	Culture facilitates the coordination of activities in the organisation in the process of change management.	38.9	38.0	13.9	9.3		100.0
C	Desire to stimulate experiments and creative ideas dominates in the organisation	21.3	37.0	17.6	22.2	1.9	100.0
D	The organisation stimulates the efforts of people who develop and implement change programmes.	40.7	28.7	14.8	14.8	0.9	100.0
E	People working in the organisation are motivated to participate actively in the dialogue aimed at finding balance between stability and changes.	32.4	38.0	9.3	16.7	3.7	100.0
F	There is tolerance towards risk taking, mistakes and efficient conflict resolution.	33.3	41.7	7.4	16.7	0.9	100.0

Source: Own calculation

Table 8. illustrates the distribution of respondents based on their understanding of the use of changes to enhance the crisis sustainability of the organisations. It becomes clear from the results in the table that despite the variety of opinions, positive answers prevail. More than 60% of the respondents expressed their support for the statements included in the table. There are no “Completely disagree” responses. “Mostly disagree” answers are in the range between 5.6% and 11.1%.

Table 8. Distribution of respondents based on their understanding of using changes to improve the crisis sustainability in the organisation (%)

No	Statement	Completely agree	Mostly agree	Undecided	Mostly disagree	Completely disagree	Total
A	The company improves the crisis sustainability by using the opportunities of the business environment and the strengths of the organisation.	37.0	38.9	13.9	10.2		100.0
B	Improving business processes in order to minimize the impact of crisis process on the organisation.	20.4	55.6	16.7	7.4		100.0
C	Opportunities to measure the results from the management are sought.	36.1	31.5	21.3	11.1		100.0
D	The managers support the decisions for changes.	38.0	47.2	9.3	5.6		100.0
E	The management of the development of the organisation is directed towards providing flexibility and improving its crisis sustainability.	38.0	43.5	11.1	7.4		100.0
F	Conducting a policy of improving the activity of the organisation and enhancing its crisis sustainability.	28.7	43.5	19.4	8.3		100.0

Source: Own calculation

Table 9. shows the correlation coefficients between the measurements of the gene of change (aim setting, leadership, organisational structure, abilities and culture) and the degree to which changes are used to enhance crisis sustainability of the organisations in the information and communications technologies sector.

Given the values of the correlation coefficients the following conclusions can be drawn:

- There is a relatively strong, direct and statistically material relation between G1 (aim setting) and G6 (the degree at which changes are used to enhance crisis sustainability of the organisation).
- There is a relatively strong, direct and statistically material relation between G2 (leadership) and G6 (the degree at which changes are used to enhance crisis sustainability of the organisation).

- There is strong, direct and statistically material relation between G3 (organisational structure) and G6 (the degree at which changes are used to enhance crisis sustainability of the organisation).
- There is strong, direct and statistically material relation between G4 (ability) and G6 (the degree at which changes are used to enhance crisis sustainability of the organisation).
- There is strong, direct and statistically material relation between G5 (culture) and G6 (the degree at which changes are used to enhance crisis sustainability of the organisation).
- There is strong, direct and statistically material relation between G1_G5 (unification of the measures of the gene of change) and G6 (the degree at which changes are used to enhance crisis sustainability of the organisation).

Table 9. Correlation coefficients between the measures of the gene of change and the degree at which changes are used to enhance the crisis sustainability of organisations.*

№	Measure	Using changes to enhance crisis sustainability
G1	Aim setting	0.361
G2	Leadership	0.474
G3	Organisational structure	0.746
G4	Abilities	0.744
G5	Culture	0.688
<i>G1_G5</i>	<i>Grouping the measures</i>	0.775

Source: Own calculation

* Note: These are the Spearman rank correlation coefficients measured within the [-1, +1] interval. They are used to measure the degree of dependence between two variables (based on the absolute value of the coefficient).

The results presented in Table 10. provide arguments in favour of hypothesis 1 and hypothesis 2, depicted above.

Table 10. The mean values of the measures of the gene of change and of the use of change to enhance crisis sustainability of organisations

№	Measure	Mean values
G1	Aim setting	0.790
G2	Leadership	0.813
G3	Organisational structure	0.721
G4	Abilities	0.732
G5	Culture	0.720
G1_G5	<i>Using organisational competencies for change</i>	0.755
G6	Using changes to enhance the crisis sustainability of organisations	0.753

Source: Own calculation

It becomes clear from the information in Table 10. that the mean values of the measures of the gene of change of organisations in the information technologies sector change in the range between 0.720 (culture) to 0.813 (leadership). This, on its part, is a proof for the existence of good practices related to using the organisational competencies for changes.

The value of the "Use of organisational competencies for changes" indicator is 0.775. The value of the second indicator "Using changes to enhance the crisis sustainability of organisations" is 0.753 (see Table 10.). This means that the organisations in the information and communications technologies sector can be positioned in square 1 of the matrix "Competencies for change management – enhancing crisis sustainability" (see Figure 2. above in the body of the article, pp. 135 – 136). This leads to the conclusion that the discussed organisations have competencies for change management, i.e. they use intensively the organisational competencies for change and through changes they enhance their crisis sustainability.

Conclusions

Generally, a new approach should be used in the management theory and practice related to change management as an instrument used to improve the organisations' crisis sustainability:

- Change management is subject to the task related to the transition from reactive to proactive approach to coordinating activities related to it.
- Change management involves the acquisition of various knowledge related both to the theoretical models needed for its realization and to its practical implementation.

- A direct connection exists between the success of crisis management and change management.
- Change management is aimed at integrating the individual change projects in a wide-range balanced programme with clearly defined priorities and rational management of technologies, processes and human resources.

It should be pointed out that essential changes in the business environment and internal variables are typical of modern organisations, which calls for implementing flexible strategies for change management and enhancing their crisis sustainability. Moreover, the creation and maintenance of key competencies, which facilitate the change processes and provide balance in the long-term development, are of great importance. A flexible model was developed and it can be used to look for opportunities to define measurable keys to successful changes in modern organisations and on that basis to enhance their crisis sustainability.

The conducted research provides arguments in favour of hypothesis 1 and hypothesis 2, depicted above. The organisations in the information and communications technologies sector are positioned in square 1 of the "Change management competencies" – "Using change to improve crisis sustainability" matrix, and namely "Active use of change in order to improve crisis sustainability". Therefore, they possess of good practices related to using the organisational competencies for changes and through changes they enhance their crisis sustainability. It is recommended that in the future the model be approbated in organisations in other sectors of the economy. This will allow for making comparisons and posing important questions and making decisions related to their activity in the field of change management and anti-crisis management.

Modern organisations face various challenges in the field of change management and enhancing their crisis sustainability. Therefore, the role of crisis decisions related to forecasting, slowing down and mitigating the crisis (an event that considerably endangers profitability, the reputation and the regular functioning of the organisation) grows; by providing opportunities for managing the processes of overcoming the crisis and minimizing its adverse consequences and so on. In this way the successful development requires the development and the successful implementation of a modern management concept where the key role belongs to activities in the field of change management as an instrument used to enhance the crisis sustainability of modern organisations.

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WILL FEMALE PARTICIPATION IN TOP MANAGEMENT TEAMS IMPROVE CORPORATE SOCIAL RESPONSIBILITY EFFICIENCY?

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Abstract

Recently, the management value of female executives has attracted wide attention in the academic circle, and policy promotion of CSR efficiency has become a research topic. However, there are few literatures on the relationship between female executives and CSR efficiency. Therefore, the SBM-Malmquist model is used to measure and analyze CSR efficiency by taking China's listed companies as samples from 2010 to 2019, and the influence of female executives on CSR efficiency is studied based on social role theory, feminist care ethics and affective commitment. The results show that: (1) The proportion of women in the top management team has an "inverted U-shaped" influence on CSR efficiency. (2) Female executives with older age and higher education level have more promoting effect on CSR efficiency. (3) The higher the proportion of female executives with overseas backgrounds and female executives in a social part-time job, the more obvious the improvement of CSR efficiency will be.

Keywords: *Female executives; CSR efficiency; Malmquist index*

JEL Codes: *M14*

Introduction

The Fifth Plenary Session of the 19th CPC Central Committee pointed out that China has shifted to a stage of high-quality development, and we should adhere to the new development concept to promote efficiency reform and achieve more efficient development. The meeting also called for building a community of responsible social governance and regulating the ways for market players to participate in social governance. Governments play an important role in CSR in developing countries (Riliang Qu, 2007, p.198). As an important micro-market entity, enterprises' social responsibility is an important way for them to participate in social governance. The improvement effect of

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external policy impact on CSR is more significant in enterprises with better management level (Kong DongminShu, Yijia & Wang Yanan, 2021, p.101317). Paying attention to the efficiency of corporate social responsibility not only conforms to the macro development trend but also helps to improve the social responsibility awareness and management ability of individual enterprises.

Relevant literature shows that it is of great significance to study CSR behaviour from the perspective of managers' characteristics. Corporate social responsibility decisions are largely shaped by management characteristics (Jinbo Luo & Qigui Liu, 2020, p.43). Female executives have a unique value in improving corporate social responsibility and have an important impact on corporate social responsibility activities (Mustika S.D. & Isnalita., 2019, p.13). Compared with male executives, female executives have a stronger sense of social responsibility and pay more attention to the fulfilment of social responsibility. However, there are few studies on the impact of female executives on CSR, and most of them focus on the perspective of CSR performance. Compared with performance, efficiency may be a better measure of the transformation relationship between CSR input and output, so that subsequent empirical studies can present the management value of female executives.

Based on social role theory, feminist caring ethics and organizational emotional commitment, this paper selects several input-output indicators related to corporate social responsibility to measure efficiency. It is expected to provide theoretical reference for enterprises to improve their management ability and personnel decision-making ability by empirically studying the effect of female executives' characteristics on corporate social responsibility efficiency. The main contributions of this paper are as follows: First, it calculates and analyzes the social responsibility efficiency level and changing trend of listed enterprises in China. According to the measurement results, CSR efficiency does not have obvious industry characteristics but is more affected by the enterprise's management ability. Second, it provides theoretical support for female executives to participate in CSR management. This paper finds that the proportion of female executives has an "inverted U-shaped" influence on CSR efficiency, and within a certain proportion, female participation in the top management team can help enterprises improve their CSR efficiency. Thirdly, the existing literature has not yet focused on the impact of the overseas background of female executives and the proportion of part-time jobs on corporate social responsibility efficiency. Through empirical research, this paper finds that the higher the proportion of female executives with overseas backgrounds and the proportion of part-time jobs of female executives, the greater the corporate social responsibility efficiency will be significantly improved.

Theoretical analysis and hypothesis development

Previous studies believe that gender is one of the most important individual difference variables (Li Yahui et al., 2021, p.102243). In the same situation, female and male executives may exhibit the alienated behaviour pattern of business trips, and then have different effects on the efficiency of social responsibility.

Social role theory holds that individual socialization process is the main cause of gender differences. Individuals are usually expected by society to perform behaviours consistent with defined gender roles and will be punished by speech for behaviours that deviate from roles. Such role positioning tends to make individuals act around social role expectations (Thomas W.H. Ng, Simon S.K. Lam, & Daniel C. Feldman., 2016, p.11). For a long time, women have been given roles such as social orientation and stronger altruistic tendencies. In the context of female identity, female executives are considered to have strong social awareness, pay more attention to "soft" issues such as corporate social responsibility (Ayman Issa & Hong Xing Fang, 2019, p.577), and pay more attention to the value demands of stakeholder groups (Ioanna Boulouta, 2013, p.185). Such a role concept makes female executives have to devote themselves to improving the efficiency of social responsibility. In the case of limited resources, they will still use their management skills to improve the social value of the enterprise to meet the expectations and positioning of the society on the role of women and avoid the doubts and criticism from the role of women.

Feminist ethics of care holds that women have a unique "empathy" and pursue caring ethics that attaches importance to relationship and responsibility. They have a strong ability to empathize with people around them. Female executives can more deeply understand the needs of internal and external stakeholders of the enterprise, perceive the social responsibilities of the enterprise, and then pay more attention to the performance of the enterprise in social responsibility (Maretno Agus Harjoto & Fabrizio Rossi, 2018, p.95). Existing literature shows that Chinese female executives attach importance to CSR, and their preference for CSR is mainly altruistic (Zou et al., 2018, p.2965). Compared with men, this trait makes female executives more effective at improving their social responsibility. They understand the ultimate expectation and demand of stakeholders and the public on the enterprise and know the key links of resource input. Therefore, they can generate higher enterprise value and wider social recognition through efficient utilization of resources.

Affective commitment arises from members' affective dependence on the organization. Compared with male members, female members pay more attention to relationships and are more sensitive and delicate, so in the process of their career growth, they pay more attention to the emotional connection with the organization. Meanwhile, the

proportion of female executives at listed companies in China remains low (Lu Qianwen, Chen Shouming & Chen Peien, 2020, p.7730). Thus, the management and decision-making power of female executives in the organization makes them have the status of the organization and are valued by the organization. The feelings of respect and happiness that come with this kind of attention can strengthen the emotional connection with the organization. On the one hand, female executives are more eager than men to improve their professionalism and prove themselves in the workplace. The development of organizations is closely related to the realization of their self-value. They strive to maximize the effectiveness of the social responsibility input of the organization and generate higher enterprise value to gain recognition from the organization and society. On the other hand, to make their own emotions get effective feedback and continuous perceptual organization for its emphasis on the emotional satisfaction, female executives will produce strong will to improve the efficiency of corporate social responsibility, make the enterprise even limited resources still can obtain a high degree of social awareness and reputation, organization deeper emotional feedback gain.

In conclusion, the pressure of social role positioning pushes female executives to improve the efficiency of social responsibility from the outside, the unique "empathy" of women makes female executives have a unique talent and ability to improve the efficiency of social responsibility, and the emotional commitment to the organization makes female executives have a strong desire to improve the efficiency of social responsibility.

Relevant studies show that a certain number (critical number) of female directors has a significant positive impact on corporate environmental investment (Feng Wei, Binyan Ding & Yu Kong, 2017, p.2292). The higher the proportion of female executives in an organization, the more management and decision-making power they have, and the more significant the effect on improving the efficiency of social responsibility. However, when the proportion of females exceeds a certain threshold, the social role of the corporate top management team may be simplified. Women executives face greater pressure from social expectations, which can affect their team's ability to think objectively and independently. In addition, the high proportion of female executives makes the top management team have a richer emotional perception of stakeholders and the organization, and the possibility of rational decision-making is reduced, which makes the efficiency of corporate social responsibility decline rather than increase. Therefore, this paper proposes the following hypotheses:

H1: The proportion of female executives has an "inverted U-shaped" influence on CSR efficiency.

According to relevant studies, the characteristics of senior managers (such as education, age, etc.) are closely related to managers' cognitive ability and values. Therefore,

the age and education level of female executives will inevitably affect their decision-making style. Compared with younger female executives, older female executives have a deeper understanding of social roles. They can perceive the long-held expectations of women's "social orientation" and accumulate experience in effectively fulfilling their role expectations during the practice process, so they may have a more significant positive impact on improving the efficiency of social responsibility. At the same time, their rich experience deepens their "empathy", which further enhances the efficiency of social responsibility (María-Florencia Amorelli & Isabel-María García-Sánchez, 2020, p.204). Some of the older female executives may have joined the organization in its early stages and worked their way up the executive ladder. They have invested their youth and ideals in the organization and hope that the precious resources they have invested can obtain greater emotional feedback from the organization. Therefore, older female executives have a stronger desire to make the organization use limited resources to effectively enhance social value and realize the organization's recognition of themselves at a higher level. To sum up, this paper proposes the following hypotheses:

H2: The average age of female executives has a positive impact on CSR efficiency.

The higher the level of female executives' education, the more they expect their educational input to bring positive outcomes, namely, to be highly recognized by the organization and society. Therefore, they are unlikely to be punished by speech because they violate the long-term role orientation of women. Instead, they will use their professional knowledge to better meet the expectations of the society on the role of women and improve the efficiency of social responsibility to a greater extent. At the same time, a high level of education enables female executives to have a deep level of cognition and empathy, their "empathy" characteristics can be better played, and they have more profound insights to improve the efficiency of social responsibility. In addition, highly educated female executives are more likely to experience the "glass ceiling" of female advancement in the workplace (Erynne E. Landry, Richard A. Bernardi & Susan M. Bosco, 2016, p.27). Therefore, they can deeply feel the respect and trust of the organization and get emotional satisfaction when they obtain the senior executive status. They devote more knowledge and management resources to the organization, and are more emotionally dependent on the organization. Under the influence of affective commitment, female executives will substitute themselves into the situation faced by the development of the organization, thus perceiving the importance of improving the efficiency of social responsibility for the organization. To sum up, this paper proposes the following hypotheses:

H3: The average education level of female executives has a positive impact on CSR efficiency.

Previous studies generally believe that female directors have the same social orientation and have the same impact on corporate social responsibility (CSR). However, due to their past experiences, their social orientation may be different (Yu Wang, Jie Ma & Tienan Wang, 2021, p.1). From the middle of the 20th century, western countries began to form a mature corporate social responsibility system and system. The research on corporate social responsibility in western society is more in-depth, and the expectation on the role of senior executives who should pay attention to corporate social responsibility is also relatively higher. Therefore, female executives with overseas backgrounds are not only faced with the public's expectation that the role of a woman should attach importance to social responsibility, but also shoulder the perceived expectation of the role of a senior executive in Western society while studying or working abroad. In order to meet the dual role expectations, female executives with overseas background will apply their overseas education or work experience to improve the effectiveness of corporate social responsibility. At the same time, overseas experience deepens their "empathy" for stakeholders, and they can introduce relatively mature overseas CSR management methods into domestic enterprises. The higher the proportion of female executives with overseas background in an enterprise, the more mature the social responsibility decision-making system of top management team will be, and the more obvious the improvement of social responsibility efficiency will be. Therefore, this paper proposes the following hypotheses:

H4: The proportion of female executives with overseas background has a positive impact on CSR efficiency.

