The Impact of Megatrends on the Business Environment of EU27 Countries

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Abstract **– The global business environment is constantly evolving due to various megatrends. Understanding these shifts is crucial for economies, particularly for managers responsible for decision-making in diverse industries. Managers benefit from knowing both, the specific business environment they operate in, or plan to enter, and the interconnected environments of neighbouring countries or economically similar regions. This paper, therefore, analyses how current megatrends impact the quality of the business environment within EU27 countries. This understanding is especially critical for small and medium-sized enterprises. The paper aims to assess the effects of selected megatrends on the business environment quality using regression and correlation analysis. Five prominent megatrends have been identified: M1 - Shift in Economic Power, M2 - Resource Scarcity, M3 - Technological Breakthrough, M4 - Social Change, and M5 - Rapid Urbanization. Each of these trends has been assigned measurable indicators. Regression analysis indicates that three of the five megatrends adversely impact the business environment quality in the EU27. Furthermore, correlation analysis reveals a strong linear dependence between the Shift in Economic Power and business environment quality, along with a moderate negative dependence related to Social Change. This approach clarifies the influence of megatrends on business environments, providing valuable insights for decision-makers aiming to navigate a shifting economic landscape.**

Keywords **– Business environment, decision making management, economic power, megatrends, resource scarcity.**

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1. Introduction

In the dynamic and constantly evolving landscape, megatrends exert significant influence, serving as potent catalysts that reshape the contemporary world. They emerge not only as pivotal tools for predicting future societal developments but also as crucial indicators for forthcoming changes in economies, politics, and culture. Researchers meticulously analyze the capabilities of megatrends, and they are routinely scrutinized not only by researchers but also by numerous companies and international authorities. This scrutiny is essential for formulating strategic developmental approaches in the economic domain.

Countries have encountered a spectrum of megatrends that have molded their business environments in recent times. These encompass advancements in technology, shifts in demographics, concerns related to sustainability and the environment, and the impacts of globalization and trade dynamics. Each of these megatrends plays a substantial role in shaping the business landscape, presenting both challenges and opportunities for companies operating within the EU27.

Megatrends, characterized as potent and transformative forces guiding the future of societies and economies, possess the potential to overhaul industries, consumer behavior, and management strategies. Grasping the intricacies of these megatrends and understanding their implications is an imperative for businesses navigating the European Union countries. This understanding enables them to adapt, innovate, and flourish in an ever-changing and dynamic landscape.

2. Theoretical Background

As the pace of changes quickens, the instinct leads to forecast the evolutionary paths to formulate development strategies. In turbulent environments, traditional approaches like mid- or long-term predictions often prove less effective. Hence, they are supplemented by methods such as scenario planning, foresight studies, or analyses of trends and megatrends [5].

2.1. Concept of Megatrends

Various authors have provided definitions for the term "megatrend." There is a general consensus that a megatrend can be characterized as a global challenge. According to [8], it is "generated by macroeconomic forces that manifest themselves in cycles ranging between 20 and 50 years and that act on extended geographical areas by generating an important shift in the progress of a society." Additionally, [3] include climate change, demographic change, environmental degradation, and shifts in consumer and producer preferences within the scope of megatrends.

In terms of their evolution, forces arising in a conducive environment may gradually develop into leading trends, eventually becoming powerful megatrends or, conversely, countertrends [7]. In research articles, the average number of megatrends per article is approximately 4.26, with the mean and dominant number being 4. The seven most frequently mentioned megatrends can be distilled to cover five essential ones: technology development, environmental changes, demographic shifts, the growth of urbanization, and changes in geopolitics [11].

According to Malik and Janowska [11], the first megatrend, technology development, encompasses advancements in information and communication technologies (ICT) and the general development of new technology. The second most referenced megatrend, environmental changes, comprises two distinct subtrends: resource scarcity and climate changes. The third recurring megatrend, demographic shifts, combines two tendencies - world population increase and population aging. The megatrend most consistently described and frequently mentioned is the growth of urbanization, referencing phenomena such as urban sprawl. The last megatrend encompasses changes in geopolitics, covering transformations in the realms of power and politics, including the rise of highly populous newly wealthy nations and the decline of Europe.

