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Analysing the Impact of Corporate Social Responsibility on Corporate Performance in Central European Countries

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Abstract

This study delves into the intricate relationship between Corporate Social Responsibility (CSR) and corporate performance (measured by earnings) in the context of Central European countries. The primary purpose is to rigorously analyse the impact of CSR practices on various dimensions of corporate performance in this region. Recognising CSR as a multifaceted concept extending beyond financial metrics, the research aims to uncover the extent to which socially responsible practices contribute to corporate success, and thus validate and graphically represent the relationship between CSR strategy and corporate performance, quantified by the level of earnings management. Employing the ESG score as a key metric for assessing CSR performance, the study integrates financial and accounting data from a comprehensive sample of publicly traded enterprises in Central Europe. Through correlation analyses, statistical tests, and correspondence analyses, the research seeks to elucidate patterns, associations, and sectoral nuances in the interplay between CSR initiatives and corporate performance. To make a profit and obtain a competitive edge in the market, businesses must respect the requirements of all stakeholders. The significance of corporate earnings was supported by the findings of the correlation analysis, which showed a relationship between the amount of corporate earnings and the CSR performance of Central European businesses as determined by the ESG score. Moreover, the results also reveal that the level of earnings management is strongly influenced by the ESG rating, which provides an assessment of the sustainability profile or attributes of a corporation or financial instrument, its exposure to sustainability risks, and its effects on the environment and society. This investigation not only contributes to the understanding of CSR dynamics in Central European contexts, but also provides valuable insights for businesses, policymakers, and stakeholders aiming to foster sustainable and socially responsible corporate practices.

Key words

corporate social responsibility, environmental, social, and governance score, publicly listed enterprises, corporate performance.

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Introduction

Socially responsible practices, encompassed under the umbrella of Corporate Social Responsibility (CSR), have increasingly become integral to corporate success in recent years. CSR refers to a company's commitment to manage the social, environmental, and economic effects of its operations responsibly and in line with public expectations. It goes beyond legal compliance and engages in actions that further social good, beyond the interests of the firm and what is required by law. These practices can contribute to corporate success, and may build a relationship with corporate performance, particularly in terms of earnings management. Engaging in CSR initiatives can significantly enhance a company's reputation and brand image. When a company is perceived as socially responsible, it tends to attract more customers, investors, and top talent (Mahmood et al., 2020). This positive perception translates into increased sales, higher stock prices, and better access to capital, which in general improve the overall financial performance of enterprises. CSR initiatives build trust and loyalty among stakeholders, including customers, employees, investors, and communities (Chen et al., 2021). When stakeholders perceive a company as being committed to ethical and sustainable practices, they are more likely to support the company and remain loyal to its products or services. Nonetheless, adopting socially responsible practices can help companies mitigate various risks, including regulatory, legal, environmental, and reputational risks (Wirba, 2023). For example, companies that proactively address environmental concerns are less likely to face regulatory fines or lawsuits related to pollution or non-compliance with environmental regulations. Many CSR initiatives, such as energy conservation, waste reduction, and employee wellness programmes, can result in cost savings and efficiency improvements for companies. Investors are increasingly considering CSR performance when making investment decisions. Companies with strong CSR profiles often have better access to capital and investment opportunities (Hohnen, 2007). Additionally, the popularity of socially conscious investment funds is growing, giving businesses more ways to receive capital. As a result, it is clear how important the CSR idea is to business practice and how it affects both financial and organizational performance.

In order to fulfil analyst expectations, achieve bonus objectives, or draw in investors, corporations may manipulate their financial statements to offer a false picture of their financial success, a practice known as "earnings management" (Durana et al., 2022). While it may be permissible and lawful to control earnings to some extent, overly manipulating results might damage investor confidence and have unfavourable long-term effects. Empirical evidence indicates that corporations with strong corporate social responsibility plans have lower rates of earnings management (Kim et al., 2012; Moratis & Egmond, 2018; Gaio et al., 2022; Meyer & Dutzi, 2024). This is so because businesses that value corporate social responsibility give equal weight to accountability, transparency, and moral conduct (Zhao & Farinas, 2023). These businesses gain the trust of stakeholders by exhibiting a dedication to social responsibility, which lessens the need for them to manipulate results in order to keep investors happy. On the other hand, because they are under more pressure to satisfy investors and hit short-term financial objectives, businesses with lax or non-existent CSR policies could be more likely to manipulate results (Meyer & Dutzi, 2024). Nevertheless, these actions may eventually harm the business's reputation and have unfavourable effects.

In summary, socially conscious business practices improve a company's reputation, foster stakeholder trust, reduce risks, provide cost savings, and make it easier for businesses to obtain financing. Given that businesses with high CSR profiles are less likely to participate in financial manipulation, the link between CSR strategy and earnings management emphasizes the significance of moral behaviour and openness in corporate governance.

Consequently, in the framework of Central European nations, this study explores the complex link between business success (determined by earnings) and corporate social responsibility (determines by ESG rating). ESG (Environmental, Social, and Governance) is a framework used to assess a company's practices and performance on sustainability and ethical issues. It helps investors, regulators, and other stakeholders evaluate how a company manages risks and opportunities related to environmental, social, and governance factors. The main aim of the study is to conduct a thorough analysis of how CSR activities affect different aspects of business performance in this area. Acknowledging CSR as a complex idea that goes beyond financial measurements, the study seeks to determine the degree to which socially conscious actions boost business performance. This will validate and illustrate the connection between CSR strategy and business performance as measured by the degree of earnings management. Earnings management can be perceived as the practice where company management deliberately influences reported financial results to meet certain targets or expectations. This can involve manipulating accounting choices, estimates, or timing of transactions to present the company's earnings in a more favourable or sometimes less favourable light. The study incorporates financial and accounting data from a large sample of publicly-traded firms in Central Europe, using the ESG score as a major criterion for measuring CSR performance. The research aims to clarify trends, connections, and sector-specific subtleties in the relationship between CSR activities and company performance using correspondence analysis, statistical testing, and correlation studies. The correlation analysis's results, which indicated a link between corporate earnings and the CSR performance of central European companies as assessed by the ESG score, confirmed the importance of corporate profitability.

Although previous studies have shown that CSR practices are associated with earnings management, there is limited empirical research focused specifically on publicly traded firms in Central Europe. Most existing literature overlooks the regional regulatory and economic contexts, and few studies use ESG scores as a quantifiable measure of CSR performance in relation to earnings manipulation. This study addresses that gap by examining the relationship between ESG-based CSR performance and earnings management in Central European companies.

The article is organized as follows: the most significant studies and research in the subject are compiled in the literature review. The methodology section outlines the processes used in the study process and provides basic information on the sample of European firms that were evaluated. The results and discussion section presents the outputs of the statistical tests and computations and discusses the study findings in relation to other worldwide studies. The conclusions section illustrates the study's shortcomings as well as the obstacles facing future research.

1. Literature review

Corporate social responsibility has a major role in a company's corporate brand perception, commercial success and perception, and appeal to investors, workers, and customers. As a result, it improves a company's image and generally improves its financial performance. A corporation should wait to allocate its income to socially responsible activities until it has achieved a satisfactory degree of economic success, as stated by Gaio et al. (2022), Vishwanathan et al. (2020), D'Amato and Falivena (2020). One of the most common reasons for declining business financial performance (Deakin, 1972; Gilson, 1989) is the inability to raise enough money to pay short-term obligations. For this reason, assessing the efficiency of corporate finance is critical to maintaining financial stability (Durana et al., 2020; Fialova & Folvarcna, 2020). Ahmadpour and Shahsavari (2016) discovered that earnings management is a common strategy used by both solvent and insolvent companies to present their financial performance as favourably as possible. 198 solvent and 55 insolvent firms were included in the study. One of the models that is most frequently used to determine earning management is the modified Jones model (Dechow et al., 1995). The nondiscretionary accruals are determined by the model and are computed using the model's linear regression coefficients. The discrepancy between total accrual and nondiscretionary accrual is then used to determine the discretionary accruals, which give the possibility to manipulate results.

Nondiscretionary accruals (NDA) and discretionary accruals (DA) were also employed by Tbalvandani and Nashtei (2017). They discovered that cash flow was not a significant determinant in failing enterprises, while accrual quality and portfolio rank were statistically significant predictors of future profitability in prosperous businesses. The Hoang and Joseph (2019) study shows how profits levels are impacted by the application of accounting rules and regimes. However, it is evident that choosing the earnings manipulation approach is impacted by a difficult financial situation. Managers of financially distressed organizations are more prone than their counterparts in the financial industry to use income-decreasing earnings management strategies (Habib et al., 2013). Managers are motivated to manipulate earnings in both directions (based on financial challenges) since they have already experienced financial difficulty. On the other hand, Sayidah et al. (2020) study discovered that management's ability to control earnings within predetermined bounds had no impact on an organization's financial stability. As a result, financial performance data is crucial for businesses to establish socially conscious initiatives and have a good influence on society in addition to demonstrating their competitiveness and stability.

The finding that companies with a history of solid financial performance also showed a high level of social responsibility lends credence to the idea. On the other hand, companies with less stable stock prices are unlikely to support socially responsible projects. Numerous studies have found a favourable correlation between the adoption of the corporate social responsibility concept and enhanced financial performance (Ali & Kaur, 2021; Jaisinghani & Sekhon, 2022; Gallo et al., 2024; Lorincova et al., 2024). The concept of corporate social responsibility and earnings management have been shown to be closely related (Buertey et al., 2019). Businesses that engage in corporate social responsibility consider tackling social and cultural concerns as part of their global operations, with the goal of improving both in the process (Kovacova & Lazaroiu, 2021). When applied correctly, this concept should become ingrained in a business's culture and principles, enhancing its corporate operations (Ballerini et al., 2022). A company's purpose and core values should be strongly entwined with corporate social responsibility, which should also play a significant role in marketing and promotion, strengthening the company's social consciousness and corporate values.

In today's digitized and data-driven business environment, the principles of corporate social responsibility are being redefined through the integration of digital technologies, artificial intelligence, and structured sustainability governance. Traditional CSR frameworks often assumed that socially responsible initiatives should follow only after a company achieves sufficient financial success, as highlighted by Teres (2023), Ziabina and Dzwigol-Barosz (2022). However, in the age of digital transformation, this approach is rapidly evolving. CSR is no longer an afterthought or a reputational tool, it is increasingly embedded in the digital architecture of modern enterprises, shaping strategy (Nguyen, 2023), risk management (Metzker et al., 2021), and stakeholder engagement from the ground up (Eleyan, 2022).

Digital CSR involves the application of digital tools to enhance and scale the social and environmental responsibilities of a company. This includes the use of artificial intelligence (AI) for supply chain transparency, blockchain for ethical sourcing verification, machine learning for optimizing resource efficiency, and digital platforms that foster inclusive stakeholder dialogue. These technologies enable real-time monitoring and reporting of sustainability metrics, moving companies away from symbolic or static CSR reporting toward more responsive and dynamic accountability. As a result, digital CSR can strengthen corporate brand perception, enhance resilience, and build long-term investor and customer trust factors strongly linked to financial performance in empirical studies (Lyulyov et al., 2024).

Closely linked to this is the concept of sustainability governance, which refers to the mechanisms, structures, and processes through which firms manage their environmental and social impacts. Effective sustainability governance integrates ESG principles into core business operations and risk management (Us et al., 2023). When powered by digital tools, governance becomes more efficient and evidence-based, allowing organizations to assess climate-related risks, human rights concerns, and resource consumption patterns with greater precision (Wu et al., 2025). Digital dashboards, automated compliance tracking, and AI-driven scenario analysis are increasingly used by firms to support board-level decisions and regulatory alignment (Ugwa, 2023).