In addition, the proportion of female executives working part-time in society should also be fully considered. Social part-time makes female executives no longer confined to the enterprise, but deeply close to the society. In the process of social part-time job, they enrich the cognition of women's social role, and have a deep understanding of women's role positioning and role expectation. Also, social part-time for female executives' communication platform is associated with social interests groups, "empathy" talent into full play, they perceive the real appeal to all groups, and so on enterprise management can be more accurate to social responsibility into, make the enterprise resource can be converted into a high level of social recognition, and improve enterprise value. Therefore, female executives with social part-time jobs have unique value for improving corporate social responsibility efficiency (Yang Weiliu, Yang Jinlei & Gao Zhitong, 2019, p.3452). The higher the proportion of female executives with social part-time jobs, the greater the corporate social responsibility efficiency will be significantly improved. This paper proposes the following hypotheses:

H5: The proportion of part-time jobs for female executives has a positive impact on the efficiency of corporate social responsibility.

Research design

Sample selection and data sources

First of all, in order to explore the social responsibility efficiency level and change trend of China's listed companies, this paper selected listed companies that disclosed social responsibility related information from 2010 to 2019 as samples, after eliminating the missing value and outlier value, obtained the social responsibility data of 1493 listed companies in 10 years for efficiency analysis. Secondly, in order to study the impact of female executives on the efficiency of social responsibility, this paper eliminated the characteristics of female executives and the missing and outlier values of control variables on the basis of efficiency data, and finally obtained the unbalanced panel data of 1219 listed companies. Data related to social responsibility in this paper came from HeXun social responsibility scoring report, other data came from CSMAR, and some data were calculated by Excel.

Variable declaration

Output index and input index

In this paper, the market value of enterprises is taken as the output index of social responsibility. According to the research of existing literature, Tobin's Q and price-to-book ratio are selected as the measurement indexes of the market value of enterprises.

Previous studies have started from five aspects of corporate social responsibility, namely, the relationship between shareholder responsibility, employee responsibility, consumer responsibility, environmental responsibility and social welfare and group ownership (Huang Xin et al., 2021, p.2110). Therefore, the social responsibility score of listed enterprises published by HeXun is taken as the input index in this paper. This score is a comprehensive and objective evaluation of the performance of corporate social responsibility from five aspects including shareholder responsibility, employee responsibility, supplier, customer and consumer rights responsibility, environmental responsibility and social responsibility, involving 13 second-level indicators and 37 third-level indicators.

The input-output index system is shown in Table 1.

Table no. 1. Input-output index system of social responsibility efficiency

	Indicators	Variable definitions
Output indicators	Tobin's Q value	Market capitalization/total assets
	Price-to-book	Market price per share/net asset value per share
Input indicators	Total social responsibility score	Shareholder liability score
		Employee responsibility rating
		Supplier, customer, and consumer accountability scores
		Environmental responsibility score
		Social responsibility score

Source: CSMAR and HeXun social responsibility scoring report

Explained variables

The variable explained in this paper is corporate social responsibility efficiency, the efficiency growth rate of listed enterprises was calculated based on Malmquist index, and the cumulative value was calculated based on 2010 to measure the CSR efficiency of each year.

Explanatory variables

In this paper, the proportion of female executives, the square term of the proportion of female executives, the average education level of female executives, the average age of female executives, the proportion of female executives with overseas background and the proportion of female executives working part-time in society were selected as explanatory variables.

Control variables

According to the research of scholars such as Atang Hermawan and Ardi Gunardi (2019), Adrian (Waikong) Cheung and Wee Ching Pok (2019), etc., corporate size, equity nature, asset-liability ratio, return on total assets, growth rate of operating income, cash holdings, board size, double positions and management shareholding ratio were selected as control variables. See Table 2 for the variables of corporate and social responsibility efficiency of female executives.

Table no. 2. Definition of female executives and corporate social responsibility efficiency variables

Variable nature	Variable name	Variable definitions
Explained variable	Social Responsibility Efficiency (ECSR)	Taking 2010 as the base period, the value is 1, and the annual cumulative value of Malmquist index is calculated
	Ratio of Female Senior Executives (Fratio)	Number of women in senior management/total number of senior management
	The square term of the proportion of female executives (Fratio2)	The square of the percentage of women in senior management
Explanatory variables	Average Age of Senior Female Executives (Fage)	Total age of female executives/total number of female executives
	Average Female Executive Education Level (Fedu)	The number of female executives with a bachelor's degree or above
	Percentage of female executives with overseas background (Oversea)	Number of female executives with overseas background/total number of senior executives
	Percentage of Female Executive Social Part-time Workers (OtherCo)	Number of female executives working part-time in society/total number of senior executives
	Enterprise Size (Size)	Take the logarithm of the total assets of the enterprise
	Nature of Equity (Soe)	The value of state-owned enterprise is 1, otherwise it is 0
	Debt to Asset Ratio (Lev)	Total liabilities/total assets
Control variables	Return on Total Assets (Roa)	Net profit/total assets
	Growth Rate of Operating Revenue (Growth)	(Operating Income for Year T-1 - Operating Income for Year T-1)/Operating Income for Year T-1
	Holding Cash (Cash)	Ending cash and cash equivalents balance/total assets
	Size of Board (Board)	the number of people on the board
	Dual (Dual)	The concurrent value of chairman and general manager is 1; otherwise, it is 0
	Management shareholding ratio (Shold)	Total management shareholding/total share capital

Source: CSMAR and HeXun social responsibility scoring report

Model specification

SBM-Malmquist exponential model

In order to measure the CSR efficiency of sample enterprises in the past 10 years, the SBM-Malmquist index model is selected in this paper. The traditional DEA model does not take into account the input-output slack, which leads to the high measurement results. However, the SBM model based on non-radial Angle takes the slack variables into account, and the efficiency value is more accurate as it adjusts with the degree of slack of the index.

In 1953, Sten Malmquist first proposed the Malmquist index. In 1997, Rolf Fare combined it with DEA model to measure the change level of efficiency. Malmquist index measures the efficiency change from T period to T +1 period, avoids the error caused by the arbitrariness of period selection, and improves the identification ability of the model. The calculation formula is as follows (Fadzlan Sufian, 2010, p.84):

$$M(x_{t+1}, y_{t+1}; x_t, y_t) = \sqrt{\frac{D^t(x^{t+1}, y^{t+1})}{D^t(x^t, y^t)} \times \frac{D^{t+1}(x^{t+1}, y^{t+1})}{D^{t+1}(x^t, y^t)}}$$

If the Malmquist index is greater than 1, it means that the efficiency of the research sample in the t+1 year is increased compared with that in the t year. Equal to 1 means nothing has changed; Less than 1 means less efficiency. Malmquist index can be decomposed into technical efficiency change index (EC) and technical progress index (TC), namely: MI=EC×TC. EC stands for catch-up situation, which is used to measure the distance change of decision unit from T period to T +1 period to the optimal production front. Tc represents the movement of the production front from the t stage to the t+1 stage (Ke-Liang Wang et al., 2020,140280).

Panel data model

In order to explore the impact of female executives on CSR efficiency, this paper tries to build a panel data model, the specific model is determined according to the data test results in the following paper.

Empirical results and analysis

The change analysis of Malmquist index and decomposition value

According to the data requirements of DEA model, the efficiency cannot be directly measured if some input data are not positive, so this paper needs to standardize the indicators. Since the input-output indicators in this paper are all positive indicators, the calculation formula is as follows:

$$X_+ = 0.01 + 0.99 \frac{X - X_{\min}}{X_{\max} - X_{\min}}$$

MaxDEA software is used to calculate the Malmquist index based on the SBM model, and the results are shown in Table 3. In the past ten years, the Malmquist index of CSR efficiency of sample enterprises is all greater than 1, indicating that the efficiency is in a state of steady improvement. According to Figure 1, the CSR efficiency of the sample enterprises increased significantly from 2013 to 2014 and from 2016 to 2017, increasing by 0.89% and 0.97% respectively. On the whole, the efficiency of the sample enterprises shows an upward trend, and the enterprises have made continuous efforts to improve the efficiency of social responsibility and achieved significant results in some periods, which is in line with the law of things fluctuating and rising.

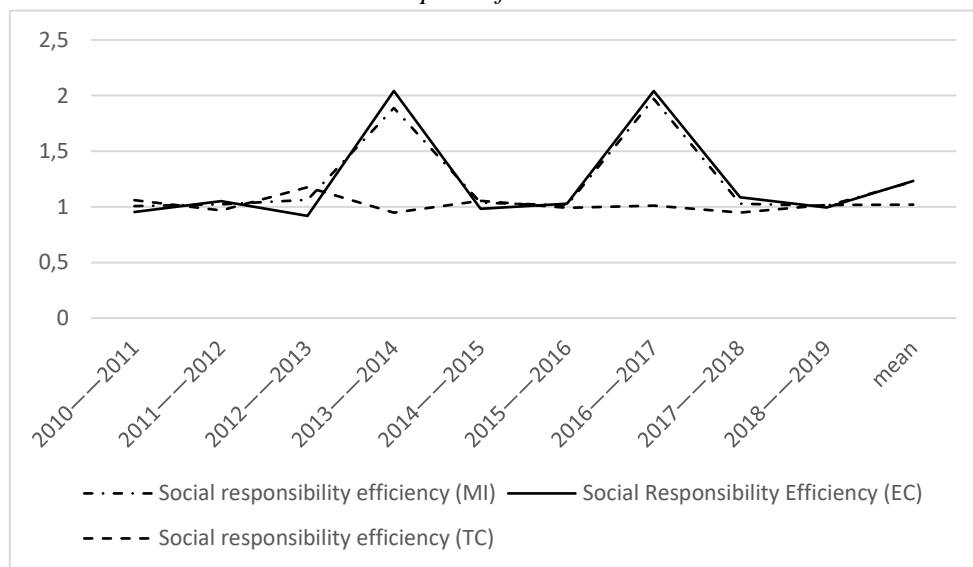
After decomposing Malmquist index into technical efficiency change index (EC) and technical progress index (TC), it can be seen that the technical efficiency change index fluctuates greatly, while the technical progress index fluctuates slightly around 1. According to Figure 1, the fluctuation of technological progress index tends to be level in 10 years, and the fluctuation trajectory of Malmquist index and technical efficiency change index is close to each other, indicating that the fluctuation of these two indexes is synchronized. It is further concluded that Malmquist index is mainly affected by the change index of technical efficiency. According to the existing literature, the change index of technical efficiency reflects the ability to achieve the maximum output or the minimum input under the given input, while the change index of technological progress mainly reflects the changes in the production front of the whole industry. It can be seen that the change of social responsibility efficiency is mainly affected by the application and management ability of the input-output factors of each enterprise, but is less affected by the overall technological change of the industry. According to table 4 and figure 2, industry efficiency of social responsibility in recent 10 years gap is smaller, the biggest increase and minimum gap between growth was 0.25%, that social responsibility efficiency has no obvious change of industry characteristics, the efficiency of corporate social responsibility level is more likely affected by their own management level, to some extent, support the study of this paper tries to female executives impact on the efficiency of corporate social responsibility in the first place.

Table no. 3. Malmquist index and decomposed value of social responsibility efficiency of listed enterprises from 2010 to 2019

Year	Social responsibility efficiency (MI)	Social Responsibility Efficiency (EC)	Social responsibility efficiency (TC)
2010-2011	1.0067	0.9541	1.0594
2011-2012	1.0231	1.0512	0.9688
2012-2013	1.0614	0.9184	1.1761
2013-2014	1.8897	2.0415	0.9486
2014-2015	1.0358	0.9820	1.0533
2015-2016	1.0131	1.0284	0.9906
2016-2017	1.9710	2.0412	1.0106
2017-2018	1.0291	1.0851	0.9483
2018-2019	1.0084	0.9923	1.0170
mean	1.2265	1.2327	1.0192

Source: the authors' calculation by MaxDEA software

Figure no. 1 Malmquist index and decomposed value of social responsibility efficiency of listed enterprises from 2010 to 2019



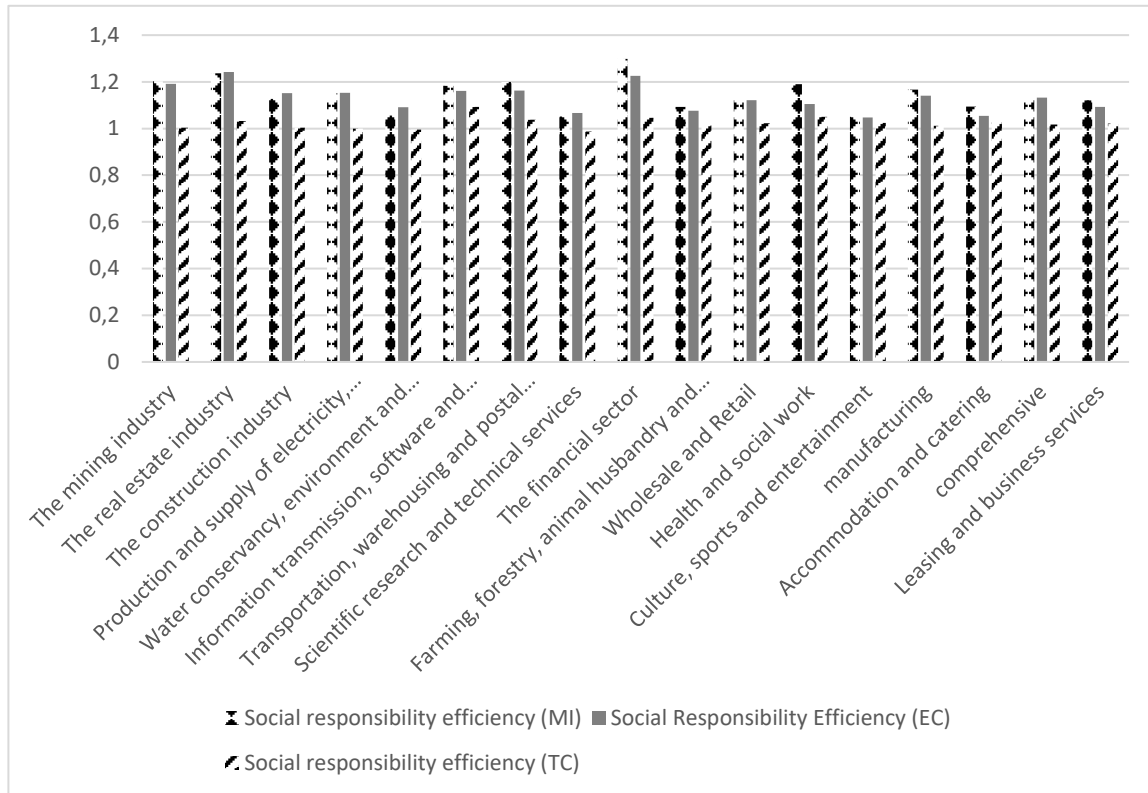
Source: organized by the authors

Table no. 4. Malmquist index and decomposed value of social responsibility efficiency in different industries from 2010 to 2019

Industry	Social responsibility efficiency (MI)	Social Responsibility Efficiency (EC)	Social responsibility efficiency (TC)
The mining industry	1.2024	1.1914	1.0031
The real estate industry	1.2361	1.2417	1.0322
The construction industry	1.1269	1.1514	1.0029
Production and supply of electricity, heat, gas and water	1.1519	1.1532	0.9988
Water conservancy, environment and public facilities management industry	1.0554	1.0913	0.9958
Information transmission, software and information technology services	1.1830	1.1608	1.0929
Transportation, warehousing and postal services	1.1990	1.1626	1.0384
Scientific research and technical services	1.0521	1.0671	0.9874
The financial sector	1.2977	1.2258	1.0464
Farming, forestry, animal husbandry and fishery	1.0925	1.0755	1.0133
Wholesale and Retail	1.1288	1.1218	1.0227
Health and social work	1.1893	1.1047	1.0507
Culture, sports and entertainment	1.0498	1.0471	1.0242
manufacturing	1.1672	1.1406	1.0115
Accommodation and catering	1.0934	1.0547	1.0274
comprehensive	1.1221	1.1330	1.0172
Leasing and business services	1.1214	1.0928	1.0214

Source: the authors' calculation by MaxDEA software

Figure no. 2 Malmquist index and decomposed value of social responsibility efficiency in different industries from 2010 to 2019



Source: organized by the authors

Descriptive statistics

According to the explanation of explained variables above, since the social responsibility scoring report was published in 2010, the social responsibility efficiency was set as 1 based on 2010 with reference to existing literature, and the cumulative value of Malmquist index was taken as the social responsibility efficiency in subsequent years. Explanatory variables and control variables were added on the basis of the above calculated data, and after missing values and outliers were removed, the unbalanced panel data of 1219 listed companies from 2011 to 2019 were obtained, with a total of 8,402 observed values, as shown in Table 5.