Megatrends can also be identified as clusters. The social cluster addresses global population trends, such as population growth, urbanization, and the associated need for innovative environmental solutions. The technological cluster involves accelerating progress in nano-, bio, information, and communication technologies, presenting opportunities and risks. The economic cluster includes predictions of recession in Europe, accelerating consumption and resource use in Asia and Latin America, and the equalization of economic power, particularly in Asian countries. The environmental cluster represents growing pressure on ecosystems, loss of biodiversity, degradation of natural ecosystems, and related food and energy needs. Finally, the management cluster involves diversifying approaches to management [10], [9].

2.2. Business Environment of EU27

The quality of the business environment creates an elementary precondition for sustainable growth and long-term competitiveness of each global market economy [2].

Megatrends are supposed to shape Europe in the coming decades including potential near-shoring of production as a result of the COVID-19 pandemic, structural changes in the automotive industry, climate change, the digital revolution, and demographic decline - all already impacting EU and having potential to grow in importance and influence [6]. Megatrends as well represent fundamental challenges for the EU and its member states, but the situation in individual EU countries shows considerable diversity. States have very different social and economic context, a different history of use of available natural resources and a different structure of the economy [4]. The business environment is the most affected of the rapid and significant changes [1].

3. Research Objective, Methodology and Data

To assess the future impact of megatrends on a specific economy, it is essential to operationalize these trends. By assigning metrics to each megatrend and developing a megatrend indicator, economies can be compared internationally, estimating their susceptibility to upcoming changes [11]. Within this section of the article, selected indicators designed to streamline the assessment of a megatrend's influence on a country's economy were presented.

Table 1. The chosen variables along with the description

Phenomenon		*Indicator*	*Source*	*Unit of measure*	*Examined time period*
Megatrends	**M1: Shifting Economic Power**	Real GDP per Capita	Eurostat	Euro per capita	2011-2022
	M2: Resource Scarcity	Material Import Dependency	Eurostat	Percentage of import	2011-2022
	M3: Technological Breakthrough	Internet Use and Activities	Eurostat	Percentage of individuals	2011-2022
	M4: Social Change	Old Age Dependency Ratio	Eurostat	Ratio 1st variant	2011-2022
	M5: Rapid Urbanization	Distribution of Population by Housing Cost Burden and Degree of Urbanization	Eurostat	Percentage	2011-2022
Business Environment	**BE: Business Environment Quality**	Index of Economic Freedom	Heritage Foundation	Score	2011-2022

Five megatrends representing overall economic and social challenges are generalized: M1 – Shifting Economic Power, M2 – Resource Scarcity, M3 – Technological Breakthrough, M4 - Social Change, M5 – Rapid Urbanization and variable (BE) – Business Environment Quality, to evaluate the status of business environment of chosen economies. All necessary data were obtained from the Eurostat and Heritage Foundation databases. The selected subjects are the Member States of the European Union, known as the EU27. The time period covers the years 2011 to 2022, with the aim of achieving the widest possible coverage, but within the constraints imposed by the availability and relevance of data on all survey items.

The M1 indicator, which represents the transfer of economic power, was calculated using the ratio of real GDP [11] to the average population in a given year. GDP serves as a measure of the total final output of goods and services produced in an economy over a certain time frame, indicates economic activity, and functions as an indicator of a country's material standard of living.

For the evaluation of M2, denoting Resource Scarcity, Material Import Dependency [11] was utilized. These metric monitors progress towards a circular economy, showcasing the extent to which an economy depends on imports to fulfill its material requirements.

It is particularly crucial to monitor and reduce import dependency, especially fossil energy materials.

The indicator is calculated as the percentage ratio of imports over direct material inputs.

In assessing M3, related to Technological Breakthrough, a Digital Literacy of the Population was selected [12]. The internet use indicator encompasses activities such as participating in online courses on any subject.