One of the key enablers of both digital CSR and effective governance is AI-supported transparency. AI and big data analytics help companies not only to disclose performance indicators with greater granularity but also to detect and mitigate unethical practices, including greenwashing, earnings manipulation, and social washing (Moodaley & Telukdarie, 2023). For example, AI systems can identify discrepancies between reported ESG performance and actual environmental impacts, thereby increasing corporate accountability and improving investor confidence (Xiao & Xiao, 2025). Furthermore, as noted in studies by Zimon et al. (2022) and Sihatmi et al. (2024), companies that demonstrate a commitment to transparency in both financial and non-financial reporting tend to be more resilient to economic shocks and reputational risks. Nevertheless, AI-supported transparency must be carefully governed to avoid unintended consequences, such as algorithmic bias or over-automation of ethical judgments (Papagiannidis et al., 2025). Here, sustainability governance plays a crucial role by ensuring that the deployment of AI aligns with corporate values and broader societal expectations. Embedding CSR into AI system design, by considering fairness, inclusivity, and environmental impact, is becoming a new standard of responsible innovation (Ozkan, 2024).

The convergence of digital CSR, sustainability governance, and AI-enabled transparency represents a paradigm shift in how companies define and execute their responsibilities to society. These integrated approaches not only help companies improve their operational efficiency and risk management but also reinforce their legitimacy and social license to operate (Covucci et al., 2024). As corporate responsibility becomes more digitized, real-time, and data-driven, businesses that embrace these changes proactively are more likely to thrive, economically, ethically, and environmentally.

2. Methodology

The main objective of this article is to demonstrate, validate, and visually depict the link that exists between business success as measured by the degree of earnings management and the CSR strategy. As a result, two possibilities were investigated:

1. There is a statistically significant dependence between the CSR strategy measured by ESG rating and corporate performance quantified by the level of earnings management.

2. There are categories of factors (CSR strategy and level of earning management) that are mutually correspondent.

The purpose of creating the dataset of central European businesses was to describe the relationship between corporate social responsibility and earnings management. Publicly listed corporations are the focus of the research because they make verifiable data available in the public domain that can be used to generate an ESG (environmental, social, and governance) rating, which is a measurement of the factors that are becoming crucial to corporate strategy and decision-making. Based on their exposure to ESG risks and how successfully they manage those risks in comparison to peers, industry leaders and laggards are determined using an approach called ESG rating, which is rules-based. The ESG grades are as follows: laggard (B, CCC), average (A, BBB, BB), and leader (AAA, AA). A leader in the industry is a company that manages the biggest ESG risks and opportunities better than its peers; an average company does a mediocre job of managing the biggest risks and opportunities in comparison to its peers; a laggard is a company that performs worse than its peers due to high exposure to and inability to manage major ESG risks.

With an ESG rating reported for three years in a row (2020–2022) and all the financial reports required to calculate the level of discretionary accruals, there are 490 businesses in central Europe that meet the requirements for publicly listed businesses (none from Slovakia, Croatia, or the Baltic states are included due to missing ESG information). The 2020–2022 observation window coincides with a period of significant macroeconomic volatility due to the COVID-19 pandemic, supply chain disruptions, and inflationary pressures, which may have influenced both ESG performance and earnings management practices. During such periods, companies may have faced increased pressure to meet financial targets, potentially incentivizing earnings manipulation, while simultaneously being scrutinized more closely for their social and environmental responses. The dataset comprises only extremely big public limited firms. Of the total number of businesses examined, almost 48% are from Germany, followed by Switzerland (31.4%), Luxembourg (7.3%), Austria (6%) and Poland (6%), with fewer than 1% each from Czechia, Hungary, and Slovenia. The development of the ESG score, measured on a scale from 0 to 100 points, in the analysed countries is portrayed in Figure 1.

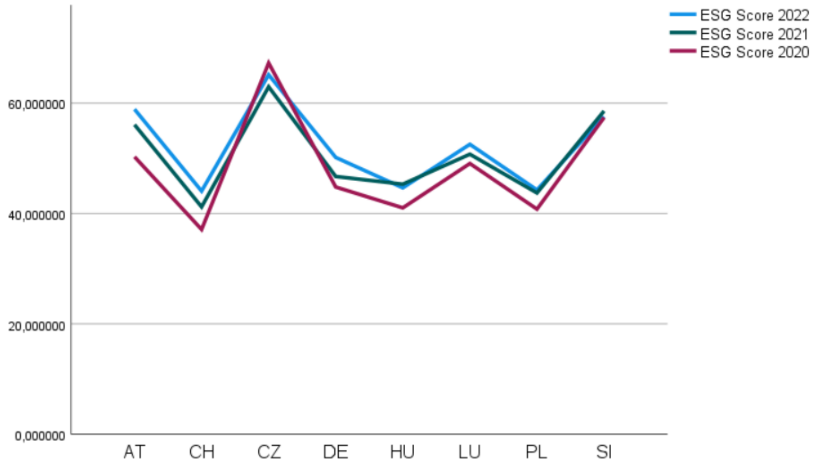

Figure 1. Development of ESG in the analysed countries.
Source: Own elaboration.

To verify the manipulation of earnings, Dechow et al. (1995) employed a modified version of the Jones model. Since Kliestik et al. (2020a) demonstrated that this model (Eq. (1) and (2)), which is based on linear regression, produces the most pertinent findings under Visegrad settings, it was used.

$$\frac{NDA_{it}}{TA_{t-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \tag{1}$$

$$(TA_{t-1} = NDA_{it} + DA_{it}); \tag{2}$$

where NDA_{it} – nondiscretionary accrual in a year t; DA_{it} – discretionary accrual in a year t; TA_{t-1} – total accrual in a year t; A_{it-1} – total assets in a year t-1; ΔREV_{it} – annual change in revenues in a year t; ΔREC_{it} – annual change in receivables in a year t; PPE_{it} – long-term tangible assets in a year; $\alpha_0, \alpha_1, \alpha_2$ – coefficients; ε_{it} – prediction error.

All firms' financial data (as indicated in the equations) were utilized as input variables in the modified Jones model. The model determines the nondiscretionary accruals, which are then estimated using the linear regression coefficients of the model. The discretionary accruals, which allow for result manipulation, are then calculated from the difference between total accrual and nondiscretionary accrual for each business in each analysed year. If the discretionary accruals did not deviate from zero, then it was considered that there had been no manipulation of earnings. Every year, a single sample t test was conducted to ascertain if the average values of discretionary accruals deviated from zero. Manipulation is quite likely if the mean value of discretionary accruals deviates from zero. The higher the evidence of earnings manipulation, the more severe the values and the more they deviate from zero (Otero-Gonzalez et al., 2021). However, previous studies show that a well-defined concept of corporate social responsibility promotes greater moral behaviour and open financial reporting, which in turn curbs deceptive behaviour (Zadeh, 2021; Gaio et al., 2022; Martinez et al., 2022).

The Pearson chi-square test was run at the significance level of 0.05 to ascertain the degree of reliance between the CSR strategy, as determined by the ESG rating, and the company performance, as evaluated by the earnings management level. An essential precondition for the correspondence analysis is confirming that the variable categories depend on one another. If mutual dependency is verified, the statistical significance of the contingency coefficient is examined, and Cramer's V is utilized to determine the strength of the connection.

Furthermore, the correspondence analysis is performed to look into the underlying structure of contingency tables (where categories of factors are comparable to each other) once statistically significant reliance is discovered between the components being examined. The valuable result of the correspondence analysis is a depiction of the relationships between the rows and columns of the studied contingency tables. The rows and columns of the contingency table are represented by the points when they are projected into the multidimensional space and placed onto the correspondence map, which employs the Euclidean distance measure. The categories are more comparable and have stronger mutual correspondence when the points on the correspondence map are closer to one another. The degree that characterizes the quality of the transfer of multidimensional points into a correspondence map is determined by the variability of those points. Total inertia is a measure of variability that is computed for row categories as (Eq. 3):

$$I^2 = \sum_i p_{i+} d_i^2 \tag{3}$$

where d_i is the chi-square distance between row i's profile, p_{i+} is the marginal relative frequency of row i, and I is the total inertia (Kovacova et al., 2019; Durana et al., 2022). In an analogous manner, column categories are determined using the same process.

3. Research results

The basic descriptive statistics of financial data of all companies, explaining their financial background and position, are summarised in Table 1.

Table 1. Basic financial information of the analysed central European enterprises.

	Debtors	Stock	Current liabilities	Non-current liabilities	Depreciation	Tangible fixed assets
mean (th. €)	645,618.45	679,506.16	2,326,170.90	3,050,548.03	402,677.14	1,889,528.7
median (th. €)	91,698.94	74,623.24	265,528.37	284,034.95	43,800.76	169,441.24
std. dev. (th. €)	1,857,308.46	2,864,674.51	10,407,342.4	13,154,462.5	1,625,596.21	6,478,894.68
CV (%)	2.88	4.22	4.47	4.31	4.04	3.43
	Intangible fixed assets	**Ebit**	**Eat**	**Total assets**	**Current assets**	**Sales**
mean (th. €)	1,819,121.0	375,925.8	270,883.4	8,351,551.3	2,887,862.6	5,228,971.1
median (th. €)	87,399.17	50,822.84	33,009.67	1,171,334.85	449,128.38	795,901.50
std. dev. (th. €)	7,534,177.28	1,558,165.41	1,241,079.4	32,074,239.10	11,988,605.79	17,164,898.7
CV (%)	4.14	4.14	4.58	3.84	4.15	3.28

Source: Own elaboration.

The number of businesses having a positive, negative, or zero value for this indicator is shown by the results of the discretionary accruals calculations made using the modified Jones model (Table 2).

Table 2. Calculated values of DA in the sample of enterprises.

Period	Positive value of DA	Negative value of DA	Zero value of DA
2021/2022	15.71 %	26.53 %	57.76 %
2020/2021	7.55 %	40.20 %	52.25 %

Source: Own elaboration.

The findings show that over 40% of businesses had a negative discretionary value throughout the COVID-19 epidemic period. This suggests that businesses were attempting to reduce their earnings as a result of their unfavourable financial performance. According to Habib et al. (2013), managers of financially unstable businesses are more likely than their counterparts in the financial sector to employ income-decreasing earnings management techniques. Managers are motivated to manipulate earnings in both directions (based on financial challenges) since they have already experienced financial difficulty. In contrast, as the situation of the macroeconomic development was slightly improved in the second analysed period, the financial performance of enterprises was improved and change in the value of discretionary accruals is also evident. The economic, political, and financial conditions of a nation have a significant impact on its development, as demonstrated by the findings of Kliestik et al. (2020b), Svabova et al. (2020), Sumiyana (2020), and Schwab (2019) study.

The next step of the analysis is to determine whether there is a statistically significant association between the CSR method and earnings manipulation (Table 3).

Table 3. Contingency table of the analysed parameters.

		Discretionary accruals			
		Negative	**Positive**	**Zero**	**Total**
ESG rating	A	27	8	55	90
	AA	15	9	44	68
	AAA	2	0	19	21
	B	22	14	32	68
	BB	23	21	52	96
	BBB	32	17	59	108
	CCC	9	8	22	39
Total		130	77	283	490

Source: Own elaboration.

Using the mean values of the two analysed parameters, the Pearson chi-square test was run at a significance level of 0.05 (Table 4) in order to verify the hypotheses.

Table 4. Confirmation of the relationship between earnings management and CSR level.