Table no. 5. Descriptive statistics of variables

VarName	Obs	Mean	SD	Min	Median	Max
ECSR	8402	1.478	1.254	0.000	1.003	16.360
Fratio	8402	0.231	0.128	0.067	0.200	0.667
Fratio2	8402	0.069	0.081	0.004	0.040	0.444
Fage	8402	46.018	5.868	32.000	46.000	61.000
Fedu	8402	0.514	0.733	0.000	0.000	3.000
Oversea	8402	0.009	0.036	0.000	0.000	0.200
OtherCo	8402	0.002	0.017	0.000	0.000	0.143
Size	8402	22.507	1.480	19.658	22.279	28.269
Soe	8402	0.432	0.495	0.000	0.000	1.000
Lev	8402	0.463	0.219	0.054	0.467	0.940
Roa	8402	0.033	0.061	0.275	0.030	0.198
Growth	8402	0.164	0.481	0.593	0.087	3.430
Cash	8402	0.157	0.126	0.010	0.120	0.621
Board	8402	8.832	1.825	5.000	9.000	15.000
Dual	8402	0.237	0.425	0.000	0.000	1.000
Shold	8402	0.079	0.153	0.000	0.000	0.639

Source: the authors' calculation by stata16 software

The difference between the maximum and minimum values of social responsibility efficiency of the explained variable is large, indicating that there are obvious individual differences in social responsibility efficiency. The proportion of women in the top management team of the sample companies was about 23.1%. The average age of female executives is about 46; The number of female executives with bachelor degree or above in the sample enterprises is 0~3; On average, female executives with overseas backgrounds accounted for 0.9% of the total number of senior executives, and the average proportion of female executives working part-time in society was 0.2%. The standard deviation of the control variables, the size of the enterprise and the size of the board of directors, is larger, so it is reasonable to take them as the control variables. The mean value of equity property is 0.432, which reflects that the proportion of state-owned enterprises and other enterprises in the sample is roughly the same. The asset-liability ratio was 46.3% on average, the return on total assets was 3.3% on average, and the proportion of cash held was 15.7%. In average 23.7% of sample enterprises, there were two jobs concurrently, and the average shareholding ratio of management was 7.9%.

Stationary test

According to the result of Fisher's unit root test, when variables of order 0 are used for testing, all the P values of variables are 0, so the original data can be used for regression.

Correlation test and multicollinearity test

Table 6 lists the correlation analysis results of explained variables, explanatory variables and some control variables. Independent variables such as the proportion of female executives, average age and average education level are all correlated with CSR efficiency, and are significant at the level of 1%. However, no significant relationship has been found between the proportion of female executives with overseas background, the proportion of female executives working part-time in society and CSR efficiency, which will be further discussed by regression analysis later. The relationship between all the control variables and the efficiency of social responsibility is significant at the 1% level, which indicates that the selection of control variables is reasonable.

Table no. 6. Correlation analysis

	ECSR	Fratio	Fratio2	Fage	Fedu	Oversea	OtherCo	Size
ECSR								
Fratio	0.058** *							
Fratio2	0.048** *	0.965** *						
Fage	0.082** *	0.085** *	0.067** *					
Fedu	0.083** *	0.211** *	0.188** *	0.005				
Oversea	0.004	0.141** *	0.134** *	0.031** *	0.200** *			
OtherCo	0.002	0.100** *	0.102** *	0.004	0.030** *	0.014		
Size	0.325** *	0.189** *	0.161** *	0.172** *	0.176** *	0.040** *	0.040***	

Source: the authors' calculation by stata16 software

Secondly, the population variance inflation factor is only 1.27, so it can be determined that there is no multicollinearity.

Finally, this paper carries out F test and Hausman test. The statistical value of F test is 33.37 and P value is 0.0000, so the use of mixed effect is strongly rejected. The statistical

value of Hausman test is 80.31, and the P value is 0.0000, so the use of random effect is strongly rejected. In summary, fixed effect was selected for regression in this paper.

Regression analysis

In this paper, explanatory variables were successively added on the basis of control variables to form models 1-6. The empirical test results are shown in Table 8. According to the existing literature testing method of "inverted U-shaped" relationship and the empirical results of Model 2, firstly, the regression coefficient of the proportion of female executives is significantly positive and the pre-square coefficient is significantly negative, which preliminarily verifies that the proportion of female executives has an "inverted U-shaped" influence on corporate social responsibility efficiency. Secondly, the curve equation of Model 2 is $ECSR = -1.6073 \times FRatio^2 + 1.6250 \times Fratio + C$, after the correlation coefficient is substituted, $(ECSR)' = 3.2146 \times Fratio + 1.6250$. When the minimum value of independent variable Fratio is 0.067, the derivative value is 1.4096; When the maximum value is 0.667, the derivative value is -0.5191, indicating that the curve equation presents an increasing and decreasing trend at both ends of the value interval of independent variables. Finally, the inflection point of the curve equation is 0.5055, which is within the reasonable value range of independent variable and also within the value range of sample data. The general trend of the curve is shown in Figure 3. Therefore, it can be concluded that the proportion of female executives has an "inverted U-shaped" influence on CSR efficiency, that is, when the proportion of female executives increases, CSR efficiency level will increase along with it, but after exceeding the critical value, the proportion increase will reduce CSR efficiency. Hypothesis 1 is verified.

According to Model 3, the average age of female executives is significantly positively correlated with corporate social responsibility efficiency ($\beta=0.0122$, $P < 0.05$), as shown in Figure 4. It shows that with the increase of the age of female executives, the efficiency of corporate social responsibility also significantly improves. Hypothesis 3 is verified. According to Model 4, the average education level of female executives is significantly positively correlated with corporate social responsibility efficiency ($\beta=0.0488$, $P < 0.1$), as shown in Figure 5. It indicates that the higher the average education level of female executives is, the higher the corporate social responsibility efficiency is. Hypothesis 4 is supported by data. According to Model 5, the proportion of female executives with overseas background has a significant positive correlation with CSR efficiency ($\beta=0.9221$, $P < 0.1$), as shown in Figure 6. As the proportion of female executives with overseas background increases, corporate social responsibility efficiency increases accordingly. Hypothesis 4 is confirmed. According to Model 6, the proportion of part-time jobs for female executives is significantly positively correlated with corporate social

responsibility efficiency ($\beta=0.3435$, $P < 0.1$), as shown in Figure 7. It is proved that corporate social responsibility efficiency increases with the increase of the proportion of female executives taking part-time jobs in the society. Hypothesis 5 passes the data test.

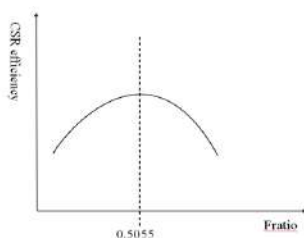
Table no. 7. Empirical test results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Fratio	0.5863*** (3.163)	1.6250*** (2.746)	1.6442*** (2.772)	1.4908*** (2.505)	1.4637*** (2.468)	1.4649*** (2.469)
Fratio2		1.6073** (2.031)	1.6431** (2.076)	1.5133** (1.918)	1.5140** (1.916)	1.5128** (1.913)
Fage			0.0122** (1.950)	0.0123** (1.974)	0.0124** (1.992)	0.0124** (1.989)
Fedu				0.0488* (1.128)	0.0435* (1.013)	0.0438* (1.021)
Oversea					0.9221* (1.182)	0.9200* (1.179)
OtherCo						0.3435* (1.408)
Size	0.3670*** (9.442)	0.3672*** (9.448)	0.3498*** (8.734)	0.3430*** (8.493)	0.3402*** (8.413)	0.3403*** (8.416)
Soe	0.1963*** (2.675)	0.1950*** (2.661)	0.1892*** (2.610)	0.1891*** (2.623)	0.1882*** (2.611)	0.1887*** (2.618)
Lev	0.6563*** (4.239)	0.6524*** (4.198)	0.6331*** (4.030)	0.6317*** (4.017)	0.6300*** (4.000)	0.6298*** (3.999)
Roa	2.2275*** (8.282)	2.2184*** (8.243)	2.1803*** (8.044)	2.1719*** (8.044)	2.1724*** (8.043)	2.1742*** (8.059)
Growth	0.0344** (2.134)	0.0351** (2.176)	0.0324** (2.013)	0.0318** (1.973)	0.0311** (1.932)	0.0311** (1.930)
Cash	0.3334** (2.056)	0.3218** (1.984)	0.2814* (1.727)	0.2752* (1.685)	0.2747* (1.679)	0.2746* (1.679)
Board	0.0571*** (3.398)	0.0563*** (3.356)	0.0524*** (3.095)	0.0534*** (3.145)	0.0531*** (3.118)	0.0531*** (3.113)
Dual	0.0459 (0.991)	0.0456 (0.983)	0.0475* (1.029)	0.0474* (1.027)	0.0463* (1.002)	0.0466* (1.009)
Shold	0.1371 (0.604)	0.1441 (0.635)	0.1482 (0.651)	0.1557 (0.684)	0.1591 (0.696)	0.1604 (0.701)

Constant	5.9150*** (6.785)	6.0582*** (6.919)	6.2854*** (7.216)	6.1309*** (6.939)	6.0759*** (6.875)	6.0777*** (6.875)
Observations	8402	8402	8402	8402	8402	8402
R-squared	0.062	0.063	0.064	0.065	0.065	0.065
Number of id	1219	1219	1219	1219	1219	1219
Ajusted R2	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636

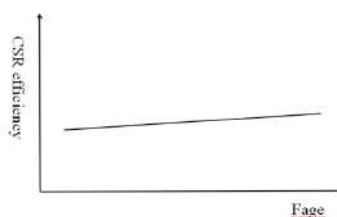
Source: the authors' calculation by stata16 software

Figure no. 3 Fratio and CSR efficiency



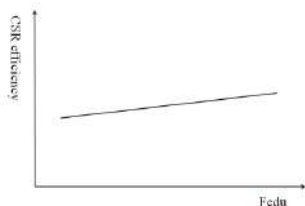
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Figure 4. Fage and CSR efficiency



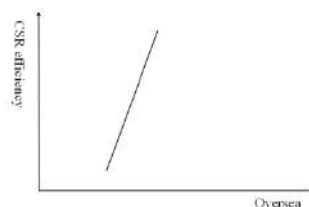
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Figure no. 5 Fedu and CSR efficiency



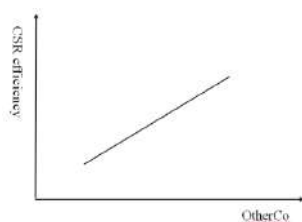
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Figure no. 6 Oversea and CSR efficiency



Source: organized by the authors

Figure no. 7 OtherCo and CSR efficiency



Source: organized by the authors

Conclusion and Recommendations

Fulfilling social responsibility is the foundation of sustainable development of enterprises and society (Zhang Guiling et al., 2021, p.100794). CSR participation is a strategy for enterprises to seek political legitimacy from the government and general legitimacy from the public (Mengmeng Guo, Luo He & Ligang Zhong, 2018, p.37). Social responsibility efficiency is a key indicator to measure the degree to which the social responsibility input to various stakeholder groups is transformed into enterprise value output. Under the condition of limited resources, enterprises with high efficiency of social responsibility can achieve more significant value output. With the development of The Times and the improvement of women's social awareness, more and more women have achieved outstanding achievements in the workplace. As a special group of women in the workplace, female executives play a pivotal role in enterprise management activities. Based on the social role theory, feminist caring ethics and organizational emotional commitment, this paper takes China's listed companies from 2010 to 2019 as research objects to explore the impact of female executives on corporate social responsibility efficiency.

The research conclusions are as follows: First, there is an "inverted U-shaped" relationship between the proportion of female executives and CSR efficiency. The expectation of social role drives female executives to improve their effectiveness in social responsibility. The trait of "empathy" gives them the talent and ability to improve their effectiveness and the affective commitment strengthens their will to improve their effectiveness. However, when the proportion of female executives exceeds a certain threshold, the social role of top management team becomes simple and too much emotional input has a major impact on decision-making, thus significantly reducing the efficiency of corporate social responsibility. Second, female executives with older age and higher education level have unique advantages in improving the efficiency of social responsibility. The rich experience and education accumulated with the growth of age have deepened female executives' cognition of social roles and their ability to empathize with stakeholders, and the deepening emotional commitment has prompted them to think about the social responsibilities of enterprises from a long-term perspective. Their input of social responsibility resources is more precise and accurate so that the process of turning them into value output is more efficient. Third, the higher the proportion of female executives with overseas background, the higher the CSR efficiency level. In order to meet the dual role expectations of female roles and executive roles, female executives with overseas backgrounds will apply their relatively sound corporate social responsibility management knowledge and experience accumulated overseas to the companies they work for, which will greatly improve corporate social responsibility efficiency. Fourth, the proportion of

female senior executives in the top management team is increasing, so is the efficiency of corporate social responsibility. Social part-time job enables female executives to deeply understand the real demands of various groups on the enterprise, so the investment of resources can be effectively transformed into social recognition, and then enhance the value of the enterprise.

Based on the research conclusions, this paper draws the following enlightenment: First, taking social responsibility is a kind of investment behavior, and the effectiveness of investment depends on the enterprise's own management ability. Enterprises with higher management level can transform limited input into more ideal enterprise value output, which reflects higher efficiency of social responsibility and high efficiency of investment. Second, a comprehensive consideration of multi-stakeholder groups to build a sound social responsibility scoring and assessment system. Enterprises should comprehensively incorporate the input of internal and external stakeholder groups into the evaluation system and avoid paying attention to one or the other. Third, we should make scientific personnel decisions and rationally allocate female resources in the top management team. Enterprises should carefully consider the proportion of female executives, so that the top management team can not only reflect the advantages brought by gender diversity, but also play the role of female executives in improving the efficiency of social responsibility. Fourth, employ senior, experienced, highly educated, overseas or part-time female executives in charge of corporate social responsibility.

The deficiencies and prospects of this study are as follows: First, this paper does not carry out a subdivided study on the impact of female directors, female supervisors and other female executives on CSR efficiency. In the future, we can further explore whether there are differences in the impact of different female executives. Secondly, on the basis of existing literature, this paper chooses input-output indicators related to social responsibility efficiency, and subsequent studies can use more reasonable indicators in different dimensions to build a social responsibility indicator system.

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SPECIFICS OF PROJECT ORGANIZATION IN CONSTRUCTION

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Abstract

Construction is a large-scale dynamic and complex industrial sector playing a major part in global economics. Construction manufacture is characterized by certain specifics, which distinguish it from the other types of productions in the branches of the national economy. These are related to the organization, nature of the product, the necessary resources, including the capital, duration of product creation, duration of use – operation, the number of participants in creating the construction production, etc. Being familiar with the inherent characteristics of project organization in construction is useful for the effective implementation of construction projects by entrepreneurs.

Keywords: *construction projects; organizations; specifics; methods*

JEL Codes: *L74, M10*

Introduction

The management of construction projects can be determined as direction, regulation and supervision of a project from its early development to its completion. The ultimate purpose of the management of construction projects is the complete satisfaction of the customer requirements both in terms of functionality and in terms of budget. The main concept for the management of construction projects is closely related to technical parameters like budget and performance but also requires solid communication between all agents (stakeholders, contractors, community). Especially for the accomplishment of successful implementation of construction projects great importance is ascribed to the correct project organization. To accomplish this purpose, it is necessary that entrepreneurs know the specifics of project organization in construction.

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Specifics of construction projects

According to L. Tishtenko, regardless of the type of the specific construction site, each construction is preceded by drawing up a design and development of a project for its management. On this basis, he believes that „the notion of designing in the field of construction can have a double meaning“ – in the technical aspect and from the manager’s perspective (Tishtenko, 2012). His opinion is that „in the technical meaning the project is a document determining the general order and specified terms for construction and handing over of the site for operation“. It contains detailed and summarized information of the scope of works and the necessary labour and material and technical resources, i.e. in this particular case, the project is regarded as „a model of the future building and also of the costs related to implementation of its construction“ (Tishtenko, 2012). Upon reviewing the construction site from the managerial perspective, the author points out that „it is necessary to define the obligations and level of responsibility of each of the parties, the manners of accountancy before the project assigning party, etc.“. On this basis, according to him, the project in the field of construction should combine both the engineering (technical) part of this term and the managerial one“ (Tishtenko, 2012).

L. Tishtenko emphasizes that „under the term of „construction project“ we should understand the purposeful limited in time activity directed to the creation of a new construction site, performance of reconstruction, modernization or repair of an already existing building“ (2012).

I. Sakarev described the construction project as „an aggregate of all activities related to the creation of new or the renovation of existing main funds of production or non-production intended purpose“ (1997, p. 7).

In relation to the management of projects in the construction industry, P. Morris states: „In industrial construction project management is a generally recognized practice but nevertheless it is not considered as a basic professional discipline. In building and civil construction project management receives even less attention, by being considered, at best, as a continuation of the site management or an assessment of the costs“ (Morris, 2005).

Construction projects are distinct with certain specifics of their own. E. Zagorodnova and O. Khvorostukhina have determined the following specifics of the construction projects (2015):

- The product of the project implementation is a building or facility;
- The natural and geographic conditions often influence the successful implementation of the construction projects;
- High dynamic of the physical conditions for works performance;

➤ Availability of a large number of participants in the project having an impact on the implementation;

➤ Operational acceptance of decisions.