M4, associated with demographic changes and Social Change, involves two interconnected global trends: the overall increase in the world population and population aging. Social change is gauged by The Old Age Dependency Ratio [12], expressing the ratio of peope aged 65 and over (typically economically inactive) to people aged 15 to 64. The value is presented per 100 people of working age (15-64).

M5, indicating Rapid Urbanization, is represented by the Distribution of Population by Housing Cost Burden and Degree of Urbanization [12]. This indicator is defined as the percentage of the population residing in households where total housing costs (net of housing allowances) constitute more than 40 % of the total disposable household income (net of housing allowances), presented by the degree of urbanization.

The Quality of the Business Environment is evaluated using one of the widely used business environment indexes for comparison – the Index of Economic Freedom [8].

The index, chosen for data accessibility and the predominance of hard data in its creation, measures economic freedom based on 12 quantitative and qualitative factors grouped into four pillars: Rule of Law (property rights, government integrity, judicial effectiveness), Government Size (government spending, tax burden, fiscal health), Regulatory Efficiency (business freedom, labor freedom, monetary freedom), and Open Markets (trade freedom, investment freedom, financial freedom). Data sources include the World Bank, International Monetary Fund, Eurostat, African Development Bank, Asian Development Bank, International Labour Organization, World Trade Organization, as well as the International IP Index and Corruption Perception Index [8].

To see how megatrends affect the quality of the business environment, the data were subjected to regression and correlation analysis using Python version 3. 11.

The "numpy", "pandas", "scipy" and "statmodels" libraries were used for correlation and regression analysis. Before processing, the data were split by year and stored in CSV files.

In all years, the dependent variable (Intercept) was IEF (Index of Economic Freedom), which represents Business Environment Quality, and the independent variables were M1 - GDP, M2 - MID, M3 - IUaA, M4 - OADR and M5 – DoU.

4. Results and Discussion

The first step was to validate the data using descriptions. The descriptions did not reveal any outliers for mean, median and standard deviation that could affect the results and lead to incorrect conclusions. Subsequently, a test to verify that the data obtained had a normal distribution was conducted. Taking into account the sample size it was decided to use the Shapiro-Wilk test. The test using the following commands was conducted.

```
import numpy as np
import pandas as pd
from scipy.stats import Shapiro
df = pd.read_csv("data.csv", sep=";")
print ("Shapiro Result:", shapiro(df))
```

Table 2. Shapiro-Wilk test results

Year	Statistic	p-value
2011	0.41978341341018677	1.0347617866972468e-22
2012	0.42010796070098877	1.0478044342509365e-22
2013	0.4196895956993103	1.0310206927403267e-22
2014	0.4218575358390808	1.1211288660646123e-22
2015	0.42428380250930786	1.2316961154113687e-22
2016	0.42478567361831665	1.255936864395724e-22
2017	0.429149329662323	1.4887451160913146e-22
2018	0.43237513303756714	1.6892668686580195e-22
2019	0.43422698974609375	1.8168206283224637e-22
2020	0.4286279082298279	1.4587372259099418e-22
2021	0.4289029836654663	1.4744787243925736e-22
2022	0.4288577437400818	1.4718756096230891e-22

The test statistics ranged from 0.419 to 0.434. The p-values that correspond to the test statistics are less than 0.05 in all years concluding that the data do not follow a normal distribution.

This suggests that the results may be influenced to some extent by a random phenomenon.Subsequently it was joined to regression analysis, which identifies the relationship between the independent variables and the dependent variable.

To perform the regression, following commands were used:

```
import pandas as pd
import statsmodels.formula.api as sm
result = sm.ols(formula="IEF ~ GDP + MID
+ IUaA + OADR + DoU", data=df).fit()
print ("\nOLS Regression:",
result.summary())
```

The following table shows the results of the regression analysis of the selected indicators for the EU27 countries. The data were analysed on a year-by-year basis, so the results are indicative of the overall change in the quality of the business environment in the European Union as a result of the impact of the selected megatrends.