P-value of Pearson chi-square test	Decision	Cramer's V	P-value of Cramer's V	Decision
0.044	H1	0.209	0.044	Sig. weak association

Source: Own elaboration.

The chi-square test findings indicate a modest correlation between the examined parameters, indicating that the ESG rating of the central European businesses has an impact on earnings manipulation. As a result, the CSR strategy data as determined by the ESG rating might serve as a reliable predictor of manipulative behaviour. A simple correspondence analysis was carried out in order to better highlight the relationship between the categories of both variables at the same time; reciprocal correlations between the row (Table 5) and column (Table 6) categories were examined.

Table 5. Overview of rows points.

ESG score	Mass	Score in Dimension		Inertia	Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
		1	2		1	2	1	2	Total
A	0.184	0.296	0.450	0.007	0.087	0.378	0.449	0.551	1.000
AA	0.139	0.303	-0.172	0.003	0.069	0.042	0.854	0.146	1.000
AAA	0.043	1.533	-0.425	0.019	0.546	0.079	0.961	0.039	1.000
B	0.139	-0.494	0.164	0.007	0.184	0.038	0.945	0.055	1.000
BB	0.196	-0.287	-0.373	0.006	0.087	0.277	0.525	0.475	1.000
BBB	0.220	-0.107	0.180	0.001	0.014	0.073	0.398	0.602	1.000
CCC	0.080	-0.174	-0.376	0.002	0.013	0.114	0.287	0.713	1.000
Active Total	1.000			0.044	1.000	1.000			

Source: Own elaboration.

The values are shown in Table 3, which aids in assessing the contributions made by each row to the dimension and the dimensions made by the rows. Each row's relative value to the total number of enterprises (490) is displayed by the mass value. The scores in dimension, which display the scores of rows in the intended dimensions 1 or 2, serve as a representation of the dimensional distance (used in the final correspondence map). The column carrying the inertia values shows the amount of variance that each row adds to the total inertia value. The contribution of the dimension's point of inertia, or the dimension of inertia to point, explains the function of each row in the dimension (and vice versa). The Total column, which displays the percentage of row points on total inertia as well as the overall contribution of each dimension to the row, contains the most important facts. The results of the overview column point (Table 6) can also be presented in this manner.

Table 6. Overview of columns points.

DA values	Mass	Score in Dimension		Inertia	Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
		1	2		1	2	1	2	Total
negative	0.265	-0.285	0.479	0.010	0.117	0.618	0.400	0.600	1.000
positive	0.157	-0.778	-0.453	0.021	0.515	0.328	0.847	0.153	1.000
zero	0.578	0.343	-0.097	0.013	0.368	0.055	0.959	0.041	1.000
Active Total	1.000			0.044	1.000	1.000			

Source: Own elaboration.

The results show that the two-dimensional correspondence map accurately depicts the researched categories in both scenarios (rows and column points) since the values of the contributions (Total column) equal one in every case.

Factor scores are provided for the contingency table's row and column points by the correspondence analysis findings. The result is a unique corresponding map (Figure 2) for every column profile (level of earnings management) and row (ESG rating).

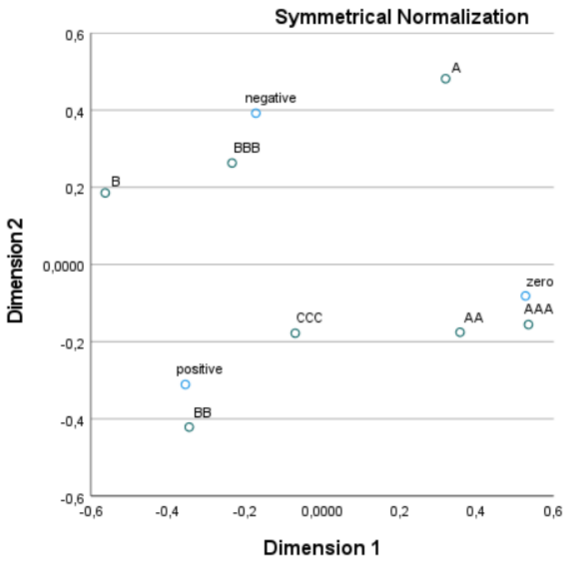

Figure 2. Correspondence map.
Source: Own elaboration.

The final symmetric correspondence map for each year under analysis is shown by overlaying the two related maps. The correspondence analysis outputs show some extremely intriguing findings, and it becomes clear how the financial performance of publicly-traded central European enterprises quantified by the level of earnings management in and their CSR strategy measured by the ESG rating are related (Raoli, 2013).

The study demonstrates that companies with ESG ratings of A, B, and BBB (a mix of average and laggards) with average CSR problem management and below average ESG risk management frequently engage in negative earnings manipulation (income-decreasing behaviour). Income-decreasing earnings management has been a common practice, with the aim of avoiding taxes and attributing the entrepreneurs' personal expenses to the businesses (Francis et al., 2003). Usually, it is connected to a decline in the market value of the company and poorer financial results. Businesses with ESG ratings of BB and CCC (again, a mix of average and laggards) are characterized by positive earnings manipulation, or income-increasing activities. Kothari et al. (2005) offer factual data to back up Jensen's (2004) claim. According to their basic hypothesis, companies will probably manipulate their earnings in order to meet the inflated expectations of their performance that are reflected in stock prices. This is a common tactic used by businesses with poor financial performance to boost their market value. The companies that have the finest CSR concepts and, thus, the highest ESG ratings (AA and AAA), do not engage in any activities that increase or decrease revenue, and they have zero discretionary accruals. This indicates that the company is financially secure and performing at a level that is adequate.

The findings indicate that there is a modest but statistically significant correlation between business profitability as determined by the degree of earnings management and the CSR strategy as assessed by the ESG rating. In addition, there are categories of factors (CSR strategy and level of earning management) that are mutually correspondent (see Figure 2). With a focus on a few key categories that are positively correlated with each other, the examination of business entities' financial performance in relation to their earnings management strategies and approach to the CSR concept demonstrates that there is a statistically significant dependence between these two crucial metrics. Enterprises operate under different constraints and motivations based on their ESG maturity, and this influences their approach to financial reporting. Businesses with low ESG ratings often operate with weaker internal controls, lower stakeholder oversight, and fewer reputational constraints. These enterprises are more likely to face declining profitability or underperformance relative to expectations. As a result, they have stronger incentives to inflate earnings artificially (income-increasing manipulation) to attract investors, meet debt covenants, or improve market sentiment. The potential benefits of such manipulation, such as higher stock prices or easier access to capital, are perceived to outweigh the risks in the short term, particularly when there is little accountability for ESG or ethical lapses.

By contrast, enterprises with moderate ESG ratings may not face the same performance pressures but often lack a comprehensive commitment to transparency. In these cases, companies might engage in income-decreasing manipulation to reduce taxable income or shift financial results across periods to smooth performance. Economically, this behaviour is tied to tax minimization strategies and earnings smoothing to avoid volatility that could raise investor concerns. These companies might not be driven by a need to impress capital markets, but rather to optimize internal financial planning or mask inefficiencies. Enterprises with high ESG ratings (e.g., AA or AAA), on the other hand, tend to have strong governance structures, proactive risk management, and stakeholder-oriented strategies. These companies often focus on long-term value creation, and the costs of manipulating earnings, such as reputational damage, regulatory scrutiny, or erosion of stakeholder trust, are higher than any potential short-term gains. Their alignment with ESG principles discourages both income-increasing and income-decreasing manipulation because financial integrity is seen as an extension of responsible corporate behaviour. These firms benefit from lower capital costs, enhanced brand loyalty, and improved investor relations, making transparent reporting more valuable than manipulated performance. Therefore, the clustering emerges logically: low ESG enterprises manipulate upward to survive or appear successful, medium-sized ESG enterprises manipulate downward to manage taxes or volatility, and high ESG enterprises avoid manipulation to preserve trust and stability. This pattern reflects how enterprises balance short-term survival incentives against long-term reputational and financial costs within the framework of their ESG positioning.

The relationship between CSR and financial performance is complex and multifaceted, with evidence supporting both directions of influence. On one hand, CSR can act as a driver of financial performance. Companies that engage in socially responsible practices often experience enhanced reputation, stronger brand loyalty, improved employee satisfaction, and better relationships with stakeholders (Cardillo & Basso, 2025). These advantages can lead to increased revenues, cost savings, and reduced risk exposure. For example, environmental initiatives may reduce operational costs, while ethical labour practices can improve workforce productivity and reduce turnover (Faeni et al., 2025). Additionally, CSR can attract investors who prioritize ESG criteria, thereby improving access to capital (Yu et al., 2024). Numerous empirical studies have found a generally positive relationship between CSR activities and firm profitability (Cho et al., 2019; Abdulah, 2024; Katenova & Qudrat-Ullah, 2024). On the other hand, CSR can also be viewed as an outcome of financial performance. According to the slack resources' theory, financially successful firms are better positioned to allocate resources to non-core activities such as CSR (Vitale et al., 2023). In this view, companies invest in CSR after achieving strong financial results, using surplus profits to improve their public image, meet stakeholder expectations, or pre-empt regulatory scrutiny (Awa et al., 2024). This perspective suggests that CSR is often a discretionary expenditure enabled by financial slack, rather than a strategic tool for improving profitability.

Recent research increasingly supports a bidirectional and context-dependent relationship between CSR and financial performance (Gu, 2023; Homayoun et al., 2023). In many cases, firms with sustained profitability can invest in CSR initiatives, which in turn reinforce their market position and long-term value creation. The strength and direction of this relationship may vary depending on industry characteristics, market maturity, regulatory environment, and the alignment of CSR efforts with core business strategies (Bahta et al., 2020). For example, consumer-facing industries may experience more immediate financial benefits from CSR due to heightened public visibility, while firms in heavily regulated sectors may pursue CSR primarily for compliance and risk management (Arian et al., 2023). In conclusion, CSR can function both as a cause and a consequence of financial performance. Rather than a simple linear relationship, the interaction between CSR and profitability is better understood as a dynamic cycle, where financial success enables CSR investment, and responsible business practices contribute to long-term competitive advantage and financial sustainability.

4. Discussion

CSR reporting is particularly cognizant of the fact that it affects investment opportunities, corporate reputation, and financial performance (Hermawan & Mulyawan, 2014; Ali et al., 2022). This is especially true for publicly traded companies. Habek and Wolniak (2016) provide evidence that the publication of corporate social responsibility data positively impacts the CSR concept. Moratis and Egmond (2018) looked at a sample of US-listed corporations to see if accrual-based earnings management and corporate social responsibility were related. The study's conclusions showed that businesses that have a bigger environmental impact avoid manipulating their revenues and perform better in terms of CSR (Siueia & Wang, 2018). Therefore, it is undeniable that companies that place a high priority on social responsibility are less likely to manipulate results through discretionary accruals (Kim et al., 2012). The study conducted by Choi et al. (2018) revealed somewhat different results, indicating that corporate social responsibility programs affect companies' real earnings management practices but not accrual-based earnings management. On the contrary, the findings of their research, which were derived from a sample of publicly traded non-financial organisations, substantiated the significance of the CSR notion as it pertains to managerial obligations. In the words of Ajina et al. (2019), companies that practice social responsibility are motivated to demonstrate their dedication to moral conduct by means of cooperation and confidence; as a result, they significantly curtail the use of earnings management techniques. Discretionary accruals, or cash flows, are the most resilient part of the model compared to other parts during expansions and recessions, according to Park and Shin (2015), who also noted that the decline in persistence for discretionary accruals, or cash flows, is greatest (smallest) during the transition from an expansion to a recession. Business cycles and macroeconomic variables have a substantial impact on the quality of accruals, and companies that engage in earnings management are typically more susceptible to a range of macroeconomic disruptions (Kim & Qi, 2010). Setyoputri and Mardijuwobo (2020) and Gajdosikova et al. (2022) conducted studies on the influence of corporate qualities on earnings management. Their findings revealed specific factors that influence the expression of earnings management practices. Their financial reporting is of the highest calibre (Nagy et al., 2022). Gaio et al. (2022) found a negative association between earnings management and corporate social responsibility, concluding that CSR programs are associated with greater levels of ethical conduct. Furthermore, firms that prioritize social responsibility exhibit more dependable financial data and sustainable economic outcomes, which in turn lowers the perceived risk among their partners and other stakeholders (Shayan et al., 2022). Chen and Hung (2020) corroborated the tendency of organizations with worse CSR performance to use earnings management strategies. On the other hand, companies are putting CSR into practice not just to improve information transparency but also to encourage positive interaction with stakeholders and reduce the likelihood of earnings manipulation (Ajina et al., 2019). Tran et al. (2022) assert that the idea of corporate social responsibility (CSR) has important and relevant consequences for different authorities when it comes to using CSR as a gauge of the calibre of financial reporting. The research conducted by Dimitropoulos (2022) suggests that companies with strong CSR performance have higher quality financial reporting and fewer discretionary accruals and income normalisation.