In relation to the implementation of the construction projects A. Sprude reviews as significant the following specifics of the construction projects and organization of their performance:

➤ Necessity of a complex of knowledge in various fields of management: general management, financial management, personnel management and many others for successful realization of the project;

➤ Presence of habits to work under the conditions of limitation of resources and information uncertainty;

➤ Necessity that the management of the construction projects should take place by specially prepared professionals, having the necessary scope of knowledge and having sufficient practical experience (Sprude, 2012).

Other specifics characterizing the construction projects are: their quality (of the design documentation, technological quality of the design; technical and economic quality of the project, statutory quality – the level of observance of construction requirements), the level of their innovation (in terms of the level of innovation in materials, equipment, construction technologies, site operation, the technical and economic plausibility of introducing innovation) and the level of competitiveness. They characterize both the designing process and the process of implementation.

L. Tishtenko states that „the project in the field of construction should combine the engineering (technical) aspect of this notion and the managerial aspect as well“, along with the fact that each construction is preceded by the drawing up of a project – design and development of a system for its management“ (2012).

Project planning and management methods

They are founded on the assumption that all activities can be divided into small controlled tasks. Thus, the building of each site can be regarded as a project, which means as a large-scale complex assignment, which has parameters, characterizing its uniqueness. This process includes the aims, the results and the work on the project, the time for its performance, quality, price, allocated resources, risks and possible changes (Popov, Y., Yakovenko, O., 2007).

The sequence of consecutive projects, which constitute the basis for functioning of the construction undertakings, suggests a special form of organization of production and management. In this field of activity, we can talk about the project model of doing business

as an aggregate of interrelated projects. Such an approach enables adequate reflection of the specifics of modern business where the flexible behaviour in a changing environment is turning into a key strategic competitive advantage.

The project management system of a construction company should comply with the following basic requirements: focus on the support for decision making related mainly to the use of the available resources and the development of new products, markets and services, an effective system of human resource management, a flexible system of planning and accounting, a developed office system, monitoring and maintenance of the relations with customers and partners (Tsipes, G., Tovb, A., 2006).

The projects implemented within the activities of construction undertakings can be:

- Short-term – consisting of a range of measures, and when performed, the undertaking can immediately go on a next level (to the desired condition);
- Long-term – designed for the future and requiring the performance of several tasks (for example, entering new markets for sales or new consumer niches).

The project has been conceptualized through the strategic planning process of the organization and is documented into a Capital Improvement Plan (CIP). The major reasons to create projects are to deliver capital assets. The capital improvement plan consists of several planned projects, which, when performed will provide the assets necessary to accomplish the strategic goals. The project starts its lifecycle when it is authorized to pass from CIP to implementation.

The project performance is planned and controlled by the project manager. The project manager should have appropriate authorities to exercise the responsibility of forming and managing a team for support of the project. The project manager should have previous experience in the management of similar projects in the past. The project manager can be in charge of the management of a multitude of projects, which may require the employment of additional managers for support. In such cases, the project manager shall take the part of a program manager.

The manager of the construction projects is responsible for the planning, coordination, budgeting and supervision of the projects from beginning to end. In short, the manager of a construction project has to take care of the following:

- Drawing up the budget and negotiating cost evaluations;
- Drawing up and arrangement of the working schedules;
- Selection of the most efficient method and strategies for construction;
- Keeping in touch with the customers in relation to issues concerning the work or the budget;
- Discussing the technical and contractual specifics with the workers and other professional parties;

- Monitoring the personnel in the construction on the spot;
- Cooperating with the construction specialists. (Koutsogiannis, A., 2019)

In addition, the management of construction usually extends to a multitude of various functions. The most important of them can be summarized as follows:

- Specification of the project goals and the plans, including drawing up of scope, planning, budgeting, deciding the requirements for accomplishment and selection of participants in the project;
- Increasing the efficiency of resources through acquisition of workforce and the necessary equipment;
- Conducting several operations through legal coordination and management of the negotiation, planning, evaluation, design and construction during the entire procedure;
- Effective development of stable communication between agents for solving any eventual conflicts.

The projects are defined by their scope, budget and schedule. The schedule defines a specific beginning and end. Projects pass through a lifecycle of stages between their beginning and end, which in relation to the construction projects typically are: commencement, planning, design, building, commissioning and completion (Shadan & Fleming, 2012).

Scope: Each project is unique and has to have a written document with requirements, which takes into account the operational needs, the level of service, regulatory requirements and the quality of results. The scope develops where the new information becomes accessible throughout the lifecycle of the project. The improvement of the scope is a necessary process in the project lifecycle while the reduction of the scope is the result of lack of clarity as to the requirements in the initial scope concerning the needs, level of service and level of the results' quality.

Schedule: All projects should have a specific beginning and end. The Capital Improvement Plant (CIP) usually provides approximate dates of the project beginning and the end date when it should be in operation. After there is a well-defined scope, it is necessary to determine the time necessary to finish the project by developing the project schedule. The schedule development includes separation of the work into manageable activities needed for the accomplishment of the scope, evaluation of the duration of each activity and placing them in their logical sequence.

Budget: All projects are limited by the limited money resources for financing. Therefore, each project needs a budget in order to determine initially its requirement for financing. The budget usually provides the preliminary financing of the project, which is established through the CIP. The project manager develops the budget on the grounds of the forecasts for the costs at the beginning of each stage of the project and specifies it more

precisely after they have better information determining the scope. The budget precision takes place by research and analyses in the process of the project development during the preliminary engineering stage (Shadan & Fleming, 2012).

A project starts its lifecycle when it is authorised to pass from the capital improvement plan – CIP – to performance. For a conventional project for design /bidding/building (D/B/B), the project lifecycle starts with the start of planning (including environmental planning and financing) and designing (including the conceptual design). These stages overlap to an extent. During these stages, the project develops through a review of various alternatives and the concept of preferred alternative shapes. The stage of designing continues through preliminary engineering effort for further analysis, validation and defining the preferred alternative and reaching the basic scope, budget and schedule. After that the stage of designing finishes with the final design, which describes in detail the project characteristics to provide the construction organization for issuance of building permits and the contractor with a range of construction drawings and specifications for permission and building of the project. The construction stage continues with the process of the offer and award. At the end of the construction stage, the contractor's work should be integrated with the operations and provided activities, technologies and equipment and evaluated for acceptance during the stage of commissioning to bring the project to successful completion (Shadan & Fleming, 2012).

The purposes of project management are to implement the project so that the results can comply with the requirements for the scope as per budget and schedule and at acceptable levels of risk, quality, safety and security. The project goals compete with each other many times and require skilful balancing by the project manager throughout the entire lifecycle of the project.

In addition to the scope, budget and schedule, it is extremely important that the project manager should facilitate the discussion of the purposes of risk, quality and safety and security of the project and include the result in the Project Management Plan (PMP). Projects require well-defined management of the configuration, change control systems and procedures for the scope and control of changes.

The process of the project management begins with identification of the user requirements, the project limitations, the needs of resources and the establishment of realistic goals for accomplishment of strategic goals. The project approval by the management body will establish the permission of the project. The project manager uses the project permission to develop plans for the project management in view of its performance. The project manager should have previous experience (or should consult colleagues with previous experience) with the specific type of project in order to balance

the above-specified competitive goals in due time, to adequately plan the project. The lack of previous experience will increase the risks of failure to accomplish the project goals.

The project managers need comfortable instruments for project management in order to make sure the projects are efficiently entered into, completed on time and within the budget and comply with all project specifications.

The following main types of reports on the project progress can be used:

➤ Progress report – Regularly drawn up reports on the progress, which are presented to the senior management, financing or interested parties of the project. It includes a short description of the performance indicators of the work on the project, including key events, duration, costs, etc.;

➤ Report on the costs for the work performance (report on the efficiency of costs) – regularly drawn up the report including information on the status of costs and the actual time of individual work;

➤ Report on the project condition – report on the actual condition of the project and the deviations from basic indicators, including planned costs and deadlines;

➤ Exception Report – a document, which includes the main exceptions to the plan for the removal of which corrective actions will be needed;

➤ Project Log – chronological report on significant events occurred during the project implementation. The development of alternative scenarios provides an opportunity to simulate various circumstances, for example: what happens when the resources transfer from one site to another, with urgent completion of the project; when one more project is added to the projects being implemented in the organization, etc.

Upon clarifying the main problems related to the construction projects, it is especially important to bear in mind their classification as well. Several authors provide a formulation to the types of construction projects. E. Zagorodnova and O. Khvorostukhina classify the construction projects by various characteristics – by the type of construction (residential – civil, industrial, transport, agricultural, energetic construction); according to the results of the project; the financing sources; the scale of the project; the complexity of the project; the directions of activity of the construction organization (construction of new buildings and facilities as well as reconstruction, expansion or technical re-equipment of the sites, capital repair of buildings and facilities, current repair) (Zagorodnova & Khvorostukhina, 2015).

The classification of the construction projects of A. Pshinko, A. Radkevich and L. Dadiverina is the following:

➤ According to the financing source – projects financed at the expense of internal sources of natural persons or legal entities, shareholders' capital, with mixed form of financing;

➤ In view of the purposes of financing - the construction projects are such that ensure the growth of scope of the construction production directed to enhancing the assortment of production ensuring reduction of the base cost of production directed to the implementation of the social programs of undertakings (improvement of the conditions of work, living, solving of environmental tasks, etc.).

➤ By the scales and level of complexity – small projects, megaprojects, complex projects;

➤ According to the deadlines for implementation – short-term, middle-term and long-term (Pshinko, Radkevich & Dadiverina, 2017, p. 14-15).

The classification of A. Kalashnikov and N. Vatin is similar to the classifications so far reviewed:

- According to the tasks – social, scientific- research, technical, investment, etc.;
- According to the scale – small, medium, large, global, megaprojects;
- According to the deadlines – short-term, middle term, and long-term;
- By other characteristics – for example, defect-free, multi-projects, international, alternative (Kalashnikov & Vatin, 2011, p. 21).

Reviewing the investment projects related to the construction and real properties, the same authors subdivide the projects into the following types depending on the tasks solved:

- Development projects;
- Projects with mortgage financing ;
- Real estate activities, real estate business projects;
- Real estate management projects, etc. (Kalashnikov & Vatin, 2011, p. 24).

Construction works are built in a single production and on the construction site, which renders their standardization or automation difficult (Fotiadis, 1990). One of the most important characteristics of the construction industry is information communication. Thamhain and Wilemon state that successful communication between the working groups is the third most important factor for the success of a project (Pouria & Froese, 2001).

Each construction project produces multimedia data from the very beginning and is constantly developing during the stages of design, construction and after the project. A large portion of such data obtained at the early stages of the project is useful for the following projects (Yu, Froese & Grobler, 1999). In view of the fragmentary nature of the construction industry, the secure sharing of data and the effective management have been and still are areas causing major concern for decades on end. Each scientific area produces its own information and exchanges information independently with the remaining participants in the project. The software applications in support of design, analysis, production and operation of a construction project usually operate independently and encounter problems upon direct exchange of data even when used by the same group

(Bazjanac & Selkowitz, 1997). The information is entered again with new or different structures, it is lost or it erodes and at the same time, vital information is missed or is not optimally used. Therefore, the necessity of secure and effective information exchange on the grounds of standards within the organizational units is visible in order to accomplish considerable integration in the production processes and improve the communication between construction organizations.

The results of the project management of a construction undertaking can be an increase of profitability, increase of the market share and entering new markets, as well as opening up of new divisions of production and provision of services, development of new facilities, modernization of the existing facilities, as well as simply the occurrence of financial stability of the undertaking. The efficiency of results is evaluated by how much it corresponds to the costs (or profitability), innovative, quality, social, environmental or other characteristics at the planned level (Popov, Y., Yakovenko, O, 2007).

Upon making a decision to apply the methods of project management in the application of the concept of the construction undertaking it is necessary in each particular case to analyse the necessity, adequacy of such application because there is an opinion that for small projects in construction undertakings the use of special methods or special organization is not required (Tevlina, S., 2008). It is also necessary to determine whether it is possible to apply the methodology of project management both in the process of implementation of single projects and in the process of implementation of standard projects in the construction business.

In order to make decisions regarding the use of project management, it is necessary to make an assessment of whether the goal is labour-consuming, whether the tasks are multi-faceted and whether they need to be combined in a summarized system, whether there is a need for management of a multitude of resources. It should be clear whether the project requires the establishment of a strict budget, time, whether it is necessary to react fast to changes taking place during the project implementation. The project management methods should be applied if the performance of the assigned tasks requires the use of diverse knowledge and specialists, as well as upon solving problems in a competitive environment, in the cases where the deadline and time for their solving play a major part.

The use of methods for project management enables the customer to easily adapt to the changing environment. When a decision is taken to apply methods for project management, it is necessary to understand that depending on the scale of performed tasks it becomes necessary to use a different set of tools and methods for project management. Their use in projects in the construction sector will increase the efficiency of solving performance problems without serious material costs.

In the construction business projects of economic, production, organizational and technical nature are performed. The environment of a project performed in a construction undertaking is the undertaking itself most of all, the undertaking's management, the financial department, the commercial or business department, as well as other departments of the company.

Thus, we should discuss the fact that project management should be implemented as a valuable and useful managerial tool affecting both the issues of strategic management and the organizational structure of the company, and its financial structure and the system of budgeting, and the system of personnel management, as well as much more, including, naturally, information technologies. And that is impossible without the establishment of corporate norms and culture of management of projects and specifying them by way of a company standard (Tsipes, G., Tovb, A., 2006).

This idea has been most completely embedded in the concept of total project management of a construction company proposed by H. Tanaka (2006). This concept suggests optimization of all fields of the project performance of the company: formation of a balanced portfolio of agreements viable, profitable, contributing to the company growth), achieving high profitability, accomplishing high operative production and increasing of the capacity of subdivisions to minimize the risks due to structural control and regulation of the operations.

One of the important factors impeding the full-scale application of the project management methods in construction according to P. Morris is the fact that the actual activities of project management in construction typically encompass a wider subject area compared to the traditional model, PMBOK®Guide, namely management of strategic, technical and commercial issues (Morris, 2005).

So, there is a marked difference between the methodology and practice of the management of construction projects.

Conclusion

The management of construction projects is a complex activity requiring the consideration of many factors of uncertainty, as well as the establishment of correct organization of the work for the project implementation. The research results indicate that knowing the specifics of the project organization will enable entrepreneurs to effectively manage the construction projects. Moreover, in view of the fact that the construction projects become ever complex for management, it is necessary to have flexibility in the organization and agreements in order to react to inevitable changes. For successful and effective construction, it is necessary to establish an integrated project organization uniting

the commercial interests of the parties around the interests of the project as a whole. For that purpose, it is necessary to use modern tools and methods for project management. It is recommended to use tools in order to optimize the entire process by removing everything unnecessary and giving added value to the customer.

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INSTAGRAM SOCIAL MEDIA MARKETING EXPERIENCES OF COSMETICS RETAILERS IN KAZAKHSTAN

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Abstract

The purpose of this study was to explore how cosmetics retail SMEs in Almaty and Nur-Sultan run their social media marketing activities on their Instagram business pages and the effects they have on their bottom line. This phenomenological research studied the SMM experiences of Kazakhstani cosmetics SMEs by adopting an exploratory research design and implementing the abduction reasoning approach. The study implemented a purposive sampling of representatives of Almaty and Nur-Sultan cosmetics SMEs who manage Instagram social media marketing for their companies. Primary data was collected through semi-structured interviews. The theory of social media engagement and the RACE digital planning framework were the theoretical bases for the study. The expected results were related to good and bad practices in running social media marketing activities on Instagram and navigating customers through the Instagram SMM funnel of the SMEs.

Keywords: *social media marketing; Instagram social media marketing funnel; cosmetics small and medium-sized enterprises, Kazakhstan cosmetics industry;*

JEL Codes: *M30, M31*

1. Introduction

Small and medium-sized enterprises (SMEs) in Kazakhstan operate with insufficient social media marketing (SMM) expertise. Social media is an environment of relationships and not that much of pure transactions. Therefore, SMM helps SMEs stand out from the competitive crowd by engaging their followers in mutually beneficial experiences. It also allows companies to fill in their social media marketing funnel (SMMF) with active buyers. Therefore, it increases the chances of survival and growth of SMEs. Unfortunately, Turkyilmaz et al. (2021) defined the lack of *qualified personnel and the lack of well-developed strategies* as significant challenges Kazakhstani SMEs face in the context of Industry 4.0. “Industry 4.0 plays a significant role in exploiting the opportunities of

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digitalization at all stages of production and service systems... [Its] main goal is to increase resource efficiency and productivity, increasing companies' competitiveness" (Stavrova et al., 2021, p. 131).

In addition, SMEs owners tend to exert substantial control over communication management with a rather superficial understanding of communication processes. It reflects their generalist and unsystematic SMM knowledge, which negatively influences the flat communication by obstructing and slowing down the communication. Flat organisations hardly tolerate top-down communication and strict hierarchical relationships.

2. Background

Beauty products market in Kazakhstan

The retail beauty products business in Kazakhstan was evaluated at KZT 222.1 billion for 2017. Online retail accounted for 28% of the cosmetics product market in Kazakhstan in 2017 (Albekova, 2018). Almost 80% of the population in the country usually buy cosmetic products. Women are 94% and men are 68%. The strongest purchase influencers are price and brand promise. Additionally, 46% of men consult with their partners, while only 18% of women ask for the opinion of their partners. It is important to note that 19% of women and 33% of men rely on information about a product on the Internet. However, in 2020, Kazakhstan's cosmetics companies covered only 4-5% of the country's market (Ibraeva, 2018). Most cosmetics products are imported.