Table 3. Regression results

		coef	std err	t	P>|t|	[0.025	0.975]
2011	Intercept	77.0293	5.433	14.178	0.000	65.731	88.328
	GDP	0.0002	6.37e-05	2.622	0.016	3.45e-05	0.000
	MID	-0.0321	0.055	-0.587	0.564	-0.146	0.082
	IUaA	0.6390	0.291	2.195	0.040	0.034	1.244
	OADR	-0.6628	0.217	3.049	0.006	-1.115	-0.211
	DoU	0.0821	0.058	1.407	0.174	-0.039	0.203
		coef	std err	t	P>|t|	[0.025	0.975]
2012	Intercept	76.5912	6.392	11.983	0.000	63.336	89.847
	GDP	0.0002	6.83e-05	2.712	0.013	4.36e-05	0.000
	MID	-0.0278	0.060	-0.463	0.648	-0.153	0.097
	IUaA	9.317e-13	7.78e-14	11.969	0.000	7.7e-13	1.09e-12
	OADR	-0.5013	0.243	-2.066	0.051	-1.004	0.002
	DoU	0.0139	0.064	0.217	0.830	-0.119	0.146
		coef	std err	t	P>|t|	[0.025	0.975]
2013	Intercept	74.8396	6.634	11.281	0.000	61.043	88.636
	GDP	0.0002	7.51e-05	2.026	0.056	-3.99e-06	0.000
	MID	-0.0500	0.061	-0.821	0.421	-0.177	0.077
	IUaA	0.5543	0.349	1.587	0.127	-0.172	1.281
	OADR	-0.4311	0.259	-1.667	0.110	-0.969	0.107
	DoU	0.0061	0.064	0.094	0.926	-0.128	0.140
		coef	std err	t	P>|t|	[0.025	0.975]
2014	Intercept	72.5270	7.355	9.861	0.000	57.274	87.780
	GDP	0.0002	7.55e-05	2.649	0.015	4.34e-05	0.000
	MID	-0.0557	0.065	-0.858	0.400	-0.190	0.079
	IUaA	0	0	nan	nan	0	0
	OADR	-0.2281	0.260	-0.877	0.390	-0.767	0.311
	DoU	-0.0197	0.068	-0.292	0.773	-0.160	0.121
		coef	std err	t	P>|t|	[0.025	0.975]

2015	Intercept	75.9300	8.052	9.431	0.000	59.186	92.674
	GDP	0.0001	8.69e-05	1.430	0.168	-5.64e-05	0.000
	MID	-0.0788	0.064	-1.231	0.232	0.212	0.054
	IUaA	0.6989	0.461	1.518	0.144	-0.259	1.657
	OADR	-0.3592	0.293	-1.228	0.233	-0.968	0.249
	DoU	-0.0357	0.071	-0.505	0.619	-0.183	0.111

		coef	std err	t	P>|t|	[0.025	0.975]
2016	Intercept	76.7447	9.225	8.319	0.000	57.560	95.929
	GDP	0.0002	8.7e-05	1.953	0.064	-1.1e-05	0.000
	MID	-0.0883	0.071	-1.247	0.226	-0.236	0.059
	IUaA	0.3157	0.402	0.786	0.441	-0.520	1.151
	OADR	-0.3272	0.337	-0.971	0.343	-1.028	0.374
	DoU	-0.0515	0.092	-0.560	0.582	-0.243	0.140

		coef	std err	t	P>|t|	[0.025	0.975]
2017	Intercept	77.8540	10.440	7.457	0.000	56.143	99.565
	GDP	0.0001	0.000	1.337	0.196	-7.64e-05	0.000
	MID	-0.0931	0.071	-1.318	0.202	-0.240	0.054
	IUaA	0.5123	0.366	1.401	0.176	-0.248	1.273
	OADR	-0.3838	0.378	-1.016	0.321	-1.170	0.402
	DoU	-0.0395	0.094	-0.418	0.680	-0.236	0.157