Hermawan and Mulyawan (2014) assert that listed firms understand the value of CSR success as it reflects their financial performance. The CSR idea presents a number of obstacles to a company's capacity to remain profitable (Tran et al., 2021). The results of Machmuddah et al. (2020) show that business value is positively and significantly impacted by corporate social responsibility disclosure, with the influence of profitability moderating this effect. Profitability has a substantial effect on CSR, as demonstrated by regression models applied to a sample of Chinese appliance lister firms (Wu et al., 2021). CSR activities are significantly impacted by financial performance and economic cycles, both of which have an impact on the integrity of financial reporting (Kyaw et al., 2017). Goncalves et al. (2021) claim that managers of companies with an established CSR concept act more ethically, however they fail to include earnings management.

Conclusions

In Central European countries, corporate social responsibility has a major impact on company performance through a number of interrelated methods. Studies showing strong correlations between CSR participation and indicators like return on equity, return on assets, and stock market success attest to the link between robust CSR policies and improved financial performance. Furthermore, CSR activities support the development of solid stakeholder connections, which in turn strengthens consumer, employee, investor, and community trust, loyalty, and reputation resilience. Consequently, this enhances the long-term viability and competitive edge. Effective CSR policies also reduce the risk of operational interruptions, reputational harm, and regulatory compliance, which strengthens a company's resilience in unstable market conditions.

Businesses need to respect the needs of all stakeholders in order to turn a profit and get a competitive advantage in the market. Corporate social responsibility is the term for this. The correlation study's results, which indicated a positive association between corporate earnings and the CSR performance of central European enterprises as assessed by the ESG rating, further reinforced the importance of corporate profitability. This study looks at ways to measure the link between corporate performance as measured by the degree of earnings management and socially responsible behaviour in order to validate and visually express the amount to which these practices contribute to corporate success.

This research looks at how to characterize the relationship between corporate social responsibility and earnings management in central European listed companies. The study finds a statistically significant relationship between company profitability as determined by the degree of earnings management and the CSR strategy as assessed by the ESG rating. Moreover, there are categories of factors (CSR strategy and level of earning management) that are mutually correspondent. Positive discretionary accruals, and thus income-increasing earnings management practices are used by the enterprises with the average leading to lag value of ESG rating (BB and CCC) and thus weak CSR concept. The market leaders with the best score of ESG rating (AA, AAA) do not use any revealable earnings management practices and the calculates not discretionary accrual is not different from zero. Finaly, the income-decreasing activities (negative discretionary accruals) are typical for the enterprises with ESG rating at A, B and BBB level.

It may be argued that the study's limitations are related to the time period and the dataset of firms, which is the main focus of future research and analysis. A critical limitation of this study lies in the composition of the dataset, which is heavily skewed toward large, publicly listed companies, particularly from Germany and Switzerland. This overrepresentation limits the generalizability of the findings to the broader Central European context. Germany and Switzerland possess more mature economies, well-developed regulatory environments, and greater institutional support for CSR and ESG reporting compared to other Central European countries. As a result, the CSR strategies and financial behaviours observed in firms from these countries may not accurately reflect the practices and challenges faced by companies in smaller or less economically advanced nations in the region. Moreover, the dataset focuses primarily on publicly traded firms (which are reporting ESG score), whereas a significant share of enterprises in Central European countries are not listed on stock exchanges. These unlisted companies operate under different regulatory and market pressures, often with lower levels of transparency and reduced incentives for formal CSR disclosure or adherence to ESG standards. Unlike large corporations, SMEs were not required to implement ESG frameworks, and they typically face fewer legal or institutional obligations to disclose non-financial information. As a result, their engagement in CSR activities tends to be informal, ad hoc, or based on local stakeholder expectations rather than standardized ESG metrics. To improve the validity and inclusiveness of future research, the dataset should be expanded to include a broader and more representative mix of firms, particularly SMEs and companies from underrepresented Central and Eastern European countries such as Slovakia, Hungary, the Czech Republic, and Poland, which may be a difficult task due to underperformed capital market in the most of these countries. This would allow for a more accurate assessment of how CSR and earnings management practices vary across firm size, ownership structure, and national context, and would yield more relevant insights for policymakers, investors, and practitioners seeking to strengthen responsible business conduct across the region.

For legislators, auditors, regulators, and investors in their endeavours to curtail earnings manipulation strategies and enhance the calibre of fiscal documentation. The findings of this study, along with its acknowledged limitations, carry important managerial and policy implications for stakeholders aiming to foster responsible business conduct and financial transparency in Central Europe. Given the uneven implementation of ESG standards across firm sizes and national contexts, regulators should consider expanding the scope of ESG reporting requirements to include not only publicly listed companies but also large privately held firms and, in a proportionate and flexible manner, selected small and medium-sized enterprises. Moreover, national CSR strategies should be adapted to reflect the economic realities and institutional maturity of Central European countries. Corporate boards, especially in non-listed and medium-sized firms, are encouraged to view CSR and ESG not merely as compliance requirements but as strategic instruments for enhancing long-term value. Boards should integrate sustainability objectives into core management processes, including risk oversight, performance evaluation, and executive remuneration. As the study suggests, companies with well-developed CSR strategies and strong ESG ratings are less likely to engage in earnings management practices, indicating a higher level of financial discipline and governance quality. This proactive approach to sustainability can strengthen stakeholder trust, increase resilience to market volatility, and ultimately improve competitive positioning. Investors also have a crucial role to play in encouraging ethical corporate behaviour. Investment decisions should take into account not only financial indicators but also the reliability and substance of CSR and ESG disclosures. Companies with weak ESG ratings and signs of earnings manipulation, such as high levels of discretionary accruals, warrant closer scrutiny, as these may signal deeper governance or transparency issues. In contrast, firms with credible ESG commitments and transparent financial practices represent lower-risk, sustainable investment opportunities.

Companies that integrate corporate social responsibility into their operations need to persuade their owners and shareholders of the cost-effectiveness of doing so while also claiming that their financial reporting is accurate, precise, and up to date, and that their earnings management strategies are mitigated. Moreover, CSR encourages innovation by providing incentives for the invention of sustainable goods, procedures, and business plans, this boosts competitiveness and long-term value generation. All things considered, the incorporation of corporate social responsibility into company plans is essential for promoting good social effect, improving corporate performance, and guaranteeing the long-term viability of businesses that operate in Central European nations.

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Country Green Brand Promotion: A Sentiment Analysis

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Abstract

Intensifying global environmental challenges have amplified the need for strategic ecological communication. With rapid digitalisation, public sentiment has become a key factor in shaping a country's green reputation, primarily through social platforms. These dynamics underscore the relevance of investigating the relationship between digital public sentiment and the effective promotion of a country's green brand. The aim of this study is to apply sentiment analysis to user-generated content to identify emotional trends in green brand promotion and determine the most effective digital channels for strategic ecological communication. To achieve this, the research applies sentiment analysis to user-generated content tagged with green-related hashtags (#GreenEconomy, #UkrainianBrand, #GreenUkraine, #SustainableUkraine) across various social media platforms. The methodology combines computational text analysis and content categorisation, focusing on the emotional polarity (positive, neutral, negative) and engagement levels of posts. Data were collected using digital monitoring tools, followed by a one-way ANOVA to assess differences in sentiment and user interaction across platform types. The findings indicate that #SustainableUkraine and #GreenEconomy are associated with the highest levels of positive sentiment, suggesting strong international receptiveness to sustainability narratives. In contrast, #UkrainianBrand often triggers more critical reactions, influenced by broader socio-political contexts. Visual platforms such as YouTube and Instagram generated the most positive emotional responses, while text-based platforms like X (Twitter) and Tumblr displayed more neutrality or criticism. LinkedIn emerged as a space for analytical and professional discussions. The study contributes to the field of green nation branding by offering a real-time, data-driven framework to assess public attitudes toward a country's environmental identity. Practically, the research provides evidence-based guidance for policy-makers and brand strategists on how to tailor green communication. It advocates for prioritising emotionally resonant visual content and platform-specific messaging to enhance a country's environmental image and reinforce global trust in its sustainability trajectory.

Key words

green brand, sentiment, social media, environmental communication, public perception, sustainable development, national branding, digital platforms, eco-communication strategy.

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Introduction

In the current context of promoting a country's green brand, it is crucial to select practical marketing tools and develop a deep understanding of target audience perceptions. A comprehensive analysis of both qualitative and quantitative characteristics of informational messages allows the identification of suitable content types for green brand promotion. This approach enables the precise adaptation of communication strategies to the expectations and sentiments of society. As demonstrated by Titko et al. (2023a), cultural factors significantly influence the achievement of sustainable development goals, suggesting that national branding must be aligned with a country's sociocultural values to enhance credibility and resonance. In this regard, Adamus-Matuszyńska and Dzik (2023) highlight the strategic importance of place branding in shaping a nation's identity, where sustainability becomes an integral element of the country's image. Moreover, insights from Titko et al. (2023b) on student attitudes in Latvia and Lithuania reveal that generational sentiment toward sustainable entrepreneurship plays a vital role in strengthening the long-term perception of a green national brand, particularly among younger, future-oriented audiences. Local initiatives also play a pivotal role in enhancing a country's green image. Faganel and Streicher (2022) demonstrate how social marketing for municipal waste management not only promotes behavioural change but also supports the development of a sustainable local identity that can be projected internationally. Pimiä et al. (2024) underscore how national transportation policies aimed at carbon neutrality, especially across European maritime and air sectors, contribute to the perception of a country's environmental responsibility, reinforcing its positioning as a forward-looking, green-oriented nation. From a macroeconomic perspective, Osinubi (2024) explores the link between economic complexity and carbon emissions (Hair et al., 2023), illustrating how innovation-led economies may better align with sustainability goals, thus supporting a green brand narrative grounded in technological advancement. Additionally, Cakirkaya and Kocyigit (2024) reveal the psychological underpinnings of consumer behaviour during periods of uncertainty, such as the COVID-19 pandemic. Their findings point to the importance of framing national communication strategies in ways that emphasize resilience, trust, and sustainable security core values that strengthen public confidence in a country's green trajectory (Doan et al., 2024; Kharazishvili et al., 2025).