Social media marketing in Kazakhstan

Social media is the most dynamically developing media in Kazakhstan. This development is strongly motivated by the high penetration of the Internet in the country, over 70%. As a result, social media in Kazakhstan has continued to increase its role as one of the leading sources of information, from 10% in 2010 to 47% six years later. Global Digital 2018 revealed that Kazakhstan demonstrated an 87% increase in 2018 in social media users compared to 2017. Active social media users in Kazakhstan are 5.8 million, of which 2.5 million are mobile users (Kemp, 2018). The high penetration of the Internet and the high number of active social media users in Kazakhstan predispose SMEs to use social media as one of the best online marketing strategies to build their brand, increase the base of their customers and ultimately drive sales.

However, SMEs must be aware that social media marketing hardly follows the principles of traditional marketing. It requires a better understanding of social media marketing concepts. Often, SMEs are still doing online business the old way. However, it is challenging to develop the necessary managerial or digital business processes needed for the growth of an SME in such circumstances (Kudryashova, 2019). Training is vital because many SMEs risk to disappear in the first five years of their establishment due to

insufficient communication skills essential in the competitive market in Kazakhstan. Unfortunately, SMEs, as their larger counterparts, focus primarily on sales due to their financial instability. Sadly, marketers in Kazakhstan lack theoretical and practical online communication skills to promote themselves and their products effectively (Kudryashova, 2019).

Purpose of the Study

The purpose of this study was to explore how cosmetics retail SMEs in Almaty and Nur-Sultan run their social media marketing activities on their Instagram business pages and the effects they have on their bottom line. The rationale for this study was, first, the increased focus of the Kazakhstani government on stimulating SME development and, at the same time, ensuring their sustainability. Cosmetics retail SMEs are in the number one economic segment in Kazakhstan. Second, Instagram is the leading social network among the age group of 18-29. It is the group which the government wants to stimulate to establish their enterprises. Third, Almaty has the highest concentration of SMEs businesses. Additionally, it was easier to reach SMEs for research purposes. The expected results were related to the good and bad practices of SMEs in running social media marketing activities on Instagram, and navigating the clients through the levels of their SMM funnel.

Research Questions

The research posed the overarching question: *What is the Instagram social media marketing practice of cosmetics retail SMEs in Kazakhstan.* In addition, the study asked the following narrower research questions.

- *RQ1. What is the level of social media marketing expertise of cosmetics retail SMEs in Almaty and Nur-Sultan?*
- *RQ2. What practices do cosmetics retail SMEs use on their Instagram pages to develop their bottom line?*

Theoretical framework

The study was based on two theoretical concepts: Social Media Engagement Theory (Gangi, 2016) and the RACE Digital Planning Framework (Chaffey, 2020). The Social engagement theory puts in its centre user engagement. Gangi (2016) defined user engagement as “a user’s state of mind that warrants greater involvement and results in a personally meaningful benefit (ie, participation to fulfill a need)” (p. 4). The theory claims that user engagement consists of two components: individual involvement and personal meaning. Individual involvement relates to the importance a user attaches to his role on the social media platform to meet his personal needs (O’Brien et al., 2019). These personal needs associate with the individual involved in the personal meaning attached to meeting the needs and wants of the user. Fulfillment is achieved when the user experience matches the intensity of the user’s needs (Gangi, 2016). The higher the user engagement, the more

intense the interaction content of the social media site and the community is. Li and Bernoff (2008) define social media content usage as the frequency with which followers engage in social media platforms, creating mutual values and benefits. Unfortunately, only engagement is not enough to drive business results. A “good marketer knows that just getting a customer involved or to interact with an application or campaign is typically not enough to drive results - even basic awareness” (Corcoran, 2011, para. 1). Therefore, a strategic approach, based on social media participation, is required to answer the research questions.

The RACE Digital Planning Framework stands for *reach, act, convert, and engage*. This model enables social media marketers to help a brand engage with its public with defined objectives and KPIs within a predefined time frame. RACE is exclusively focused on increasing the commercial returns of digital marketing across the RACE conversion funnel.

Table no. 1 – RACE Digital Planning Framework Areas

<i>Plan</i>	An overall strategy integrating communications across social media touchpoints; It consists of setting goals and objectives with KPIs and designing a coherent strategy to achieve them.
<i>Reach</i>	Raising a brand’s online visibility across social media through paid, owned and earned media;
<i>Act</i>	Motivating and facilitating desktop and mobile interaction with a brand’s content prospects become engaged leads;
<i>Convert</i>	Stimulating conversion to sales through online channels;
<i>Engage</i>	maintaining a long-term valuable benefit proposition, so customers continue to buy and become brand ambassadors;

Source: (Adopted from Hanlon & Chaffey, n.a., p. 51).

3. Literature review

Social Media Marketing

Social media marketing is the leading strategy within the digital marketing framework (Barefoot & Szabo 2010). It allows for implementing communication activities via various social media (blogs, microblogs, online communities, forums, etc.) and social network sites (Facebook, Instagram, LinkedIn, etc.). “Social media in marketing is all about using natural conversational platforms of people to build relationships with them in order to satisfy their needs” (Nadda et al., 2015, p. 362).

SMM activities include advertising, entertainment, interaction, customisation, Word-of-Mouth, purchase intention, and purchase (Koivulehto 2017). Thus, social media marketing provides a proactive and conversational approach for an SME to engage with its

customers in a productive dialogue and sharing experience. Something that traditional advertising, for example, has not been able to provide due to its asymmetric nature. Social networking sites (SNS) have become a leading source for informed decisions, which customers need to take the utmost step, namely, purchasing. It is due to the information SNS provide on community sentiment, social media nodes, and online behaviour (Zlateva, 2020).

The development of SNS has enabled users to become active participants in online communication with brands. They have also become proactive creators and sharers of brand-experience-related-content through SNS such as Facebook, Instagram, Twitter, or LinkedIn (Schlinke & Crain, 2013). As a result, SNS has become a massive Word-of-Mouth (WoM) resonator box, affecting brand perceptions of customers and vice-a-versa. Social networking sites turn out to be more powerful than most traditional marketing approaches, as their content is considered credible because it comes from a ‘friend’. Additionally, the content is dynamic, engaging and easily accessible 24/7.

Social media marketing in Kazakhstan

SMEs in Kazakhstan can benefit significantly from taking a strategic approach to their social media marketing activities. For example, trying to reach young people (15-24) in Kazakhstan requires a deep understanding of how to build and run social media marketing funnels using VK (71%) and Instagram (59%) as the two most preferred SNS among these two age groups. “On average, young people in Kazakhstan are subscribed and use two or more networks” (BRIF, 2017). As Sulistiyo (2019) concluded “strategic marketing planning should start with a content strategy – this is the essence of strategic marketing planning – and just after setting the content is that we should choose the platforms to be used” (Sulistiyo, 2019, p. 53). The result positively influences online trust and purchases because customers form their opinions on their interactions with the SME. This positive effect reflects the efficiency and effectiveness of social networking sites.

Efficiency relates to the use of resources to produce the highest possible quality at the respective lowest possible cost. Effectiveness can be defined as the level of achievement of set goals or resolution of an issue. For example, in social media marketing effectiveness goes hand in hand with achieving the set marketing objectives and utilizing the opportunities that business, technical, and cultural contexts provide. In contrast, efficiency is maximizing results with decreasing costs to attract a new customer in the SMM funnel (Poynter, 2010).

Therefore, SMM removes the barriers traditional marketing erects for SMEs. These barriers are little interaction, no control over timing, higher costs, limited customization options, costly updates, and imperfect campaign measurement (Lyfe Marketing, 2019). Traditional marketing offers very limited interaction opportunities to engage with the SME.

Communication is asynchronous, making it challenging to retain existing customers. Production and execution processes raise serious timing barriers to change a commercial setting, for example. It also sets the difficulty of updating and adjusting a campaign. Most changes in traditional promotional materials require additional time and expenses. The high costs that traditional marketing incurs in both production and execution are related to the lack of control over time. Another downside of the high costs is that they are spent for a time-limited exposure with a high waste of reach in a target audience. The last one projects with limited options for customizing a campaign and more focused segmentation and targeting. Finally, it is the imperfect campaign measurement. For example, it is hard to measure how many people have seen, heard, or read an ad. Furthermore, more relatively expensive research is needed to study the impact of the ad on the target audience and assess whether the set objective was achieved.

Social Media Marketing Management Skills

Successful social media marketing requires adequate management skills. DeMers (2015) provides the top five skills that a social media manager must have: visual thinking, proficient writing, customer service mindset, search engine optimization and content marketing, and SNS advertising experience. Graphic thinking is rooted in the ability to conceptualize and create eye-catching content. Proficient writing is necessary to clearly convey ideas and persuade in writing. Advanced writing gives an exclusive tool to maintain a consistent brand voice using diverse tones. The customer-service mindset places the customer’s needs first and channels an issue outside the SNS or offline. Search engine optimization and content marketing are related to how the reach and engagement of online content impact referrals and small and medium-sized business revenue. Finally, the SNS advertising experience is vital because the SNS ads compete with the content created, in most cases, by members of the inner friend SNS circle. However, these ads have the undeniable advantage of smart-bomb targeting and stimulating online word of mouth. Thus, SNS ads bring organic communication and sales effects.

Table no. 2 – Social Media Marketing Management Skills

<i>Communication</i>	Communicate appropriately with diverse audiences;
<i>Strategic judgment</i>	Making informed decisions for the highest effectiveness;
<i>Empathy</i>	Knowledge of consumer interests, needs, desires, and challenges;
<i>Self-discipline</i>	Processing and creating various types of content 24/7;
<i>Multi-tasking</i>	Organize time, activities, and platforms in a manageable order;
<i>Adaptability</i>	Being flexible to last-minute changes in the initial SMM plan;
<i>Self-control</i>	Managing issues resulting from consumers’ negative actions;
<i>Enthusiasm</i>	Sharing enthusiasm for the brand they promote;

Source: Adapted from Ryan & Jones, 2017.

A vital SMM management task is the adequate measurement and evaluation of the SNS promotional activities. It is the third step in the more significant strategic SMART objective-audience-outcome approach. The free measurement analytical tools that the SNS has, such as Instagram Insights, equip SMM managers with an invaluable instrument to analyze their performance. They allow for real-time adjustments in social media marketing activities. Chaffey and Ellis-Chadwick (2016) defined several ways to measure the effectiveness and efficiency of SMM. They claim that the success or failure of a social networking campaign can be measured by the degree of recognition of the brand, the affiliation of the referrals to the consumer brand and the WOM brand's referrals.

Social Media Marketing Funnel (SMMF)

A social media marketing funnel is a rite of passage of a prospect through a dynamic transformational communication journey that converts them to loyal customers and brand ambassadors. Pieiro-Otero and Martínez-Rolán (2016) emphasize the higher level of commitment (brand and individual), loyalty, and advocacy required within social media marketing. In “the online world, loyalty and support for the brand can lead to changing consumers into prescribers, thus increasing the scope of the organisation's action, which could lead to an expansion of its consumer base” (Pieiro-Otero & Martinez-Rolán, 2016, 43).

Rogers (2011) proposed a social media marketing version of a marketing funnel consisting of seven stages of commitment: awareness, consideration, preference, action, loyalty, and advocacy. Each stage of the funnel requires specific activities appropriate for the stage, such as listening, reaching, conversation, conversion, and nurturing. Zlateva (2020) asserts that social media marketing “funnel provides the opportunity to identify where unique audiences are using it to create relevant content to meet them at this stage of the customer's path” (p. 57).

4. Methodology

Research Philosophy

The phenomenological research approached the SMM experiences of Kazakhstani retail cosmetics SMEs adopting the interpretivism. Phenomenology describes beliefs, attitudes, and actions (Husserl, 1977). Interpretivism allows a researcher to focus on a specific subject of interest or particular behaviour (Saunders et al., 2012). Therefore, it best satisfied the purpose of the research to understand the ways SME cosmetic retailers in Almaty and Nur-Sultan implement social media marketing in their Instagram stores. The research attempted to cast light on the SMM small and medium-sized enterprises do without claiming any representativeness. However, the research claims to be one of the few, at the time of completion, to explore a new scientific territory of social media

marketing in Kazakhstan. Therefore, a qualitative research approach is more meaningful when studying a phenomenon for which little is known in a particular context (Malhotra & Birks, 2007). Therefore, implementing a quantitative approach in studying an Instagram sales funnel in the Kazakh context is justifiable.

Research Design

A research design provides the framework for a study, guiding the researcher's decisions throughout the research process. The current study adopted an exploratory research design. Exploratory research "is preliminary research that explores a relatively new or unknown topic area to gain a basic understanding of it" (Weerakkody, 2015, p. 28). The use of social media marketing on Instagram by Kazakhstani cosmetics SMEs is such a phenomenon. The research design also guided the implementation of abduction as a method of reasoning approach. Abductive reasoning is based on incomplete knowledge of the studied phenomenon (Fischer, 2001).

Data Collection

Primary data was collected through a semi-structured interview with representatives of small and medium companies in the cosmetics industry in Kazakhstan responsible for the social media marketing of SMEs at the time of the interview. This type of interview is flexible in collecting rich and detailed information on the underlying beliefs, motivations, and attitudes of the interviewee (Malhotra & Birks, 2007). The semi-structured interview allowed us to discover the Instagram SMM experiences of the interviewees in reoccurring themes.

Sampling

The research implemented purposive sampling, which is a subtype of non-probability sampling. Purposive sampling assumes that the unit of analysis possesses specific characteristics relevant to the research problem (Ghauri & Grønhaug, 2010). Therefore, all sample representatives of Kazakhstani cosmetics SMEs were responsible for their companies' social media marketing activities. They had to have an active Instagram business page that functioned as a sales platform. The researcher conducted a preliminary observation of the Instagram pages to minimize the sampling error. Only Instagram pages with 10,000+ followers were selected to be approached for an interview.

Despite the eight interviews, the research still meets the minimum number of semi-structured interviews required for data saturation. Theoretical saturation is the "point in data collection when no additional issues or insights emerge from the data, and all relevant conceptual categories have been identified, explored, and exhausted" (Hennink et al., 2016, p. 592). Furthermore, the researcher adopted code saturation because of the delimitations of the Almaty- and Nur-Sultan positioned cosmetics retail SMEs. Therefore, the eight

interviews conducted could be claimed to meet the code saturation criteria of 5-9 (Creswell, 2007) for phenomenological studies.

Procedure

Based on the research strategy, 27 cosmetic companies from all over Kazakhstan were selected. Unfortunately, only nine companies had agreed and gave interviews. However, one of the interviews was removed from the pool due to the insufficient depth of the interviewee's answers. Therefore, the final pool of interviews consisted of eight interviews with an average duration of 36 minutes. The interviews were taken April – March 2021 using Zoom.

To minimize the subjective factor, the researcher discussed the interview questions with her academic supervisor. Three questions were re-worded and two were removed because of redundancy. The finalized list of questions was translated into Russian and reviewed for translation consistency by a professional translator from English to Russian and vice versa. After that, the interview questions were pre-tested with a cosmetics buyer to increase the reliability of the interview.

5. Findings

The study explored how cosmetics retail SMEs in Almaty conduct their Instagram social media marketing. To answer the overarching research question and the specific research questions, the researcher identified three main themes that surface from the data:

1. Professional Preparedness for Instagram social media marketing

The theme suggests that most cosmetics SMEs lack professional training or education. Most of them come from a different from of marketing or public relations program. The main issue for most SMEs is the lack of integration of their Instagram page with other online channels, which leaves the company with limited communication diversity. However, they have little satisfaction and trust in social media experts. Such a situation hinders the successful growth of the enterprises. It also threatens the viability of young SMEs (1-3) years on the market.

2. Targeted advertising, free information, wide product range, and quality of service increase Instagram followers

This theme discusses the most used practices to lead new customers into the Instagram SMM funnel of the company. The leading approach of most interviewees is targeted advertising, which helps bring new customers to their Instagram pages. In addition, free information (and consulting) for the wide product range supported by quality services is another critical factor for success. Therefore, according to the interviewees, they try to build trust in their customers, which turns out to be a key factor of the success in the cosmetics retail industry in Kazakhstan.

3. Lack of audience targeting, segmentation, and competitor analysis

The theme comments the two significant challenges Kazakhstani cosmetics retail SMEs share but pay little attention to the unfocused target audience and lack of competition analysis. Most of the interviewees roughly divide their target audience demographically into financially viable and financially hindered women who mainly live in a Kazakh city. However, few interviewees shared that they segment their target audience through psychographic analysis. Furthermore, all interviewees ignored the value of the competitor analysis and Porter’s five forces analysis. Instead, they focused on their clients and developing their Instagram stores.

Table no. 3 – Demographic profile of the interviewees

#	Gender	Age	Education	City	Instagram followers	Position	Years in cosmetics business
1	female	22	International law	Almaty	121 k	SMM manager	3 years
2	male	35	Higher education	Almaty	24.5 k	Back office	2 years
3	female	33	Accounting	Almaty	20.5 k	Co-owner	3 years
4	female	28	Higher education	Almaty	46 k	Owner	2 years
5	female	35	Higher education	Almaty	46 k	Owner	5 years
6	female	26	Economics & Logistics	Almaty	63.8 k	SMM specialist	4 years
7	female	38	Higher education	Almaty	42k	Owner	9 months
8	female	30	Economics	Nur-Sultan	29 k	SMM manager	7 years

Source: own research

RQ1. What is the level of social media marketing expertise of cosmetics retail SMEs in Almaty and Nur-Sultan? The answer to this question emerged in *Theme 1* and *Theme 2*.