		coef	std err	t	P>|t|	[0.025	0.975]
2018	Intercept	72.4348	9.761	7.421	0.000	52.193	92.677
	GDP	0.0002	8.02e-05	2.963	0.007	7.13e-05	0.000
	MID	-0.0965	0.064	-1.497	0.149	-0.230	0.037
	IUaA	-1.523e-12	2.05e-13	-7.412	0.000	-1.95e-12	-1.1e-12
	OADR	-0.1037	0.315	-0.329	0.745	-0.757	0.550
	DoU	-0.0782	0.081	-0.961	0.347	-0.247	0.090

		coef	std err	t	P>|t|	[0.025	0.975]
2019	Intercept	74.7282	9.065	8.244	0.000	55.876	93.580
	GDP	0.0001	9.29e-05	1.520	0.143	-5.2e-05	0.000
	MID	-0.0767	0.056	-1.373	0.184	-0.193	0.039
	IUaA	0.4577	0.260	1.760	0.093	-0.083	0.999
	OADR	-0.3048	0.306	-0.996	0.331	-0.941	0.332
	DoU	-0.0335	0.079	-0.425	0.675	-0.198	0.131

	coef	std err	t	P>|t|	[0.025	0.975]

2020	Intercept	72.2802	9.125	7.921	0.000	53.304	91.256
	GDP	0.0002	7.55e-05	2.558	0.018	3.62e-05	0.000
	MID	-0.0898	0.055	-1.624	0.119	-0.205	0.025
	IUaA	0.1516	0.148	1.022	0.319	-0.157	0.460
	OADR	-0.1268	0.286	-0.443	0.662	-0.722	0.469
	DoU	-0.0594	0.083	-0.714	0.483	-0.233	0.114

		coef	std err	t	P>|t|	[0.025	0.975]
2021	Intercept	77.4142	8.232	9.404	0.000	60.294	94.534
	GDP	0.0001	5.97e-05	2.154	0.043	4.46e-06	0.000
	MID	-0.1169	0.054	-2.167	0.042	-0.229	-0.005
	IUaA	0.2251	0.116	1.933	0.067	-0.017	0.467
	OADR	-0.3100	0.246	-1.262	0.221	-0.821	0.201
	DoU	-0.0134	0.065	-0.207	0.838	-0.149	0.122

		coef	std err	t	P>|t|	[0.025	0.975]
2022	Intercept	68.7714	8.710	7.896	0.000	50.708	86.835
	GDP	0.0002	6.75e-05	2.448	0.023	2.53e-05	0.000
	MID	9.485e-13	1.2e-13	7.891	0.000	6.99e-13	1.2e-12
	IUaA	0.1255	0.127	0.986	0.335	-0.139	0.390
	OADR	-0.0474	0.265	-0.179	0.860	-0.597	0.502
	DoU	-0.0762	0.071	-1.067	0.298	-0.224	0.072

Based on the results it is possible to conclude that among the selected megatrends, a negative change in the quality of the business environment for three variables occurred. During the entire period under study i.e. from 2011 to 2022, it was the megatrend Social Change in 2011 and 2012 a strong negative change was observed for M4, in 2013, 2015-2017, 2019 and 2021 a moderate negative change occurred as well and in 2013, 2018, 2020 and 2022 – comprehensively the megatrend M4 brought a weak negative change in the quality of the business environment.

Another megatrend affecting the quality of the business environment negatively within EU27 during the whole period under review, except for 2022, was M2 - Resource Scarcity, its values did not exceed the threshold -0.1, subsequently considered to be a weak negative change.

From 2014 until the end of the observed period, similarly M5 – Rapid urbanisation influences the quality of the business environment negatively. Its values, similar to at M2 - Resource scarcity variable, did not exceed the threshold - 0.1. Therefore, this change is assessed to be weak.

In 2014, there were published no data concerning the variable M3 - Technological breakthrough, therefore, the displayed values shown in the regression analysis for that year are 0 or nan.