The rapid development of social media platforms, including X (formerly Twitter), Facebook, Instagram, and LinkedIn, has fundamentally transformed how consumers interact with brands, turning them into active participants in shaping brand reputation. In today's digital environment, consumers function not only as passive recipients of information but also as content creators (Boumhidi et al., 2025), influencing brand perception through various forms of user-generated content such as tweets, product reviews, service ratings, and personal narratives. The analysis of different content types provides insights into consumer opinions, including:

– tweets, which represent brief, spontaneous expressions reflecting users' immediate emotional reactions;
– reviews, which are more structured and include detailed assessments of specific product attributes such as quality or service;
– ratings, which often serve as summarising evaluative judgments, allowing for the assessment of overall brand experience;
– personal stories, which create an emotional context of brand interaction through individual user experiences, thereby increasing consumer engagement.

The ease of generating content in the form of text, images, or videos has contributed to the rapid growth of unstructured data across social media platforms. This, in turn, presents new opportunities for in-depth analysis of public opinion. By accumulating various forms of content, businesses, governmental institutions, and other stakeholders actively leverage these data to monitor brand, product, or national image perception, aiming to manage reputation effectively and adapt communication strategies accordingly. Proper analysis of such data not only facilitates the development of a comprehensive picture of consumer preferences but also enables the formulation of strategically grounded recommendations for enhancing brand reputation (Muralidhar & Hulipalled, 2023). Moreover, from the consumer's perspective, this information supports rational decision-making regarding the purchase of goods or services based on the experiences of others, thereby fostering social trust and strengthening the brand's competitive advantage.

Recent studies highlight the critical role of social media and influencer-driven communication in shaping public sentiment toward green brand narratives. Nadanyiova and Sujanska (2023) demonstrate that Generation Z's decision-making is significantly influenced by sustainability messages delivered through trusted influencers, while Onem and Selvi (2024) emphasize the importance of perceived authenticity in forming positive emotional responses to such content. Santoso (2024) confirms that social and environmental sustainability factors positively impact consumer attitudes, reinforcing the need for value-driven messaging in green brand promotion. Nastisin et al. (2024) further show that emotionally engaging content types on social media drive higher audience interaction, offering practical insights for national communication strategies.

Given the growing volume of user-generated content on social media, the need to systematically analyse these data has become increasingly relevant. In this context, sentiment analysis serves not only to structure informal expressions but also to extract key patterns in brand perception. This approach contributes to the formation of an objective view of consumer sentiment, which is essential for determining the most effective content formats for promoting Ukraine's green brand.

Sentiment analysis is a method for identifying and classifying subjective opinions in textual sources by combining techniques from natural language processing, computational linguistics, and text analytics (Md Saad & Hashim, 2023). It provides valuable insights into the current state of consumer attitudes and supports structured decision-making based on the analysis of opinions, satisfaction, and needs. This method explores users' emotional reactions and attitudes across three sentiment categories: positive (satisfaction), neutral, and negative (disappointment or dissatisfaction).

In the contemporary digital communication environment, selecting optimal online channels is a critical element of any strategy to promote a country's green brand. These channels not only facilitate message dissemination to broad audiences but also enable active engagement with potential partners, investors, and the general public. Justifying the selection of online communication channels for stakeholder engagement represents a key stage in developing a comprehensive green branding strategy. Choosing the appropriate platform ensures maximum reach across target audiences and contributes to the achievement of strategic goals such as attracting investment in the green economy (Kwilinski et al., 2023; Kwilinski 2024a; González-Argote et al., 2024), raising public environmental awareness, and strengthening the country's position on international sustainability platforms. Each communication channel offers distinct features that may be advantageous depending on the specific objectives and characteristics of the intended audience.

The selection process of online channels involves several key stages. The first is the clear definition of strategic communication objectives, such as raising awareness of environmental initiatives and projects and building a positive image of the country as a leader in sustainable development. The second stage involves analysing the characteristics of various digital platforms, including social networks, blogs, video-sharing platforms, news portals, and specialised online platforms focused on sustainable development initiatives.

Moreover, it is important to understand the specific characteristics of the target audience (general public, socially responsible and green businesses, environmentally focused non-governmental organisations, governmental authorities, financial institutions and investors, higher education institutions and research centres, etc.) with which the country's green brand aims to establish communication. For each stakeholder group, it is essential to identify the most appropriate communication channels and content formats to ensure effective feedback mechanisms and maximise the overall impact. Therefore, the selection of online communication channels for stakeholder engagement is a complex but essential step in developing a successful strategy for promoting a country's green brand (Grabowski et al., 2025).

Despite the growing body of research in branding and the use of digital media for business brand promotion, academic studies exploring the application of sentiment analysis in the context of green country branding remain limited. Existing literature primarily focuses on traditional branding approaches and the influence of digital marketing on corporate performance while paying insufficient attention to the analysis of green brand perception through users' emotional responses on digital platforms. This research gap highlights the need to investigate the emotional dimension of green brand perception via social media.

The aim of this study is to apply sentiment analysis techniques to user-generated content in order to identify key trends and emotional reactions that shape the effectiveness of green country brand promotion. The study seeks to determine the most effective online channels for this purpose and provide practical recommendations for enhancing communication strategies in support of green brand development.

1. Literature review

In light of the growing global attention to environmental concerns and the rising importance of digital presence, sentiment analysis has emerged as a pivotal analytical tool for evaluating public opinion in the domain of green branding. This methodology enables the identification of the emotional tone embedded in user-generated content across social media platforms, thereby facilitating the assessment of public sentiment toward environmental initiatives and uncovering trends in stakeholder engagement with a country's green brand. A growing body of literature confirms the expanding utility of sentiment analysis in gauging the effectiveness of environmental communication strategies. By processing and interpreting emotional reactions in real time, sentiment analysis not only enhances the capacity to monitor audience responses but also provides a data-informed foundation for adapting message content and optimizing communication channels in line with the evolving expectations of target audiences. Li and Chen (2024) evaluated the spatiotemporal evolution of green innovation efficiency in China from a two-stage value chain perspective, highlighting regional disparities that can inform targeted green branding strategies and strengthen narratives around national environmental leadership. Complementing this, Liu et al. (2024) explored how digital technology, green human resource practices, and digital innovation networks foster enterprise-level green innovation, demonstrating that organizational capabilities are integral to shaping a country's green brand identity – a dynamic that sentiment analysis can measure by tracking public and employee perceptions of these practices. Lyulyov et al. (2023) emphasized the role of stakeholder engagement in enhancing corporate green competitiveness, highlighting how multi-stakeholder narratives contribute to a country's green reputation. In the education sector, Olzhebayeva et al. (2024) investigated how Central Asian universities manage the green transition, illustrating how academic sustainability initiatives can enhance national brand credibility, with sentiment analysis evaluating public and international recognition of these efforts. At a broader socio-economic level, Poyraz (2023) demonstrated that green growth supports social development in OECD countries, providing evidence for branding strategies that highlight the co-benefits of sustainability and that can be reinforced through positive public sentiment. Moreover, Szczepańska-Woszczyna et al. (2022) assessed economic convergence among EU countries, positioning nations within regional economic and sustainability trends relevant to their branding narratives. In the tourism sector, Szczepańska-Woszczyna et al. (2024) examined green hotel initiatives from guests' perspectives, highlighting hospitality as a critical touchpoint for shaping international perceptions of a country's green commitment – an area where sentiment analysis can track tourist experiences and satisfaction.

In the context of energy and land resources, Teng (2024) explored green energy implications for BRICS countries post-COP27, underlining the importance of commitments to global sustainability goals in shaping a country's brand, while M. Xu et al. (2024) analyzed determinants of green total factor production efficiency, identifying structural drivers that can support data-driven branding strategies. Yin and Zhao (2024) further emphasized the importance of public strategies in enhancing natural resource efficiency for green economic recovery, providing evidence that effective policy branding can be evaluated by sentiment analysis to assess public approval and trust.

The integration of sentiment analysis into green nation branding strategies is further supported by empirical studies that underscore the significance of aligning corporate, institutional, and technological domains with sustainability values. Lyulyov et al. (2024) assessed countries' green brands within the context of SDGs, establishing conceptual and empirical foundations for integrating sentiment analysis into country-level green branding frameworks. Tambovceva et al. (2017) and Us et al. (2023) emphasize the crucial role of corporate social responsibility (CSR) in reinforcing national-level sustainability discourses. Their investigation into the CSR perceptions of Latvian enterprises reveals how micro-level corporate behaviour can cumulatively contribute to the construction of a macro-level image of a nation as socially and environmentally responsible. This linkage between business ethics and national identity positions CSR as a foundational pillar in the development of a country's green brand equity. From an institutional perspective, Ziabina and Navickas (2022) highlight the instrumental role of public governance in driving energy efficiency innovations. The strategic direction and institutional capacity of public actors thus emerge as essential components in shaping a coherent and legitimate green country image, significantly contributing to the nation's reputational capital on the global stage (Kwilinski et al., 2024e, 2024f). The convergence of marketing innovation and digital technology further amplifies the potential of sentiment analysis in green branding. Maldonado-Canca et al. (2024) provide evidence of this through an examination of executive perspectives on the integration of artificial intelligence (AI) into marketing management. The study contends that AI-powered analytics support real-time sentiment tracking and communication optimization, enabling precision targeting and enhancing the emotional impact of green branding campaigns. In a complementary analysis, Cherkaoui et al. (2024) explore the application of recommender systems and statistical modelling in consumer behaviour research. Their study affirms the value of algorithmic personalization in delivering sustainability messages that resonate with specific audience segments, thus fostering deeper emotional and cognitive engagement with national environmental narratives. Recent research also emphasizes that managing AI technologies strategically contributes to green economic growth within the European Union (Kwilinski et al., 2024d), while green technology innovations demonstrate significant spatial spillover effects enhancing high-quality economic development (S. Xu et al., 2023). Furthermore, digital transformation drives green competitive advantage through innovation and is strengthened by effective government regulation (S. Wu et al., 2024). In the organizational context, integrating business intelligent systems into strategic management fosters the creation of green jobs (Kwiliński et al., 2025a, 2025d; Sołoducho-Pelc & Sulich, 2024), and adopting green HR approaches in sectors such as hospitality unlocks sustainability potential through innovative practices (Surya et al., 2024).

The role of digital transformation in shaping public perceptions of national sustainability is also highlighted in the previous studies (Kwilinski et al., 2023; Kwilinski, 2024b, 2025a; Parkhomenko et al., 2024), who investigate the influence of innovative digital marketing tools on consumer evaluation processes. Jiang and Yukio (2024) examine the communicative power of vlog-based promotional content in influencing consumer attitudes toward sustainability messaging. Their analysis of narrative-driven and influencer-generated media reveals that emotionally immersive storytelling significantly enhances the perceived authenticity and relatability of green brand narratives, thereby strengthening affective connections with environmentally conscious audiences.

The rising public awareness of environmental challenges calls for not only strategic decisions at the governmental level but also a precise understanding of societal attitudes toward sustainable development. In this context, sentiment analysis plays a pivotal role as a tool for detecting public perception. The study by Anderson et al. (2024) demonstrates the effectiveness of employing various machine learning and deep learning models to analyse social media platforms, particularly Twitter, with the aim of assessing public attitudes towards environmental initiatives. The authors compare the performance of traditional algorithms (Logistic Regression, Support Vector Machines, and Naive Bayes) with more advanced architectures, such as LSTM, BERT, and GPT-2, emphasising the need to select models capable of accounting for the contextual specifics of sustainability-related discourse. In addition to its technical contributions, the study underscores the importance of transparency and reproducibility in building trust in AI-driven research within the environmental domain.