Theme 1. Professional Preparedness for Instagram Social Media Marketing

The most critical theme that emerged in most interviews was the lack of adequate marketing education focusing on social media marketing or specialized training in Instagram marketing. However, the lack of such education or training prevents the rest of the interviewees from becoming social media marketing experts for their companies. Only two of the interviewees confirm they have a business education, and one, despite the non-marketing education, passed social media marketing training. To summarize, most interviewees are one-SMM-man-show, who are self-taught and have hardly attended any training in social media marketing. Crittenden and Crittenden (2015) claim that the “21st century is experiencing a communications revolution, and digital and social media marketing is changing the way consumers receive and use messages” (p. 71). It requires

experts to be up-to-date with the latest developments, which they can keep with lifelong learning.

Only two interviewees regularly underwent special SMM training. However, they indicate that they prefer to learn from blogs and not long-term courses. Interestingly, those interviewees who regularly attend training are part of a social media marketing team. They hold the position of a creative director or an SMM manager. The remaining six interviewees performed social media marketing activities alone. One of the reasons for doing social media marketing without outsourcing is the negative experience and lack of trust in external SMM providers. An interviewer commented on the situation: “I do the SMM and the entire development of the Instagram page and the targeted advertising sales funnel. It is related to the fact that I do not trust external SMM experts on such questions because our views differ” (Interviewee 2).

Theme 2. Free information, wide product range, and quality of service increase Instagram followers

All interviewees claim that they use (targeted) Instagram advertising and quality content. Targeted advertising is the core to reaching the audiences and channeling them into the Instagram sales funnel. First, advertising on social media offers advantages as a direct response (reaching online communication and purchase). Second, it increases brand and product awareness and, respectively, brand points of contact. Third, it is more cost-effective, more flexible, and easy to update. However, a severe disadvantage can become a too broad a target. It would increase advertising waste, leading to low click-throughs. Thus, the price of reaching one prospective customer grows. Unfortunately, most of the interviewees do Instagram advertising setting a broad target. On average, the age ranges from 20 to 45 years of the target. An interviewee stated that “there is no such thing as a target audience. Every client is special, and we try to understand their wants and preferences“ (Interviewee 4).

The second key instrument for attracting and keeping customers in the Instagram shop is free information about the comprehensive product assortment of the store. Few interviewees provide advice and help with the use of specific products based on the customer’s skin type. Additionally, they teach the proper steps to apply a cosmetics product. Moreover, they recommend products or a product line that would have a better effect on the face skin. The Nur-Sultan interviewee explains that “our customers like our consulting because there are many girls who need help with cosmetics and motivation”. Most of the interviewees predominantly provide product, ingredients, and price presentation on the Instagram page. One interviewee even shared that “my Instagram is more like a shop window. I display the product and description” (Interviewee 3).

Additionally, most interviewees use influencer advertising (paid or barter), competitions, and giveaways. One of the interviewees rejects the benefit of partnering with influencers and does not use this tactic anymore. Another one still uses mass-following, despite its reduced effectiveness. Having said this, the interviewee comments that “after the quarantine, people began to clean their Instagram pages from stores and left a minimum number of stores followed” (Interviewee 6).

A third factor is the wide range of products, reflecting the wide target audience of the cosmetics SMEs interviewed. The range of products is designed to satisfy the broad wishes and needs of customers. One of the cosmetics companies enjoys the opportunity to co-create with customers its product range. However, the majority of the rest leave the audience to dictate what products to be offered. Some go to the extreme to try to surpass customer expectations in a product and service offer. “We do everything to exceed the customer’s wishes” (Interviewee 2).

Related to this, most of the companies try to attract and keep customers with lower prices. However, price is crucial in an oversaturated market where many suppliers have similar or identical products. Most of the cosmetics companies interviewed believe that price is a critical factor in their success. A customer needs to be “interested in low price” (Interviewee 5). With respect to these three cosmetics, SMEs offer cashback and bonus systems to keep their clients.

RQ2. What practices do *cosmetics retail SMEs* perform on their Instagram pages to develop their bottom line?

Theme 3. Lack of targeting, segmentation, and competitor analysis of the target audience.

All interviewees use targeted Instagram advertising; however, most of them do limited targeting of the audience. In summary, there are two extensive targets that the interviewees indicated. The first is financially sound girls and women. The second target is girls who look for low-price cosmetics products. The segmentation of the target audience uses a predominantly demographic approach with a focus on age (20-45 years) and income (no range was specified). Another type of segmentation is the skin type, which questions how one can reach a target audience based on this criterion. Only two interviewees went deeper into the segmentation process using psychographic analysis of interest.

However, only one managed to explain the interests he/she uses to segment the audience “for example, healthy eating, healthy lifestyle, fashion, and beauty” (Interviewee 8). The second interviewee uses geographic analysis with a focus on the city of Almaty. Two interviewees do not target audience. The first one thinks that there are two broad segments of financially sound and financially hampered women. The second believes that

every customer is particular and fits hardly into a segment. Therefore, the interviewee does not segment his audience.

Related to targeting and segmentation is listening to the audience and the respective approaches to increase followers. Two of the eight interviewees have a proactive approach and use regular surveys to learn what makes their customers tick. They conduct surveys on posts or stories. “We regularly survey what our customers need” (Interviewee 1). Interviewee 8 even takes the time to analyze every comment. However, the rest of the interviewees are reactive and wait for their customers to ask about a product. An interviewee listens to his customer only in their physical shop.

Online listening is also connected with the integration of additional channels on the Instagram business page. Only one interviewee commented that her company actively integrates her Instagram business page with a website and a YouTube channel. A second interviewee shared that they integrate their Instagram with multilink sites and have a CRM system. A third interviewee struggles with her Tik-Tok profile. The person finds it difficult to understand the platform and faces a low return on investment. She also considers the audience as a low-budget one. However, she admits that Tik-Tok might be helpful as a supplementary channel for additional business. The website they have turns out to be a complex channel for their audience. Five interviewees do not integrate communication channels and rely solely on their Instagram page. It requires a lot of work and a lack of interest in integrating more communication channels. Interviewee 3 explained the following way. “We do not integrate. It is too much work... I don’t have time” (Interviewee 7).

Listening is also related to competition. Unfortunately, most of the interviewees perform not do any competition analysis. They remain focused on developing their Instagram business – creating quality content and a unique product range. Only interviewee 6 discussed that they look at competitors with similar followers but with so much price, product range, and content. One reason an interviewee provided for ignoring the competition was that they have customers from throughout Kazakhstan.

6. Discussion

Using social media engagement theory and the RACE digital planning framework allowed the practical experience of researcher to explore the social media marketing practical experience of cosmetics SMEs in Kazakhstan in their Instagram business. The theory of social media participation explains the importance of engaging cosmetics SMEs in meaningful individual participation and attaching personal meaning. The result is personal benefit. However, a high level of engagement is not enough to deliver business results. As the results showed, Kazakhstani cosmetics companies are trying to exceed the

expectations and needs of their customers. Most of the SMEs followed what the customers wished. However, such an approach puts the companies on the receiving end. It takes control over communication and the opportunity to build a loyalty base. Thus, customers would wander through Instagram shops until they find the product at the most satisfying price. This drift weakens the efforts of companies to attract and retain customers.

It is a result of the lack of proper education or training. With high social media penetration, most companies hardly consider social media marketing to require professional knowledge. Most of the interviewees were self-taught social media marketers. However, “Instagram requires a more professional approach” (Interviewee 6), more strategic management. Free quality content is not enough to further channel customers into the Instagram social media marketing funnel. Instead, it manages to raise awareness and to start the conversation, but not to drive conversion. Free information and content about pretty much the same product range are present in various degrees in the cosmetics industry in Kazakhstan. Thus, one company can educate customers, but they would buy it from the one that gives the lowest price. The big issue is that the cosmetic companies interviewed sell products without building their brand. As a result, there is little difference for most customers when buying the product.

The biggest problem related to the lack of professional training and education is the lack of strategic planning, for which *RACE* stands for *reach, act, convert, and engage*. Most interviewees rely on customers to reach them. It is a passive way to attract new customers or remind regular ones, and it is the least effective way to transform customers into loyalists. Most interviewees use to target advertising without segmenting their audience. Thus, they reach the same pool of customers as their competitors. Unfortunately, no competition analysis is conducted. It deteriorates the commercial effectiveness of the efforts of most of the cosmetics SMEs interviewed. In addition, most of them rely primarily on their Instagram page without integrating it with other channels and using other digital marketing strategies.

Small and medium enterprises (SMEs) without adequate training in social media marketing run the risk of making SMM mistakes. Some can be easily improved, whereas others can have a daunting effect on the brand image and the bottom line of their business existence, respectively. In 2020, the most common mistakes were the following, according to Buffer Social Media Solutions:

- flooding with quantity instead of providing quality;
- being present on all SNS;
- repetitive content across platforms;
- sharing only owned content;
- not curating user-generated content;
- content created for mass consumption;
- not boosting the target posts;
- lagging to respond to questions;

Research found that if SMEs want to be effective and efficient, it is necessary to develop an SMM strategy (Peters et al., 2013). The strategy provides the framework for all activities on social networking sites. Another mistake is the sharing of promotional offers and not the content that intrigues customers. The third mistake SMM experts make is to communicate poorly with their followers. Lipsman et al. (2012) give examples with spamming, delayed responses, and providing content that does not interest users.

Cosmetics SMEs in Kazakhstan would communicate successfully with their customers, build their brand, and drive more sales if they performed SMM professionally on social networking sites. The current state of traditional marketing raises high barriers to promotion. Therefore, SMM offers excellent opportunities for SMEs. SMM allows for direct emotional and reliable communication with customers. Thanks to social media marketing SMEs are not dependent on expensive marketing tools.

Unfortunately, the current research could conclude that the social media engagement theory and the RACE digital planning framework are poorly implemented in the Instagram social media marketing of the studied Kazakhstani cosmetics SMEs. Effective use requires adequate education, training, and a strategic approach to building the brand of a cosmetics company instead of competing with exciting content, quality services, and price. They are essential factors. However, they build half of a brand.

More representative research is needed to highlight more significant cultural influences, social media realities, and marketing in other industries. For example, for the cosmetics industry, a further quantitative study could help explain the behavior of customers in the regions of Kazakhstan. In addition, attitudes toward more strategic and educated social media marketing practice could be studied.

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THE WEIRD SIDE OF EXPERIENCE MARKETING

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Abstract

Experience marketing is considered the marketing of the future. Unlike traditional marketing which is based on consumers' rational decision making, experiential marketing uses the senses, feelings, intellect and curiosity of consumers. Experiential marketing aims to build and deepen relationships with customers by offering them meaningful, memorable, interactive, exciting experiences with companies' products and services. Here, it is not a question of demonstrating the technical characteristics of a product but highlighting the emotions and sensations associated with this purchase. Companies differentiate themselves in the market by providing an appealing brand experience. They make consumers heroes of their stories. On the other hand, consumers want to be active participants in the life of the brand. They want to be involved. As Seth Godin points out, "people do not buy products and services. They buy relations, stories and magic". The new concept of experiential marketing makes it possible for consumers, offering them fun, excitement, involvement, novelties. However, apart from positive examples of experiential marketing, in reality, companies driven by the need to attract the consumers' attention, sometimes provoke very bizarre, strange feelings and experiences for consumers. This paper aims to investigate the experiences and reactions of consumers to such a practice of offering them weird experiential marketing activities.

Keywords: *experience; experience marketing; consumer involvement; fun; excitement; weird marketing practices*

JEL Codes: *M30, M31, M37*

Introduction

Marketing evolves and changes due to new technologies and new ways of communication between companies and consumers. Today's marketing practices are very different from those of a few years ago. The Industrial age has brought **traditional marketing** on stage that mainly focuses on the functional features and core benefits of

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products and services. This marketing sees consumers as strictly rational who make decisions based on comparisons of performances, prices, technical characteristics of products. Their decisions are seen as the result of purely logical steps: understanding they have a need, searching for more information, comparing various alternative options, and then making the buying decision. (Johnston, 2013). Companies achieve comparative advantages by offering better product performances or additional benefits to consumers.

With the beginning of the new Information age, in the first decade of the 21st century, marketing experts are increasingly discussing the new marketing concept - **Experience marketing**. Although some experts argue that there are differences between experience and experiential marketing, in this paper they will be treated as the same term. Namely, there are also other names used as synonyms for experiential marketing, such as “participation marketing”, “event marketing”, “on-ground marketing”, “live marketing”, “expressive marketing”, etc. (Bizzabo team, 2021), but they have the same meaning and objective, directly to involve consumers into the life of the brands. Now, features and benefits of goods are replaced with emotions, intellect, senses of consumers that are used and manipulated in order to attract more consumers. Experience marketing adds a large emotional dimension to consumer behavior, seeing them as driven by spontaneity, by fun, by fantasies, by deep feelings and imagination. Experience marketing plays on the emotions of consumers and impacts their senses through touch, sound, smell, taste and sight. (Johnston, 2013). Experience marketing offers engaging, interactive, and entertaining brand experiences. Experiential marketing sees consumers as both rational and emotional. Companies are attracting consumers offering them unforgettable experience, fun, excitement, extraordinary feelings. At the end of the day, consumers are people with social needs and they want to communicate and interact.

Nowadays, when there is a great availability of different products on the market and consumers have tried almost everything, they become more sophisticated in their requirements and look for new challenges when buying products and services. Their attention can be attracted by their involvement in the life of brands. With the Internet, and especially the more intensive use of social networks, consumers are demanding even greater involvement. Companies differentiate themselves based on the offer of new experiences, novelties, excitement among consumers. “The benefits are not in the products. They are in the consumer experience!” (Janiszewski, 2009). Companies are willing to offer bizarre, taboo, weird stories and experiences just to get consumers' attention.

However, there are a lot of **benefits of experiential marketing**, such as: (Pro Motion Blog,2021)

- Brand awareness and bringing consumers closer to the company's products,
- Brand affinity and loyalty that will encourage repeat purchases,

- Driving word of mouth and spreading messages fast to customers' friends and families,
- Collecting customer feedback, their reviews and impressions,
- Creating unforgettable and lasting memories,
- Expressing authenticity,
- Efficiency and profitability of a company.

Literature review

Experiential marketing is a new concept of the new Information age and therefore there is a small number of written papers on it until now. Its characteristics, both positive and negative, as well as its impact on the efficiency and profitability of companies, are now being explored. Experiential marketing is used for the first time by Schmitt who sets his strategic framework. (Schmitt, 1999). There are some **definitions on Experience marketing**, but basically, all of them define it as a marketing strategy that creates unique experiences and lasting memories by physically engaging with consumers. "Experience marketing is usually broadly defined as any form of customer-focused marketing activity that creates a connection to customers. Experiential marketing emphasizes the creation of stimulating brand experiences for the customers" (Schmitt, 2010). Experiential marketing is a marketing strategy that directly engages consumers and encourages them to participate in the evolution of the brand. Experience marketing can create emotions to the consumer by making entertainment for customers, by allowing them to escape from the reality, by educating them and giving them aesthetic objects or places to see (Pine and Gilmore, 1999). The customer creates his/her own experiences with help of different tools provided by the company. (Same, 2013). Pine and Gilmore (1999) declare, that "while commodities are fungible, goods tangible, and services intangible, experiences are memorable".

Experiential marketing appeals directly to the senses through touch, sound, smell, taste and sight. Experiential marketing plays on the emotions of a consumer and is a more efficient way to touch consumers (Johnston, 2013). The consumption experience needs to capture consumers' minds in their entirety by making use of all five senses, and in doing so evoke positive emotions and truly captivate consumers (Mohasoa, 2014). Experiential marketing allows consumers to participate in an experience with the product or service (McCardle, 2012). All these definitions lead to the conclusion that Kotler made that "consumers view products as bundles of benefits and choose products that give them the best bundle for their money. What consumers really want is [offers] that dazzle their senses, touch their hearts, and stimulate their minds. They want [offers] that deliver an experience." (Kotler, 2005).

Schmitt (1999) distinguishes **five different types of experiences** that marketers can create for customers. These experiences, called strategic experiential modules (SEMs), are implemented through experience providers (ExPros), such as communications, visual and verbal identity, product presence, electronic media, etc. According to Schmitt believes that Experience marketing appeals to consumers’ senses (sight, sound, touch, taste and smell). Five different types of experiences, or strategic experiential modules (SEMs), that marketers can create for customers are distinguished: sensory experiences (SENSE); affective experiences (FEEL); creative cognitive experiences (THINK); physical experiences, behaviors and lifestyles (ACT); and social-identity experiences that result from relating to a reference group or culture (RELATE).

Dubé and LeBel (2003) distinguish four similar “pleasure dimensions”: emotional, intellectual, physical, and social pleasures.

Gentile et al. (2007) distinguish the following six experiential components:

- **Sensorial** (sight, hearing, touch, taste, and smell experiences and how they arouse aesthetic pleasure, excitement, satisfaction and a sense of beauty),
- **Emotional** (moods, feelings, and emotional experiences that create an affective relation with the company, its brands and products),
- **Cognitive** (experiences related to thinking and conscious mental processes to get customers to use their creativity or problem solving so that they revise assumptions about a product),
- **Pragmatic** (experiences resulting from the practical act of doing something and usability),
- **Lifestyle** (experiences resulting from the affirmation of values and personal beliefs)
- **Relational** (experiences, emerging from social contexts and relationships, that occur during common consumption as part of a real or imagined community or to affirm social identity).