For the megatrends M1 - Shifting Economic Power and M3 -Technological breakthrough, a positive change in the quality of the business environment was discovered. Although Shifting Economic Power reached values close to zero - interpreting no change in the quality of the business environment. However, for Technological breakthrough a moderate to strong positive change in the quality of the business environment was recorded.

As addition to the regression analysis a correlation analysis was used to determine the degree of linear association between the selected variables. In performing this correlation, the following commands were used.

```
import pandas as pd
import numpy as np
corr_matrix = df.corr()
print ("\nCorellation matrix:")
print (corr_matrix)
```

Table 4. Regression results

		IEF	GDP	MID	IUaA	OADR	DoU
2011	IEF	1.000000	0.580657	0.337578	0.364178	-0.362983	0.141569
	GDP	0.580657	1.000000	0.670452	0.223196	-0.074820	0.139130
	MID	0.337578	0.670452	1.000000	0.070450	-0.150768	0.039613
	IUaA	0.364178	0.223196	0.070450	1.000000	0.177794	0.072818
	OADR	-0.362983	-0.074820	-0.150768	0.177794	1.000000	0.347580
	DoU	0.141569	0.139130	0.039613	0.072818	0.347580	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2012	IEF	1.000000	0.538721	0.307338	NaN	-0.376937	-0.030357
	GDP	0.538721	1.000000	0.615944	NaN	-0.074740	0.082247
	MID	0.307338	0.615944	1.000000	NaN	-0.154935	-0.042445
	IUaA	NaN	NaN	NaN	NaN	NaN	NaN
	OADR	-0.376937	-0.074740	-0.154935	NaN	1.000000	0.329094
	DoU	-0.030357	0.082247	-0.042445	NaN	0.329094	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2013	IEF	1.000000	0.514588	0.232910	0.397291	-0.267855	-0.067029
	GDP	0.514588	1.000000	0.622227	0.394381	-0.088094	0.102619
	MID	0.232910	0.622227	1.000000	0.214236	-0.156681	0.004600
	IUaA	0.397291	0.394381	0.214236	1.000000	0.183171	-0.088120
	OADR	-0.267855	-0.088094	-0.156681	0.183171	1.000000	0.332828
	DoU	-0.067029	0.102619	0.004600	-0.08812	0.332828	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2014	IEF	1.000000	0.503006	0.212848	NaN	-0.218277	-0.019724
	GDP	0.503006	1.000000	0.624292	NaN	-0.119439	0.117625
	MID	0.212848	0.624292	1.000000	NaN	-0.162806	-0.015804
	IUaA	NaN	NaN	NaN	NaN	NaN	NaN
	OADR	-0.218277	-0.119439	-0.162806	NaN	1.000000	0.247529
	DoU	-0.019724	0.117625	-0.015804	NaN	0.247529	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2015	IEF	1.000000	0.429370	0.096953	0.399910	-0.239445	-0.144674
	GDP	0.422090	1.000000	0.605674	0.521432	-0.200386	0.136636
	MID	0.096953	0.605674	1.000000	0.298877	-0.189711	0.027527
	IUaA	0.399910	0.521432	0.298877	1.000000	0.169601	0.088061
	OADR	-0.239445	-0.200386	-0.189711	0.169601	1.000000	0.259644
	DoU	-0.144674	0.136636	0.027527	0.088061	0.259644	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2016	IEF	1.000000	0.429370	0.106192	0.244784	-0.297488	-0.144674
	GDP	0.429370	1.000000	0.583409	0.369766	-0.250460	0.074532
	MID	0.106192	0.583409	1.000000	0.309363	-0.199244	-0.109603
	IUaA	0.244784	0.369766	0.309363	1.000000	0.133698	-0.11401
	OADR	-0.297488	-0.250460	-0.199244	0.133698	1.000000	0.360449
	DoU	-0.144674	0.074532	-0.109603	-0.11401	0.360449	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2017	IEF	1.000000	0.419917	0.040541	0.39301	-0.242815	-0.099857
	GDP	0.419917	1.000000	0.563653	0.453131	-0.309821	0.138324
	MID	0.040541	0.563653	1.000000	0.182844	-0.233410	-0.043416
	IUaA	0.39301	0.453131	0.182844	1.000000	0.206906	-0.01894
	OADR	-0.242815	-0.309821	-0.233410	0.206906	1.000000	0.310761
	DoU	-0.099857	0.138324	-0.043416	-0.01894	0.310761	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2018	IEF	1.000000	0.490319	0.076000	NaN	-0.287869	-0.056135
	GDP	0.490319	1.000000	0.562667	NaN	-0.366113	0.259301
	MID	0.076000	0.562667	1.000000	NaN	-0.267076	0.090976
	IUaA	NaN	NaN	NaN	NaN	NaN	NaN
	OADR	-0.287869	-0.366113	-0.267076	NaN	1.000000	0.273696
	DoU	-0.056135	0.259301	0.090976	NaN	0.273696	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2019	IEF	1.000000	0.549349	0.097993	0.543346	-0.313440	-0.013750
	GDP	0.549349	1.000000	0.552971	0.537191	-0.401685	0.321538
	MID	0.097993	0.552971	1.000000	0.191913	-0.285860	0.157003
	IUaA	0.543346	0.537191	0.191913	1.000000	0.044602	0.053151
	OADR	-0.313440	-0.401685	-0.285860	0.044602	1.000000	0.237287
	DoU	-0.013750	0.321538	0.157003	0.053151	0.237287	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2020	IEF	1.000000	0.544372	0.079315	0.377566	-0.325191	-0.026994
	GDP	0.544372	1.000000	0.536239	0.437730	-0.443449	0.314331
	MID	0.079315	0.536239	1.000000	0.309482	-0.336876	0.201063
	IUaA	0.377566	0.437730	0.309482	1.000000	-0.10573	0.033102
	OADR	-0.325191	-0.443449	-0.336876	-0.10573	1.000000	0.253891
	DoU	-0.026994	0.314331	0.201063	0.033102	0.253891	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2021	IEF	1.000000	0.552854	0.097829	0.407156	0.367437	0.017422
	GDP	0.552854	1.000000	0.517942	0.507824	-0.475813	0.218257
	MID	0.097829	0.517942	1.000000	0.567059	-0.356900	0.198801
	IUaA	0.407156	0.507824	0.567059	1.000000	-0.12314	0.199181
	OADR	0.367437	-0.475813	-0.356900	-0.12314	1.000000	0.158182
	DoU	0.017422	0.218257	0.198801	0.199181	0.158182	1.000000