Derrick (2024) conducted an in-depth analysis of the accuracy of machine learning algorithms in identifying ESG-related sentiments, comparing the performance of automated models (such as VADER, FINBERT, GPT-3.5, GPT-4, LLaMA2, T5, Mistral, and Mixtral) with expert human evaluations. The findings revealed that even the most advanced language models exhibit limitations in capturing the nuances of human perception regarding environmentally oriented messaging. At the same time, creating a "gold standard" based on inter-rater consensus significantly enhances the reliability of model evaluation and enables the identification of the most relevant approaches for analysing ESG discourse (Kwilinski et al., 2025b, 2025c).

The issue of cross-cultural perception of sustainable consumption gains particular relevance in the context of national green brand formation (Jefimovaitė & Vienažindienė, 2025). Drawing on a dataset of 72,000 tweets from the United States, Switzerland, and India, Diwanji et al. (2024) identified substantial differences in dominant values and emotional tone across these regions. Indian participants displayed a strong orientation toward biospheric and altruistic values, emphasising ecological and social dimensions of sustainability, while users from the United States and Switzerland tended to exhibit more self-oriented attitudes, with an emphasis on economic rationality. Moreover, the emotional structure of the tweets revealed predominantly positive sentiments among Indian and Swiss users, in contrast to the more negative tone observed in the American discourse.

These findings underscore the importance of culturally sensitive approaches in strategic sustainability communications. In the context of green country brand promotion, this research highlights that effective external communication must take into account local value systems and emotional responses. These factors can be reliably identified through sentiment analysis of social media content.

The increasing role of social media as a data source is fundamentally transforming research approaches in the field of sustainable development. Ghermandi et al. (2023) highlighted that social media platforms provide scalable, real-time insights into the complex interactions between society and nature, the dynamics of socio-ecological change, and the evolving construction of environmental values. The authors underscore the significant potential of social media data for supporting progress toward the Sustainable Development Goals while also emphasising key limitations, including restricted data access, ethical concerns, and privacy risks.

In the context of green country branding, social media function not only as tools for engagement but also as barometers of public sentiment toward environmental narratives and policies. Through sentiment analysis of Twitter data, Us et al. (2023) found that green brands are generally perceived with moderate positivity, indicating consistent public interest and acceptance of sustainability-focused messaging.

A longitudinal cross-platform analysis by Amangeldi et al. (2024), employing pointwise mutual information methods, examined public sentiment on climate and environmental topics over a ten-year period across Twitter, Reddit, and YouTube. The findings reveal a predominance of negative sentiment, particularly regarding issues such as climate change, air pollution, plastic pollution, and waste management. Dominant emotions included fear, trust, and anticipation, reflecting the depth of emotional engagement and the complexity of public discourse around environmental challenges. These findings reinforce the importance of incorporating culturally sensitive, emotionally informed communication strategies into green brand promotion. Sentiment analysis of social media content offers a valuable lens for understanding audience responses and tailoring content to enhance resonance, credibility, and long-term impact.

The significance of social media as a channel for shaping ESG (Environmental, Social, and Governance) reputation is increasingly explored in both academic and applied research, particularly regarding its influence not only on public sentiment but also on financial markets. L. Wu et al. (2024), who analysed how ESG performance drives corporate green innovation, suggesting that sentiment towards leading ESG performers shapes broader national green brand perceptions. Ziabina et al. (2024) highlighted reputational risks by examining countries' brands and greenwashing through bibliometric analysis, emphasizing the critical role of sentiment analysis in detecting public scepticism and preventing potential negative impacts on a country's green brand credibility. A large-scale study by Nicolas et al. (2024), analysing over 114 million tweets related to companies listed in the S&P 100 index (The Standard and Poor's Index) (2016-2022), investigated shareholder responses to ESG-related reputational risks originating from social media. ESG events were identified as surges in Twitter activity linked to ESG discourse, followed by an event study analysis of abnormal asset returns. The findings revealed a statistically significant decline in abnormal returns (on average -0.29%), particularly in the "Social" and "Governance" dimensions. Importantly, this research disentangles the reputational effect in the digital environment from the material consequences of ESG crises, thereby highlighting the value of sentiment analysis for understanding reputational risk in real-time.

In the domain of citizen engagement with sustainable energy practices, the concept of "energy communities" has gained traction. However, the study by Caratù et al. (2023) reveals a persistent gap between the potential of social media to foster public engagement and the actual interaction levels around this topic. Their analysis shows limited user involvement and suggests a more targeted communication strategy that bridges academic and practical narratives to stimulate interest and participation.

Another stream of research focuses on the potential of educational institutions to cultivate green consciousness and promote sustainability principles through social media platforms. Us et al. (2022) analysed the social media activity of leading global green universities and confirmed that universities can effectively disseminate environmental narratives in the digital sphere. Employing text mining, content analysis, and sentiment analysis, the study revealed that consistent presence on social media increases engagement with academic communities and broader audiences on environmental topics. These findings underscore the strategic value of utilising social media to promote environmental initiatives, particularly within educational environments with strong transformative potential. In a broader context, the study illustrates how digital communication channels can shape the image of sustainability-oriented institutions and contribute to forming a country's green brand.

The expanding integration of sentiment analysis into business practices reflects a growing interest in leveraging unstructured data from digital platforms for decision-making processes. A bibliometric review by Aguilar-Moreno et al. (2024), encompassing 85 articles indexed in Scopus and Web of Science, shows the rising application of sentiment analysis across sectors ranging from finance to logistics. The primary focus lies in enhancing customer orientation and adapting business strategies based on user feedback collected from platforms such as Twitter and Amazon.

Within the framework of green country branding, these approaches demonstrate strong potential for the strategic use of public sentiment data to adjust environmental policies and narratives in alignment with the expectations and attitudes of target audiences. Moreover, combining sentiment analysis with multi-criteria decision-making methods offers new avenues for evaluating the effectiveness of green communication strategies within the public sector.

Given the growing importance of sustainable corporate behaviour, there is a rising demand for objective ESG assessments, as conventional sustainability reports prepared by companies are often viewed as self-regulated and potentially biased. In this context, automated media analysis is gaining relevance through independent ESG monitoring. Fischbach et al. (2023) propose an innovative tool (ESG-Miner) that classifies news headlines according to environmental, social, or governance themes and assigns corresponding sentiment scores. This method enhances transparency in evaluating corporate sustainability performance and provides valuable stakeholder insights.

The reviewed literature confirms the growing recognition of sentiment analysis as a powerful tool for examining public opinion on environmental initiatives, particularly in communication digitalisation. Researchers widely employ machine learning and deep learning techniques to analyse ESG-related discourse across social media platforms, identifying emotional patterns, cross-cultural perceptions of sustainability, and the reputational effects of public communication on companies and organisations. However, existing studies predominantly focus on the corporate level, while the application of green branding at the national level within the framework of social media interaction remains insufficiently explored.

In particular, there is a lack of empirical research that combines sentiment analysis of public social media content with the green brand positioning of countries and the evaluation of communication effectiveness. This limitation constrains the development of comprehensive strategies for ecological positioning on the international stage.

Accordingly, the motivation for this study lies in addressing this research gap by applying sentiment analysis methods to social media data to identify the most effective online channels for promoting a country's green brand. The study also provides actionable recommendations for enhancing governmental eco-communication strategies and strengthening the country's green reputation in the digital environment.

2. Methodology

According to the methodology proposed by Pang and Lee (2008), the sentiment analysis process consists of two main stages: opinion extraction and their classification by polarity. Utilising the toolkits provided by the search engines Social Searcher and Brand24, the first stage involved the identification of subjective statements across social media platforms. The data collection focused on the following major platforms:

1. Twitter**,** officially rebranded as X in 2023, is an American microblogging and social networking platform where users interact via short messages known as tweets. The collected data include tweets containing hashtags, comments, and replies, which are used for sentiment analysis to explore users' responses to specific topics or events. It is worth noting that, as of May 2024, this social network had over 500 million monthly active users (Dean, 2025a).

2. Facebook is one of the largest social networking platforms, enabling the exchange of text messages, images, and videos. According to statistical data, in 2024, the total number of users on this platform reached 5.17 billion, accounting for 59.38% of all social media users. The data retrieved from Facebook include posts, comments, reactions, and shares. The analysis of this content allows for assessing users' emotional sentiments toward specific brands, events, or social issues (DemandSage, 2024).

3. Instagram is a social media platform focused on sharing images and videos. As of 2024, it had approximately 2 billion monthly active users. The collected data include posts, captions, comments, and hashtags. This content is used to detect user sentiment regarding particular products, services, or trending topics (Metricool, 2024).

4. LinkedIn is a professional social networking platform designed for business connections and the exchange of professional content. The data encompass posts, articles, comments, and endorsements, which are used to analyse sentiment in the context of business events, labour market dynamics, and professional trends. It is noted that in 2024, LinkedIn had approximately 310 million monthly active users. Around 78% of users consumed content to stay informed about industry news, while 73% used the platform to discover new ideas (Cognism, 2024).

5. YouTube is a global video-sharing platform. Notably, approximately 47% of all internet users access YouTube monthly to watch, comment on, or upload videos. Data used for sentiment analysis

include video comments, which reflect audiences' emotional responses to various content and events (Dean, 2025b).

6. Tumblr is a microblogging platform for publishing text, images, quotes, and videos. The collected data reflect emotional content and user opinions within interest-based groups and subcultures. Although Tumblr's user growth has slowed in recent years, the platform still maintains a substantial audience, with over 300 million monthly active users. Demographically, Tumblr is characterised by a younger user base, with a significant portion under 35 (DemandSage, 2025).

7. Flickr is a photo-sharing social network that enables users to add tags and comments to images. These data can be utilised for sentiment analysis related to visual content and audience reactions to specific events.

8. The Web represents the largest unstructured data source, encompassing blogs, news sites, forums, and reviews. In 2024, internet users reached 5.5 billion, accounting for 68% of the global population. There is an increase from 65% in 2023. Internet usage varies significantly depending on economic development level: in high-income countries, 93% of the population has Internet access, while in low-income countries, the figure drops to just 27%. Thus, data collected from the Internet are valuable for analysing global sentiment and public opinion on various issues (ITU, 2024).

The selection of social media platforms for this research is driven by the need for a comprehensive approach to developing a strategy for promoting the country’s green brand, considering audience characteristics, content specificity, and the analytical capabilities of each platform (Table 1).

Table 1. Overview of social media in Ukraine and worldwide as of 2024.

Platform	**Number of users**		**Share of population**		**Dominant content format**	**Primary audience**	
	In Ukraine, mln	worldwide	In Ukraine, %	worldwide			
Facebook	20.6	3020	~ 47.6	~ 37.5	Text, links, photos	women, aged 25-34	
Instagram	12.6	2500	~29.1	~ 31.1	Photos, videos, stories	women, aged 25-34	women, aged 18-34
YouTube	24.3	2740	~64.9	~ 34.0	Videos, live streams, short clips	Wide audience	
LinkedIn	5.9	900	~13.6	~ 11.2	Analytics, articles, case studies	professionals, aged 25-34	
X (Twitter)	4.55	556	~12.2	~ 6.9	Text, news, tweets	aged 18-34	
Tumblr	~ 0.24	3.5	~ 0.6	~ 0.8	Blogs, images, GIFs	youth, aged 18-24	
Flickr	~ 0.10	2.2	~ 0.3	~ 0.5	Photos, photo galleries	aged 25-44	aged 25-34

Source: systemised by authors based on (DataReportal, 2024; NapoleonCat, 2025; Statista, 2024).