Methodology

For the purpose of this paper, two sources of data were used:

A) Secondary sources: data from relevant literature on experience marketing, like journals, statistical data, reviews, e-books, published presentations, blogs, FB statuses and YouTube vloggers. Secondary sources provide a lot of data from qualitative and quantitative research, historical reviews and comparisons.

B) Primary data: questionnaire that is divided into two sections: a) demographic data (gender and age) and b) psychographic data on person’s opinions, beliefs, attitudes, and

preferences collected through closed questions. The small questionnaire was randomly distributed to 50 individuals, in the period between 1st to 15th October, 2021. Results were collected by e-mail Facebook and personal contacts.

Analysis and discussion

The reason why weird or unusual is popular in marketing, sales, blogs and social media is that it is different and it is the new norm. Being different is the key to marketing, and putting weird in front of the right people often boosts sales. (Suez, 2017). According to him, nowadays marketing has become unconventional, abnormal, and eye-catching. The phrase “Go Big or Go Home” is no longer applicable. In today’s society, it’s “Go Crazy or Go Home”.

Having in mind what is the new norm today, the simple and short questionnaire was distributed to different age groups that belong to different generations (Baby-boomers, generation X and Millennials) by e-mail, Facebook and personal contacts. The questionnaire was divided into two parts: geo-demographic data (age and sex) that is mostly important for the research and psychological data (the opinions of respondents regarding four pictures that represent some weird or unusual examples of experience marketing). The small questionnaire was randomly distributed to 50 individuals, in the period between 1st to 15th October, 2021.

The analysis of the primary data is presented below:

I part: Geo-demographic data

1) According to the gender: Out of a total of 50 respondents by gender, 38 are female respondents (76%) and 12 males (24%).

2) According to the age, respondents are grouped as follows:

Table no. 1 Geo-demographic data according to the gender

	Age group	No. of respondents	%	Generation Type
	15-35	15	39	Millennials
38 females	36-60	12	32	Generation X
	above 61	11	29	Baby-Boomers
	15-35	2	17	Millennials
12 males	36-60	5	42	Generation X
	above 61	5	42	Baby-Boomers

Source: Authors own research

Table no. 2 Geo-demographic data according to the age

	Age group	No. of respondents	%	Generation Type
	15-35	17	34	Millennials
ALL Respondents	36-60	17	34	Generation X
	above 61	16	32	Baby-Boomers

Source: Authors own research

II part: Psychological data

3) Photo 1: Poop bar, Taiwan



- a) Do you like the Poop bar, Taiwan presented on the photo above?
Yes / No
- b) Would you like to visit it?
Yes / No

According to the answers to both questions on photo 1, 50% of respondents like the Poop bar and are willing to visit it. Out of 50 respondents, 17 young persons (34%), 7 adults (14%) and 1 old person (2%) answered both questions with “yes”.

4) Photo 2: Clinic bar, Singapore



- a) Do you like the Clinic bar, Singapore presented on the photo above?
Yes / No
- b) Would you like to visit it?
Yes / No

According to the answers to both questions on photo 2, 36% of respondents like the Clinic bar and are willing to visit it. Out of 50 respondents, 17 young persons (34%), 1 adult (2%) and no old persons (0%) answered both questions with “yes”.

5) Photo 3: Coffin bar, Ukraine



- a) Do you like the Coffin bar, Ukraine presented on the photo above?
Yes / No
- b) Would you like to visit it?
Yes / No

According to the answers to both questions on photo 3, 32% of respondents like the Coffin bar and are willing to visit it. Out of 50 respondents, 16 young persons (32%), 0 adult (0%) and no old persons (0%) answered both questions with “yes”.

6) Photo 4: Café Ke'ilu that doesn't serve anything, Israel



- a) Do you like the bar in Tel Aviv, Israel presented on the photo above?
Yes / No
- b) Would you like to visit it?
Yes / No

According to the answers to both questions on photo 4, 58% of respondents like the Israeli bar and are willing to visit it. Out of 50 respondents, 17 young persons (34%), 10 adults (20%) and 2 old persons (4%) answered the both questions with “yes”.

Conclusion

Experience marketing, like a new concept is trendy, it’s memorable, it’s working. There are a lot of positive examples of companies that use this new marketing concept and find it out that it is efficient and profitable. However, the primary data shows that the new norms are more acceptable and refreshing for younger generations. They really are curious and want to experience everything, no matter how bizarre or weird the company’s efforts are. Adults, or Generation X are not so much inclined to experience novelties that contain weird and unusual components. Definitely, experience marketing cannot target the older generation, baby-boomers who are old fashioned and like the way it was! So, regarding the usage of weird experience marketing, the companies need to be careful and to address their messages directly to the younger generation or Millennials.

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THE BALANCED SCORECARD AS AN IMAGE-MAKING TOOL

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Abstract

In recent years, we have witnessed the development of various management concepts, especially in the field of strategic management, because any enterprise that is not managed strategically is a very risky endeavour. The incentives to improve the internal processes and the operations of a company must be put forward by its managers as they are directly involved in its internal processes and are in direct contact with its customers. This approach requires professionally competent managers whose experience and creativity could be used to achieve the goals of the company. Such incentives must be balanced and causally related in order to achieve the strategic goals and thus create a strong corporate image (CI).

Keywords: communication; corporate image; Balanced Scorecard; perspectives

JEL Codes: M 10

1. Introduction

At the beginning of the 1990s, R. Kaplan and D. Norton (2005) developed a new strategic management approach known as a Balanced Scorecard (BSc). Unlike the existing management approaches, their approach gives a comprehensive view of the organization, in which the financial measures are "balanced" with operational measures. However, it is not only a measurement system but also a management system, which allows managers to plan their goals and implement their development strategies. It provides feedback regarding the internal business processes and external results for their continuous improvement. Thus, the system transforms the strategic planning of the organization from a prescriptive construct into a goal-centered guideline. Kaplan and Norton define the advantages of their approach as "a balanced system of measures which includes financial measures that tell the results of actions already taken. This approach would be adequate for companies of the industrial age, for which investing in long-term opportunities and customer relationships is

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not essential for their success. These financial indicators are insufficient as a basis for guiding and evaluating the transition that information age companies must go through to create future value through investment in customers, suppliers, staff, processes, technologies and innovations.” (Kaplan & Norton, 2005). This system eliminates one of the shortcomings of most management systems - the lack of feedback regarding the strategy of the organization.

2. Literary review of the definitions of image

Image is a strategic resource and can be a source of competitive advantage. Its interaction with other factors such as culture, communication, reputation, helps to understand the cumulative nature of this resource. From the point of view of the theory of communication, the concept of "image" can be defined as an idea created in the minds of customers and society. According to K. Boulding, "people perceive" images "as if they were real and exist". He treats "image" as a major factor in public understanding that determines human behavior" (Boulding, 1977). Authors such as N. Stone (1995) and J. Grunig (2003) understand the image as managing the impressions that an object leaves on someone else.

At present, in general, the perception of authors such as Hatch and Schultz (1997), Wood (2001) and Melewar (1978), can be systematized, who define the image as “perception, the way of which stakeholders perceive and interpret the organization directly related to their experiences, beliefs, associations and impressions inhabiting their consciousness”. According to Kennedy (1977) "employees" perceptions of the company are influenced by company policy, company products, and payment methods." In this definition, the emphasis is on the process of forming the company image.

According to M. Nedelchev, “the most effective way to create an image is to use the means of mass communication - cinema, television, radio, press. The image reflects the social expectations of certain groups and can ensure the success of its subject in political and economic life” (Nedelchev, 1997).

Based on the literary review of publications on the topic, the author gives his own definition of the corporate image of the organization, such as: intangible asset, of great importance - attracts customers to a particular company and brand.

Clarifying the nature of the image was necessary to determine its place in the management of an organization and the benefits for its development.

3. The place of CI in the Balanced Scorecard

The Balanced Scorecard “translates the company’s mission and strategy into goals and measures that fall into four perspectives:

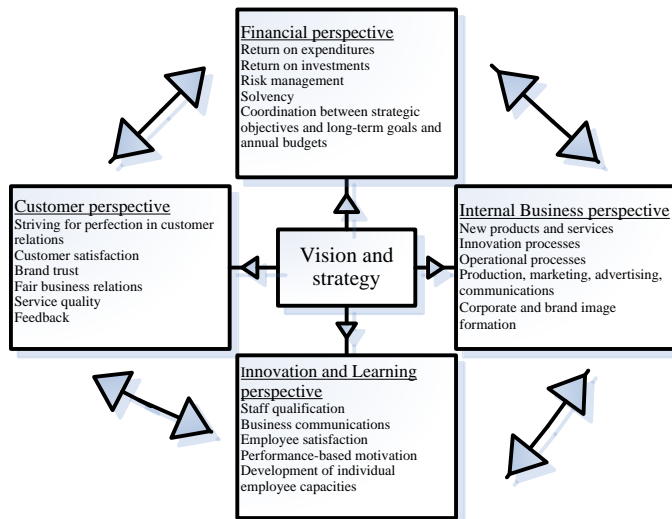
“Financial perspective”, “Customer perspective”, “Internal Business perspective”, “Innovation and Learning perspective.” These perspectives inform the employees about the factors for the current and future success of the organization. (Kaplan & Norton, 2005).

The four perspectives ensure the balance between short-term and long-term goals (Kaplan & Norton, 2005):

- Financial perspective – the financial goals have to do with profitability, which is measured by operating income, return on investments, sales growth, cash flow, etc.;
- Customer perspective – the managers determine the customer and market segments in which the company intends to compete as well as the measures of its activities in these target segments;
- Internal Business perspective – the management defines the internal business processes the company must optimize. I believe that it should also include incentives for achieving a positive corporate image;
- Innovation and Learning perspective – it defines the infrastructure the organization should develop in order to achieve its long-term goals for growth and development. It also includes business communication competencies.

The four perspectives of the Balanced Scorecard are illustrated in the figure below:

Figure 1. Balanced Scorecard perspectives



Source: Author's own research

The Balanced Scorecard describes the mechanism for implementing the strategy into action. The goals and measures are defined by the answers to the following questions (Kaplan & Norton, 2005):

- Financial perspective – How should we look to shareholders in order to achieve positive financial performance?
- Customer perspective – How should our customers see us if we are to realize our vision?
- Internal Business perspective – In what business processes we must excel in order to meet the needs of our shareholders and customers?
- Innovation and Learning perspective – How can we continue to improve?

The essential characteristics of the Balanced Scorecard were discussed above in order to emphasize that the implementation of the strategic goals adopted by a company should be ensured by setting internal requirements for its development. These requirements also apply to business communication that aims to **create its corporate image**.

The Balanced Scorecard translates the company's mission and strategy into a consistent set of indicators for its implementation in the four perspectives with a balance between short-term and long-term goals, between the desired results and the measures for their achievement. All of them aim to achieve a common goal - the implementation of development strategies to create a corporate image. The BSc creates conditions for unanimity and teamwork and the goals set in it require that the managers should control a wide range of business processes. The company-specific scorecard should be communicated to all employees (e.g. on billboards or as electronic messages) so that they understand both the long-term goals of the organization and the strategy for achieving them. In this way, all efforts and initiatives of the management will be synchronized.

4. Cause-and-effect relations of BSc

We believe that such a scorecard could be implemented in the companies subject to our study and that it should be used as a system for communication, information and training rather than management. A measurement and management system will clearly define what improvements of production, customer service, innovation, employee training, and business communication would improve the financial performance in terms of sales and profit growth, faster asset turnover, and lower overhead costs. It should retain a strong focus on financial performance and the causal relations among all indicators must be based on the financial goals. The four perspectives of the balanced scorecard will play the following roles:

- **Financial perspective** – the financial criteria reflect the long-term goals of the companies in terms of higher profits, reduced costs, better investment efficiency, timely payments to customers, higher return on investments.

Each of the proposed indicators is a unit of a cause-and-effect chain leading to achievement of the financial objectives. An optimization of the cost structure will increase the profitability and efficiency of the company's operations, which in turn will reduce the financial risk. These goals can be achieved through the following activities: cost control, capital structure optimization, increased investment in intellectual assets, more aggressive advertising and more competitive pricing, stronger corporate image.

This perspective defines not only the financial goals but also the indicators and measures for achieving them in the long run. Such causal links must exist among all perspectives, i.e. the other three perspectives must include objectives that lead to the achievement of the financial perspective goals.

The table below shows the goals, indicators and measures included in the financial perspective:

Table 1. Financial perspective

Financial perspective		
Goal	Indicator	Measure
Higher profits	Income size and scope of operations; Efficient asset utilization	Cost reduction and increase of the volume of sales
Reduced costs	Income from sales and customers	Detailed cost analysis
Investment efficiency	Increase of income following innovations and investments	Financial management optimization
Return on investment	Level of financial autonomy	Receivables collection measures

Source: Author's own research

- **Customer perspective** - In this perspective the company determines the consumer and market segments in which it will compete and pursue its financial goals. Customer satisfaction and brand image are fundamental for attracting new customers as well as retaining the existing ones. Satisfaction indicators provide feedback regarding the operations of the company.

The most successful companies in soft drinks and bottled water industry are those organizations that manage to achieve high levels of customer satisfaction through value-added offers, such as high-quality bottled table and mineral water and other soft drinks, effective communication with their customers, and established market position.

Customer perspective allows the companies to coordinate their main indicators, achieve better customer satisfaction and maintain their market positions. Customer perspective includes the following key parameters of effective customer relations and trust:

Table 2. Customer perspective

Customer perspective		
Goal	Indicator	Measure
Attracting and retaining customers	Number of new customers and percentage of retained customers Trusted brand	Marketing and advertising, product quality, customer-focused incentives
Customer satisfaction	Company's rating in terms of consumer brand preference	Feedback and widening the range of customer support services
Service quality improvement	Customer satisfaction level and maintenance of industry quality standards	Prompt service rendering, ease of access, complaints
Communication and interaction	Staff's communication competences	Customer satisfaction surveys

Source: Author's own research

- **Internal Business perspective** – strategic initiatives that aim to satisfy shareholders and customers in order to achieve better financial performance. This process requires employee training and career development.

In addition to the other indicators of internal business processes, here we should include initiatives for formation of a positive corporate image. The image of a company is an intangible asset of great importance - it attracts customers to a particular company and brand. Customer preferences for a particular brand of bottled mineral water and/or soft drink indicate the strength of the image in the target customer segments. On the other hand, through their corporate image, companies define themselves to customers from their own perspective. For example, Coca-Cola creates its image through its advertising messages based on values such as family, love, unity, and more recently, environment protection and wellness by means of incentives such as Coca-Cola's sugar-free drink (Cola Zero). In this way, in addition to selling drinks that are healthy and environment-friendly, the company creates an image for its customers by first defining the benefits and then trying to influence consumer behaviour through the image associated with the benefits from the drink.

The parameters of the Internal Business perspective are summarized in the table below:

Table 3. Internal Business perspective

Internal Business perspective		
Goal	Indicator	Measure
New products and services	Distribution network coverage; Share of new products in the product range	Surveys for development of new products with added value
Innovation process	Number of innovation and return on investments in innovations	Benchmarking; innovation practices surveys;

		Communication with scientific research and development units
Production, marketing, advertising;	Market profitability and customer preferences Advertising and marketing incentives and after-sale services	Advertising income and brand recognition
Corporate and brand image formation	Quality and compliance – market positioning and recognition strategies	Number of satisfied customers and consumers Purchase satisfaction

Source: Author's own research

- **Innovation and Learning perspective** – the goals in this perspective are instrumental for achieving results in the other three perspectives. Employees have to be trained continuously in order to maintain the competences needed to keep abreast with the constantly evolving technology. Thus, they can maintain a high level of job satisfaction, which is an important prerequisite for increasing productivity, improving the quality of customer relations, a responsible attitude to internal business processes and sharing the company's culture and values. Companies invest in their employees in order to increase their creativity and incentive as well as to preserve their human capital. On the other hand, the training and acquisition of new competencies allows employees to develop successful careers, to acquire business communications and teamwork competences.

The survey questionnaire asked the respondents what competences managers need to conduct effective business communications and establish the corporate image of their companies in society. According to the respondents, most important are the digital competences they need to do business under the restrictions of the COVID-19 that have been imposed for already two consequent years. The parameters of the Innovation and Learning perspective are summarized in the following table:

Table 4. Innovation and Learning perspective

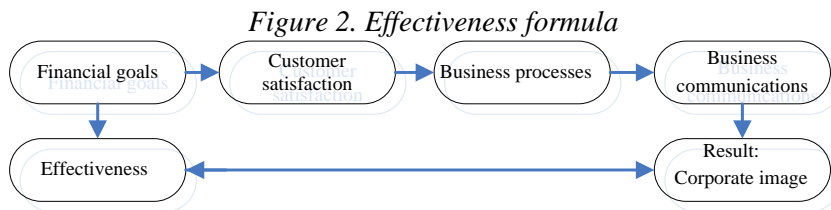
Innovation and Learning perspective		
Goal	Indicator	Measure
Digital competences	Percentage of employees trained to work in a digital environment	Training workshops Assessment and certification
Personal and social competence	Workplace performance and personal contribution to achieved results	Training workshops
Teamwork and motivation	Employee satisfaction; Team efficiency and achievements Moral and material incentives;	Personal career development plans; Association with the mission of the company

		Remuneration system adequacy;
Communication competence	Workplace performance and efficient communication with customers and business partners	Communication competence certification

Source: Author's own research

It is extremely important for any company to organize properly its internal business processes in order to achieve the planned strategic initiatives related to shareholders and customers. Long-term goals cannot be achieved only through achievement of individual workplace goals but rather through decision-making teamwork on matters that are important for the company, such as its financial results, development of new products, marketing and advertising campaigns, customer service and internal business processes, staff training and development. A good corporate image is essential for the performance of the company and its positioning in a certain market segment.