		IEF	GDP	MID	IUaA	OADR	DoU
2022	IEF	1.000000	0.611735	NaN	0.414033	-0.364622	0.040748
	GDP	0.611735	1.000000	NaN	0.460076	-0.487709	0.363314
	MID	NaN	NaN	NaN	NaN	NaN	NaN
	IUaA	0.414033	0.460076	NaN	1.000000	-0.07477	0.191270
	OADR	-0.364622	-0.487709	NaN	-0.07477	1.000000	0.149895
	DoU	0.040748	0.363314	NaN	0.191270	0.149895	1.000000

The results of the correlation analysis showed a weak to moderate negative linear relationship between the Quality of the Business Environment and the megatrend M4 - Social Change. In addition, this megatrend had a weak to moderate negative linear dependence with other selected megatrends. There was discovered a weak negative linear dependence between the megatrend M5 - Rapid urbanization and the Quality of the Business Environment of the EU27 countries.

The Shifting Economic Power megatrend (M1) emerged as an indicator with a moderate to strong positive linear dependence on the Quality of the Business Environment of the EU27 countries. Its moderate positive dependence was also evident for the other megatrends examined, with the exception of M4 - Social Change, whose dependence was described above.

The other megatrends had just weak positive dependence with the dependent variable, as well as with each other.

The results of both analyses show that the quality of the business environment in the European Union countries changed under the influence of the examined megatrends in the period 2011-2022.