Firstly, platforms with broad target audience reach were included in the sample, enabling maximum visibility and effectiveness of communication campaigns. YouTube and Instagram were selected due to their dominant position among visual content-sharing platforms. Given that forming a green brand largely relies on visual materials, these platforms provide favourable conditions for communicating environmental initiatives through videos and images. Meanwhile, Facebook and Twitter were chosen as key channels for disseminating informational content, facilitating public discourse and engaging audiences in discussions on sustainable development.

Secondly, the analysis includes social media platforms oriented toward professional and business communities, particularly LinkedIn. This platform enables the dissemination of analytical materials and the engagement of experts involved in environmental topics, which is essential for building the country's expert reputation in the context of the green economy.

Thirdly, the sample also incorporates less widespread but strategically significant platforms such as Tumblr and Flickr. Tumblr was selected due to its ability to attract a younger audience through visual and blog-based content formats. Flickr, in turn, provides opportunities for curating thematic photo collections, which contribute to promoting the aesthetic component of the green brand through high-quality imagery.

Thus, the selection of social media platforms is justified by the need to ensure comprehensive audience coverage, the use of multimedia content formats, and the potential of professional platforms for communicating environmental initiatives. This integrated approach to platform selection supports the development of a coherent strategy for promoting Ukraine's green brand on a global scale.

Data collection for the analysis was conducted using the following hashtags: #GreenEconomy (1487 mentions), #UkrainianBrand (1535 mentions), #GreenUkraine (830 mentions), and #SustainableUkraine (1200 mentions). Based on the gathered data, an analysis of the research sample was performed. Table 2 presents the key indicators, including the number of mentions, the number of unique users, and the ratio of positive to negative mentions for each selected hashtag.

Table 2. Research sample.

Indicator	#GreenEconomy	#UkrainianBrand	#GreenUkraine	#SustainableUkraine
M	1960	1651	1487	1556
U	802	830	1209	803
Sent	9:1	2:3	1:1	4:1

Note: M – total number of hashtag mentions across selected social media platforms within a specified period, indicating the level of topic engagement (a higher number of mentions corresponds to greater popularity); U – number of unique users who generated the content; Sent – ratio of positive to negative mentions.
Source: authors' calculations.

Firstly, data were collected on the number of hashtags mentions associated with different content types on each selected online platform. To ensure analytical accuracy, the data were structured by content categories, allowing for the classification of major formats (statuses, photos, videos, links). Then, the null (H_0) and alternative (H_1) hypotheses were formulated to test the relationship between the mean number of hashtags mentions across different content types.

The total number of mentions (M) reflects the level of topic engagement, with the highest number recorded for #GreenEconomy (1960 mentions) and the lowest for #GreenUkraine (1487 mentions). At the same time, the number of unique users (U) who generated content with the respective hashtag was highest for #GreenEconomy (802 users) and lowest for #SustainableUkraine (803 users). The sentiment ratio (Sent) allows for the assessment of the overall emotional tone of the content, which was most favourable for #SustainableUkraine (4:1) and least favourable for #UkrainianBrand (2:3).

In the next stage, data filtering and cleansing were performed to eliminate duplicates and irrelevant content. The collected data were then categorised into three sentiment classes: positive, negative, and neutral. This enabled an evaluation of the emotional colouring of the posts.

The analysis of content types was conducted based on several key criteria that allow for determining the overall emotional tone of communication messages, their semantic content, and contextual framing (Table 3). The research structure considers the following components: keywords, emotion polarity, word frequency, context, and text structure.

The identification of the online communication channel with the country's stakeholders and the type of content used to promote the green brand of the country was carried out using a one-way analysis of variance (ANOVA) (KSUL, 2024). This method made it possible to determine the influence of content type on the popularity and discussion of key topics across various social media platforms.

Table 3. Criteria for determining content sentiment.

Criteria	Types of content sentiment		
	Positive (Pos)	Negative (Neg)	Neutral (Neutr)
Keywords	Contains positive words: "environmental", "sustainable development", "clean environment", "green future"	Contains negative words: "pollution", "ecological crisis", "danger", "destruction of nature"	Absence or balance of emotionally charged words: "renewable energy", "ecological investments"
Emotion polarity	High percentage of positive words (70%+ in the text)	High percentage of negative words (70%+ in the text)	Balanced proportion of positive and negative words (40–60%)
Words frequency	Positive words appear more frequently (dominance of green brand terms)	Negative words appear more frequently (focus on environmental problems)	Balanced frequency of both positive and negative words
Context	Balanced frequency of both positive and negative words	Expresses disappointment or criticism of environmental policy failures	Presents facts without emotional colouring, provides information on environmental policy
Text structure	Short positive evaluations: "Ukraine has become a leader in green energy!"	Short negative evaluations: "Environmental standards are not being met!"	Informative statements: "Ukraine has launched a new support program for renewables"

Source: systematised by the authors.

H_0: The mean number of hashtag mentions does not differ across all content formats. Formally, this can be expressed as:

$$H_0: \mu_{Links} = \mu_{Photo} = \mu_{Status} = \mu_{Video} \quad (1)$$

H_1: At least one mean value of hashtag mentions for a specific content format significantly differs from the others.

$$H_1: \text{at least one } \mu_i \neq \mu_j \quad (2)$$

where μ_i is the mean value for the i-th content type.

Before applying ANOVA, the study included verification of the main statistical assumptions. In particular, the normality of data distribution for each content group was tested using the Shapiro–Wilk test. This allowed for the assessment of how much the distribution of data in each group deviated from normality. The homogeneity of variances across content groups was examined using Levene's test. In addition, the independence of observations was tested, which is a mandatory condition for conducting ANOVA.

Prior to performing ANOVA, the following statistical assumptions were tested:

- normality of data distribution within each group (assessed using graphical methods and the Shapiro–Wilk test)
- homogeneity of variances (Levene's test)
- independence of observations

At the next stage, a one-way ANOVA test was conducted separately for each online platform (SAS Institute Inc., 2024), where the independent factor was the content type (links, photos, status, video), and the dependent variable was the number of hashtags mentions. The total variance was assessed as the sum of squares of deviations of all observations from the overall mean. The between-group variance was calculated as the sum of squares of deviations of the group means from the overall mean. The within-group variance was defined as the sum of squares of deviations of each observation from the mean of its respective group.

In cases where the ANOVA results revealed statistically significant differences ($p < 0.05$), a post hoc analysis was conducted using Tukey's test to identify specific pairs of groups with significant differences. This enabled the determination of which content types significantly differed in terms of effectiveness.

At the following stage, for better visualisation, the ANOVA and post hoc analysis results were presented using mean plots with 95% confidence intervals. This allowed for a visual comparison of the effectiveness of different content formats on each platform.

In order to assess the level of content popularity based on the studied hashtags, a content analysis of the online platforms was conducted. Table 5 summarises the analysis results, displaying each online platform's activity by content type: videos, photos, links, and status updates.

3. Research results

According to the obtained results, specific patterns were identified across positive, negative, and neutral content categories. Positive content includes words that emphasise environmental friendliness, sustainable development, and a clean environment. In contrast, negative content focuses on issues of pollution and ecological crises, highlighting the failure to meet environmental standards and the degradation of natural resources. Neutral content primarily presents facts without emotional colouring, often providing information about events or initiatives.

Word frequency analysis enables the identification of the dominance of positive, negative, or neutral messaging in the content. Emotion polarity reveals the percentage composition of positive, negative, and neutral words in the texts, allowing for an overall assessment of message tone and identifying key trends in the perception of Ukraine's green brand. In terms of context, the study highlights key messages directed at the country's environmental initiatives and their role in shaping the national brand. Text structure illustrates the main expressions used to emphasise either environmental achievements or shortcomings in sustainable development.

The sentiment analysis of content based on selected hashtags (Table 4) allows for an evaluation of the general emotional tone of communication messages, their impact on the audience, and their potential to shape a positive image of the country in the green context.

Table 4. Sentiment analysis results of the research sample.

Sentiment	#GreenEconomy	#UkrainianBrand	#GreenUkraine	#SustainableUkraine
Positive (Pos)	34%	23%	12%	46%
Negative (Neg)	2%	30%	13%	13%
Neutral (Neutr)	64%	47%	75%	41%

Source: authots' own calculations.

Table 4 presents the distribution of sentiment polarity for the studied hashtags (#GreenEconomy, #UkrainianBrand, #GreenUkraine, and #SustainableUkraine). The results showed that #GreenEconomy is dominated by neutral content (64%), while the share of positive mentions is 34%, and negative mentions account for only 2%. This content structure indicates the overall stability of the green economy theme within the information space.

A different trend is observed for #UkrainianBrand. While 30% of the mentions are negative, representing the highest proportion among the analysed hashtags, positive mentions account for 23%. Meanwhile, 47% of the content remains neutral in tone. The analysis of these data suggests the need to adjust the communication strategy to reduce the share of negative messages and emphasise the brand's positive aspects.

In the case of #GreenUkraine, 75% of the messages are neutral, whereas the share of positive mentions is limited to 12% and negative to 13%. This structure reflects substantial informational content that lacks a strong emotional tone. Nonetheless, it contains relevant messages that could contribute to shaping a more positive image of the country.

The most favourable situation in terms of emotional impact is observed for the hashtag #SustainableUkraine, where 46% of the content is positive. That is the highest share among all analysed hashtags. At the same time, 41% of the messages remain neutral, and the share of negative mentions is only 13%. This dynamic indicates the effectiveness of the communication strategy in promoting sustainable development and the implementation of renewable energy in Ukraine.

The results of sentiment analysis across communication channels revealed differences in the perception of environmental topics among users of various platforms. The findings are visualised using charts illustrating the emotional polarity distribution for each hashtag across different online communication channels (Figure 1).

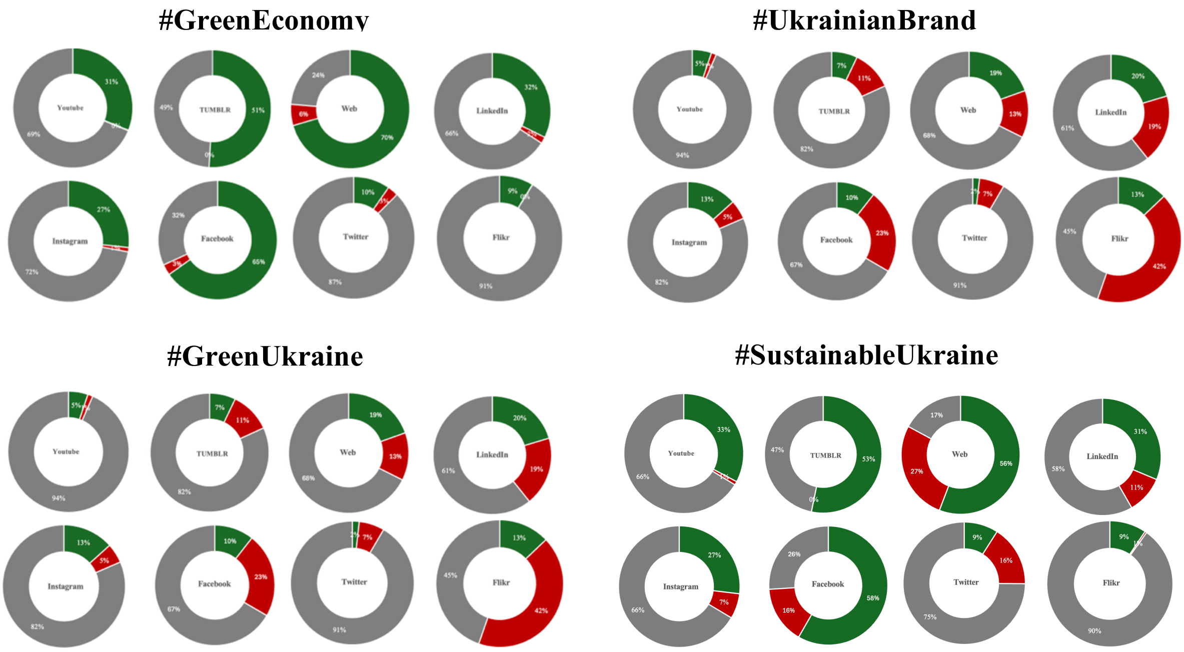


Figure 1. Sentiment analysis results of the constructed research sample across online communication channels.