Having determined the advantages of the Balanced Scorecard, we strongly hope that it will enable the companies included in our study (as well as other companies) to achieve good results and add value to their activities. These opportunities are based on four perspectives: financial, customer relations, internal business processes and staff training and development in the following effectiveness formula:



Source: Author's own research

5. Conclusion

The Balanced Scorecard comprises initiatives grouped into four perspectives and communicated to all employees in the company by means of financial and non-financial performance indicators.

The main conclusion is that a well-constructed BSc should focus on:

- Financial performance (profit growth);
- Customer satisfaction;
- Product quality (productivity);

- Employee satisfaction through training and development and business communication competences;
- Formation of a public corporate image.

In conclusion, BSc is a reflection of a company's strategy, presented through a system of performance indicators in four perspectives (financial, customer relations, internal business processes and operations and staff training and development) that are interrelated causally.

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INCREASING STUDENT MOTIVATION IN HIGHER EDUCATION DURING A PANDEMIC

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Abstract

The rapidly spreading COVID-19 pandemic caused by the coronavirus SARS-CoV-2 (2019-nCoV) has led to an educational transformation of traditional academic activities in distance learning through intensive digital communication in an electronic environment. So we witnessed how universities in Bulgaria and around the world were forced to start using with flexibility different types of communication software applications, electronic and learning platforms and/or cloud platforms in their work environment for remote classroom management (Microsoft Teams, Skype, Zoom, G Suite, Viber, Facebook & Messenger, Google Classroom, Blackboard, Moodle, Dropbox, OneDrive, etc.). Unfortunately, the lack of direct contact between students and lecturers during classes in the process of distance learning had a direct impact on the level of student motivation. The long period of implementation of distance learning measures has shown that the effectiveness of distance learning directly depends on the conscious motivation of the learners. Therefore, the purpose of this paper is to study a model related to increasing the motivation of students during distance learning. The results of the research have been used to propose specific recommendations for increasing the motivation of university students during the educational process.

Keywords: *motivation; distance learning; e-learning; digital education; digitalization; information and communication technologies (ICT).*

JEL Codes: *I1, I0, I2, O3, O33*

1. Introduction

The digitalization of the modern world has strongly influenced the introduction of information and communication technologies (ICT) in education, as they were even more strongly sought after and implemented during the global pandemic caused by the coronavirus SARS-CoV-2 (2019-nCoV). It has led to the extensively recommended and sometimes mandatory transition to distance learning based on the widespread use of ICT. In this sense, innovative educational methods for higher education have been actively developed and implemented both in Europe and around the world with the aim of

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expanding the scope of university activities by creating an electronic information and educational environment. ICTs are a necessary tool for dealing with the difficult situation in all areas of social development and have facilitated the accelerated transformation of the way of learning in educational structures. Thus, the electronic information and educational environment at the university had to provide intensive interaction between the participants in the educational process, including synchronous and/or asynchronous communication via the Internet throughout the study period. Such type of digital learning required the active participation of both lecturers and students in the process of implementing e-education and led to the need to increase the knowledge and skills necessary to handle digital technologies, including the Internet.

The use of digital technologies in teaching is considered by researchers in the field of higher education pedagogy as one of the opportunities to increase the effectiveness of the formation of professional competence of students pursuing bachelor's, master's and doctoral degrees in the relevant scientific fields (Sunders & Werner, 2002; Swan, 2009; Shamova, 2019; Goncharuk & Khromova, 2019; Levina, 2019, Trifunović & Petrašević, 2021). The search for a combination of public web services and educational resources created as a result of the intellectual work of the pedagogical community has been used as an effective mechanism in the development of an e-learning environment. In this sense, the interaction of e-learning environments and the Internet provides an opportunity of organizing learning activities productively and creating a positive correlation between the intensity of the use of social networks and students' perceptions of the use of social networks for educational purposes (Lim & Richardson, 2016). Meanwhile, the Internet provides access to sufficient open educational resources and social software tools widely used in the academic activities of the university (Manca & Ranieri, 2016, Seaman & Tinti-Kane, 2013). The webspace has become an integral part of the learner's preparation, and no one can deny, for example, that Wikipedia plays a major role in the collection and research of information by students (Selwyn & Gorard, 2016). On the other hand, social media is widely used by students in the e-learning process in order to expand the learning experience beyond the limited learning time (Lee & Bonk, 2016).

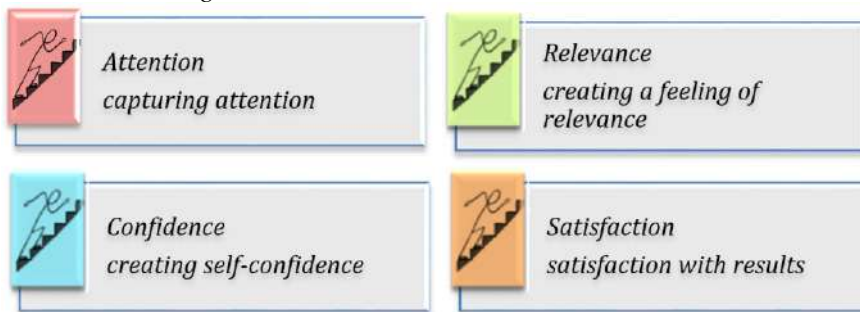
However, despite the arguments set out above, distance learning has become a real stress test not only for the students, but also a challenge both for the lecturers and for the Ministry of Education and Science in Bulgaria. Therefore, despite the fact that distance learning is quite a well studied and researched topic, unfortunately, many conclusions and recommendations have not been adapted to the unexpected COVID-19 pandemic (Reimers & Schleicher, 2020). For example, although modern electronic information and educational platforms for distance learning make it possible to ensure interaction between the learner and the teacher (Elkina, 2020), unfortunately, in this type of teaching, the student's ability

to self-educate and his/her motivation to learn play a key role in training effectiveness. Also, it should be borne in mind that as a rule the acquisition of knowledge in the respective field of study is closely related to the individual approach of the student for acquiring and applying knowledge, searching for the necessary sources of information, as well as the ability to work and process the acquired information. Thus, the effectiveness of the distance learning process directly depends on the conscious motivation of the learner (Asipova & Mamyrova, 2018). In this regard, this paper examines the question of how to motivate students to learn when they are isolated at a distance from their usual classroom activities, and considers models related to increasing motivation during distance learning.

2. The Li & Keller model to increase student motivation - ARCS (Li & Keller, 2020).

The name of the model comes from the abbreviation of the words: Attention; Relevance; Confidence; Satisfaction (*Figure. 1*). The concept of the model is focused on capturing attention, forming a sense of significance, self-confidence and as a final result getting satisfaction from the results obtained from the training. Let's take a closer look at all the procedures used by the teacher to motivate students.

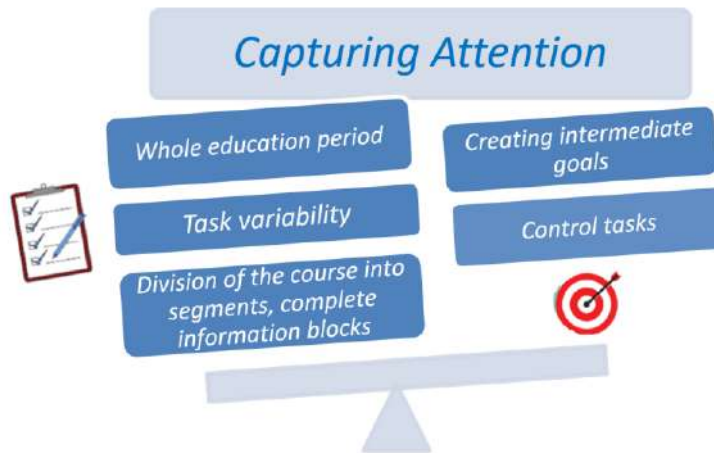
Figure no. 1. John Keller's ARCS motivation model



Source: Author's own elaboration

- **First: Capturing Attention** is important throughout the whole education period, so the method of task variability is used, as well as the division of the course into modules, containing complete information blocks, goals and control tasks (*Figure. 2*). Also, capturing students' attention and making them interested in the topic can be done by presenting complex material in a simpler way and at the same time diversifying the presentation by using understandable language, examples and allegories.

Figure no. 2. The elements of capturing attention

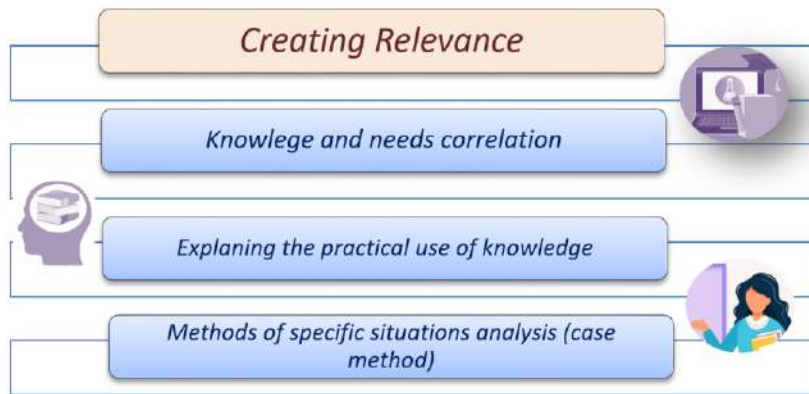


Source: Author's own elaboration

The lecturer must take into account that the student at university, unlike the student at school, evaluates the information differently. In this sense, students believe that being smart and studying at university is a prestigious endeavor, and the modern student has a greater ability to perceive and process information, especially with the help of modern ICT means of communication. Their motivation to study should be stimulated through exciting, interesting course assignments and projects, especially those that are related to their future profession and that make them display creativity while they complete their assignments. In this regard, the lecturer should involve students in discussions on interesting topics and encourage them to "talk", to present the results of their work and thus to draw their attention to the topic.

- **Second: Relevance.** It should be remembered that in the learning process the student compares the acquired knowledge with his/her practical needs formed before the beginning of their studies (Figure. 3). The lecturer can create a sense of significance through a specific explanation of where and how, on a practical level, the acquired knowledge and skills can be useful. It is even more effective to create practical tasks related to real-life practice. Therefore, the "case method" is used for situation analysis, which is a teaching technique using descriptions of real or near-real situations. In solving such a task, the student must study the proposed "case" and understand the nature of the problem, then consider options for possible solutions and choose the best one.

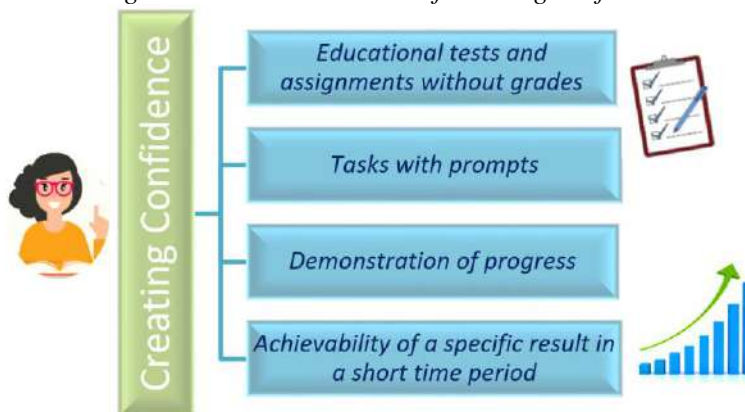
Figure no. 3. The elements of the relevance of knowledge



Source: Author's own elaboration

• **Third: Confidence.** The student should never doubt that the acquired knowledge will be useful in his profession. The lecturer must help the student maintain this confidence at all stages of the course (Figure. 4). Building confidence in the student is reinforced through the stages of intermediate tests of knowledge, through which the student can answer exam questions, and the error in the answer should not have negative consequences. It is recommended to give feasible tasks that do not go beyond the scope of the study material, as too complex tasks can cause a sharp negative reaction in case of failure. Moreover, during distance learning, the lecturer must regularly show the learning course progress – what part of the material has been covered and how much remains; what students will learn by the end of the course; what lies ahead at the end of the course; where this knowledge will be applied – not only in connection with the study of other disciplines, but also in the real-life practice and future professional realization of the learner.

Figure no. 4. The elements of creating confidence



Source: Author's own elaboration

- **Fourth: Satisfaction.** Towards the end of the training, the lecturer should focus on student satisfaction (*Figure. 5*). The level of student motivation falls with the approaching graduation. This is understandable, as fatigue accumulates over the long period of training, and the large amount of information requires understanding and primary analysis. In addition, doubts begin to arise in the learner, such as: will the knowledge gained be needed in my work? As the effectiveness of the efforts generates satisfaction, during the course the lecturer must provide incentives for the quality performance of the tasks. And in order to achieve effective motivation of students during distance learning, it is recommended that training courses take into account and apply these motivational aspects to students.

Figure no. 5. The elements of the creating satisfaction



Source: Author's own elaboration

3. Research results and discussion

According to the adopted methodological recommendations, the training at the University of Forestry in the 2020/2021 academic year was organized by using distance and mixed forms of training and by using offline and online mode of work and training, observing all imposed health measures in the country. All academic policies as well as requirements for compliance with sanitary standards, social distancing rules, library resources, technical support services, academic and non-academic support services for students and applicants were posted on the university's website.

The paper examines the issue related to the level of motivation in students during isolation at a distance from their usual classroom activities. In this regard, an independent survey was conducted during the distance learning period for the 2020/2021 academic year at the University of Forestry in compliance with the health care measures imposed by the Ministry of Health in the Republic of Bulgaria. The purpose of the survey was to get feedback from students on the transition to a distance learning form of education. The content and results of the study are presented in *Table. 1*.

Table no 1. Rating of criteria for conducting distance learning

<i>Criterion</i>	<i>Rating</i>
<i>How did you adapt to the new distance learning conditions?</i>	5,3/6
<i>Have you been informed about the changes in the distance learning process in time?</i>	5/6
<i>To what extent do you use ICT tools and electronic applications to conduct distance learning?</i>	5,4/6
<i>How would you evaluate the work of lecturers online?</i>	5,6/6
<i>How would you assess the level of the learning load during distance learning and relating the theoretical material to specific examples?</i>	5,5/6
<i>What is the correlation between the speed of new knowledge presentation and its acquisition?</i>	4,8/6
<i>Are the explanations of the basic concepts and definitions on the topic sufficient?</i>	6/6
<i>How would you rate the availability of the presented teaching materials?</i>	5/6
<i>How would you rate the assignment and ability to perform interactive tasks during distance learning?</i>	5,2/6
<i>How would you rate the availability of feedback provided by the lecturer?</i>	5,2/6
<i>How would you rate the techniques used to maintain students' attention and motivation</i>	4,5/6
<i>How would you rate your level of motivation to learn during distance learning?</i>	4/6

Source: Author's own elaboration

The results of the study showed some difficulties encountered by students in the process of distance learning, such as insufficient knowledge and skills to work with computer technologies and e-learning platforms; difficulty in performing practical tasks without direct contact with the teacher; reduced concentration and acquisition the study material when working at home, etc. Therefore, it can be noted that effective learning, even with the application of the most advanced information technology, is impossible without constant interaction between teachers and students, which today requires the application of

a new form of teaching by creating webinars, organizing group and project work and actively applying techniques to maintain students' attention and motivation.

Ultimately, however, it can be said that during the period of distance learning, teachers and students managed to build skills for a digital way of working and learning. And the experience of distance learning reveals not only problems, but also a number of interesting opportunities, including how the stimulation of student motivation plays an important role in the educational process.

4. Conclusion and Recommendations

The digitalization of the world around us and the continuous use of web resources have become an important tool for the educational activities of students and lecturers in higher education.

This is exactly what we have witnessed thanks to the COVID-19 pandemic, which has proved to us that in a world of ever-evolving technologies, if they are properly mastered and targeted, we can not only deal with a difficult period for all of us, but also grow digitally, improve our educational system and develop key competencies at a professional level in accordance with the new generation of educational standards. Undoubtedly, it should be noted that effective teaching, even through the use of the latest information technologies, is impossible without constant interaction between students and teachers, which today requires the formation and operation of a new form of education based on free operation of ICT tools and technologies, both by students and teachers. Also, the experience we gained from the past educational process in 2020 and 2021 revealed not only the problems of distance learning, but also a number of interesting opportunities, including how student motivation achieved through an ICT-transformed learning process can play a vitally important role. In this sense, the traditional motivation and organization of the educational process turned out to be insufficient and, in the foreground, there is a need to transform and complement it with the need of motivation to learn and work through ICT for education.

The conducted investigation of students' and lecturers' motivation for working with ICT and conducting digital education, together with its capabilities and shortcomings, allows for the creation of more effective pedagogical strategies and the definition of guidelines for further work that can be applied in practice in relation to the digitalization of the educational process in higher education. The introduction of such an approach to e-learning has led to the transformation of the traditional understanding of research, teaching and learning activities at the universities and will be a key experience in their future development.

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