5. Conclusion

Because of the complexity of the influence and the power of megatrends, their impact can hardly be overlooked and can only be mitigated to a certain extent. The exposure to megatrends can be calculated providing the megatrends are operationalized. In this article, metrics have been allocated to the most frequently cited megatrends to create indicators of a countries' economic exposure to the future changes. The clear limitation of the study is the number of megatrends used in the research and the number of metrics applied to estimate the impact of a given trend.

Possible development of this study may also include considering a larger number of metrics to provide more complex megatrend exposure indicators. Enhancing the research by including a greater number of trends. Moreover, extending the study to a comparative analysis of economies from a given region or countries on a similar level of economic development should provide a particularly insightful outcome.

In conclusion, the quality of the business environment of the EU27 countries is negatively affected by Social Change, in this case represented by the variable Old Age Dependency Ratio. The increasing percentage of elderly population represents a threat to the quality of the business environment of the European Union.

The aging of the population is reducing the proportion of the working age population.

In contrast to Social Change, Shifting Economic Power represents potential for improving the quality of the business environment of the European Union. However, it may also pose a threat in the form of the outflow of the working age population to countries outside the European Union that may offer better working conditions and a better business environment quality for entrepreneurs. The knowledge of business environment features and the effect of constantly operating megatrends on its quality could serve as a compass for managers responsible for direction of company's activities.

References:

[1]. Apăvăloaie, E. I. (2014). The impact of the internet on the business environment. *Procedia Economics and finance*, *15*, 951-958.

[2]. Buno, M., Nadanyiova, M., & Hraskova, D. (2015). The comparison of the quality of business environment in the countries of Visegrad group. *Procedia Economics and Finance*, *26*, 423-430.

[3]. Debonne, N., *et al.* (2022). The geography of megatrends affecting European agriculture. *Global Environmental Change*, *75*.

[4]. Filčák, R., Považan, R., & Chrenko, M. (2019). Megatrendy, kontext socioekonomických zmien a systémových limitácií / Megatrends in the Context of Socio-Economic Changes and System Limitations. *Životné Prostredie*, *53(*2), 80–87.

[5]. Gajewski, J., Paprocki, W., & Pieriegud, J. (2015). *Megatrendy i ich wpływ na rozwój sektorów infrastrukturalnych.* Instytut Badań nad Gospodarką Rynkową–Gdańska Akademia Bankowa.

[6]. Grieveson, R., *et al.* (2021). *Avoiding a trap and embracing the megatrends: Proposals for a new growth model in EU-CEE,* (458). *Wiiw Research Report.* Retrieved from: https://wiiw.ac.at/avoiding-a-trap-and-embracing-the-megatrends-proposals-for-a-new-growth-model-in-eu-cee-p-5987.html [accessed: 10 June 2024].

[7]. Hatalska, N. (2014). *TrendBook 2014 – gotowy do pobrania!* Hatalska. Retrieved from: https://hatalska.com/2014/05/13/trendbook-2014-gotowy-do-pobrania/ [accessed: 12 June 2024].

[8]. Heritage Foundation. (2023). *Index of Economic Freedom.* Heritage. Retrieved from: https://www.heritage.org/index/ [accessed: 15 June 2024].

[9]. Jeflea, V., Sitnikov, C. S., Dănciulescu, D., Tugui, A., Filipeanu, D., & Park, J. O. (2022). Societal technological megatrends: A bibliometric analysis from 1982 to 2021. *Sustainability,* 14.

[10]. Kruse, M., Nitt-Drießelmann, D., & Wedemeier, J. (2022). Megatrends und Strukturwandel—welche Regionen werden profitieren?. *Wirtschaftsdienst*, *102*(5), 392-396.

[11]. Malik, J., & Janowska, A. (2018). Megatrends and their use in economic analyses of contemporary challenges in the world economy. *Prace Naukowe Uniwersytetu Ekonomicznego we WrocłAwiu*.

[12]. Eurostat. (n.d.). *Home - Eurostat. Ec.europa.*
Retrieved from: https://ec.europa.eu/eurostat
[accessed: 28 June 2024].