Source: visualised by the author based on own calculations.

Thus, neutral content dominates for the hashtag #GreenEconomy on Facebook, accounting for more than 65% of the messages, while positive mentions reach 30%. On Twitter, a significant share of content is positive (45%), indicating active discussion of the topic in a favourable light. On Instagram, positive mentions also exceed 35%, which reflects strong user engagement in discussions related to green development.

The hashtag #UkrainianBrand shows the opposite trend. YouTube and Tumblr record high levels of negative mentions, reaching 40% and 38%, respectively, indicating a considerable volume of critical statements regarding Ukraine's brand. On LinkedIn, by contrast, neutral content prevails (50%), which may be explained by the platform's formal communication style.

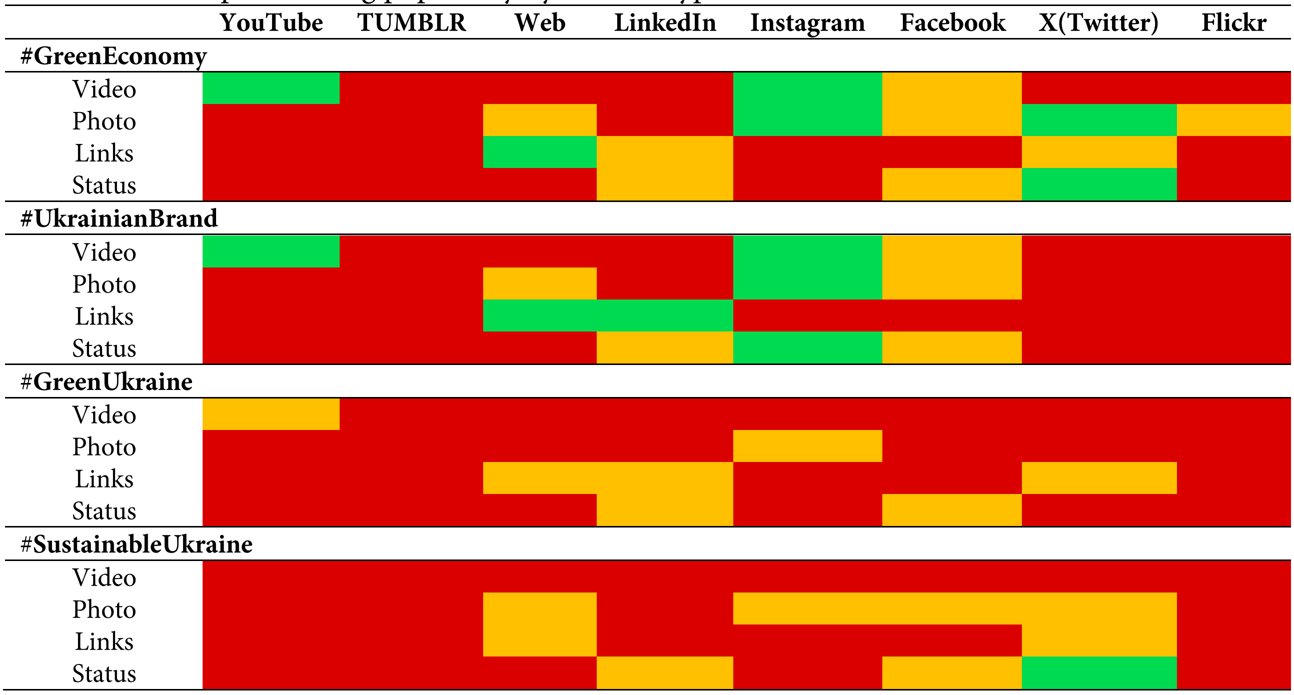
For #GreenUkraine, neutral mentions dominate across all platforms, particularly on LinkedIn (78%) and the Web (75%). Meanwhile, Instagram shows a higher percentage of positive content (20%), suggesting a growing presence of environmental initiatives in visual formats.

The most positive sentiment is observed for #SustainableUkraine, where Facebook and LinkedIn demonstrate over 50% positive mentions. A high level of positivity is also recorded on Instagram (42%), indicating the active use of visual materials for promoting sustainable development and Ukraine's environmental achievements.

The obtained results demonstrate a diversity of sentiment across social networks in relation to the analysed hashtags: #GreenEconomy, #UkrainianBrand, #GreenUkraine, and #SustainableUkraine. This leads to the conclusion that communication strategies must be adapted to the specific characteristics of each social media platform to increase the effectiveness of promoting Ukraine's green brand. In this context, the following subsection will justify the selection of optimal online communication channels for engaging with stakeholders in promoting the green brand. The methodological tools developed in the research will facilitate the identification of effective channels for interaction with target audiences and provide recommendations for strengthening their impact on the perception of environmental messaging.

In order to determine the level of content popularity based on the studied hashtags, a content analysis of online platforms was conducted. Table 5 summarises the analysis results, presenting each online platform's activity level by content type: videos, photos, links, and status updates.

Table 5. Heatmap of hashtag popularity by content type across online communication channels.



Note: green indicates high topic popularity and strong presence on the platform; yellow – moderate popularity; red – low popularity or minimal discussion of the topic on the platform.
Source: visualised by the authors based on their own calculations.

According to the results presented, green indicates high topic popularity and a strong presence on the platform; yellow reflects moderate popularity; and red signifies low popularity or limited discussion of the topic on the platform.

The hashtag #GreenEconomy demonstrates high activity in video and photo formats on platforms such as Tumblr, the Web, and Instagram. Notably, Tumblr emerges as a visually oriented platform, where images serve as a primary means of communication. This suggests considerable potential for using visual content to highlight achievements in the area of green economy. The webspace shows moderate popularity, primarily through links to disseminate information. In contrast, platforms such as YouTube, Facebook, and Flickr display low activity, which may be attributed to the lack of a targeted content campaign.

The hashtag #UkrainianBrand shows notable popularity on Tumblr, where content primarily consists of photographs and status updates. This indicates the opportunity to engage audiences through emotionally resonant visual imagery that reinforces national identity and enhances Ukraine's brand reputation. In the web domain, the prevalence of link-based content reflects an attempt to build a positive brand image through informational materials. However, this hashtag demonstrates limited activity on Instagram, Facebook, and X, which may point to an underutilisation of contemporary marketing tools within the communication strategy.

The hashtag #GreenUkraine exhibits low activity across nearly all platforms except Tumblr, where moderate popularity is observed in video and photo formats. This indicates a limited volume of content aimed at promoting environmental themes through visual formats. The lack of engagement on platforms such as YouTube, Facebook, and Instagram may be attributed to the insufficient integration of sustainable development topics into Ukraine's overall brand promotion strategy.

The hashtag #SustainableUkraine demonstrates a moderate level of activity on Tumblr and within the web environment, particularly in the form of photographic content. This highlights the importance of leveraging visual media to draw attention to sustainability-related issues. At the same time, other platforms (including Facebook, Instagram, and X) show low levels of engagement, suggesting the absence of a cohesive communication strategy for promoting this topic.

Table 6. ANOVA test results.

Platform	R-squared	Adj R-squared	F	Prob>F
YouTube	0.9610	0.9512	98.55	0.0000
TUMBLR	0.7876	0.7345	14.83	0.0002
Web	0.5545	0.4432	4.98	0.0180
LinkedIn	0.8424	0.8030	21.38	0.0000
Instagram	0.5392	0.4240	4.68	0.0218
X (Twitter)	0.5328	0.4160	4.56	0.0236
Facebook	0.9688	0.9610	124.13	0.0000
Flickr	0.3239	0.1548	1.92	0.0181

Note: R-squared – coefficient of determination; Adjusted R-squared – adjusted coefficient of determination; F – F-statistic; Prob > F – p-value for the F-test; Contrast – compared groups.
Source: authors' own calculations.

The results of the ANOVA test are presented in Table 6. The analysis reveals that the highest coefficients of determination (R-squared) were recorded for Facebook (0.9688) and YouTube (0.9610), indicating a strong relationship between content type and its popularity on these platforms. This suggests that both platforms play a significant role in shaping audience engagement with thematic content. Similarly, Tumblr (0.7876) and LinkedIn (0.8424) also correlate highly with content volume and user engagement.

In contrast, the lowest R-squared value was observed for Flickr (0.3239), pointing to a weak relationship between content type and audience interaction and indicating limited user engagement with thematic material on that platform. Prob > F values for Facebook, YouTube, and LinkedIn were all below 0.0001, confirming the statistical significance of the differences in content popularity across these platforms. Conversely, Flickr and the Web showed considerably lower F-statistics, suggesting no significant variation in content performance across different formats.

These results suggest that Facebook and YouTube are currently the most impactful platforms for promoting Ukraine's green brand, owing to their high levels of user engagement with relevant content. On the other hand, Flickr and the broader web environment require a more robust and targeted content strategy to enhance the effectiveness of communication efforts.

To gain deeper insights into differences across content formats on individual platforms, pairwise comparisons with 95% confidence intervals were conducted. The findings are summarised in Table 7.

The analysis of pairwise marginal comparisons revealed significant differences between content formats across various platforms. The most pronounced contrasts were observed for video content on YouTube, where the contrast values between video and other formats were the highest (104.8454 – 121.1237), with p-values < 0.001. This indicates the high effectiveness of video materials in engaging audiences on this platform.

On Tumblr, the most significant contrast was found between video and links (26.02911), which may suggest a greater popularity of multimedia content among users of this platform.

Table 7. Results of pairwise marginal comparisons of linear predictions with 95% confidence intervals.

Platform	Metric	Status vs. Photo	Status vs. Links	Photo vs. Links	Video vs. Photo	Video vs. Links	Video vs. status
YouTube	Contrast	-16.27827	-5.1	11.17827	104.8454	116.0237	121.1237
	P > t	0.244	0.922	0.541	0.000	0.000	0.000
TUMBLR	Contrast	-29.10066	-3.071548	-1.868274	1.203274	26.02911	27.23239
	P > t	0.000	0.928	0.982	0.995	0.001	0.001
Web	Contrast	-130.3047	-96.26194	-90.78734	-56.7446	-39.51734	34.04274
	P > t	0.018	0.091	0.116	0.444	0.711	0.792
LinkedIn	Contrast	-121.946	-99.36734	-39.99411	-17.41548	22.57863	81.95186
	P > t	0.000	0.000	0.118	0.712	0.529	0.001
Instagram	Contrast	-176.6055	-126.2873	-4.275	46.04323	50.31823	172.3305
	P > t	0.029	0.142	1.000	0.828	0.788	0.034
Twitter	Contrast	-79.08008	-73.69734	-56.39579	-51.01305	-22.68429	-5.382742
	P > t	0.041	0.059	0.179	0.245	0.813	0.997
Facebook	Contrast	-214.3286	-213.9036	-7.58	-7.155	.425	206.7486
	P > t	0.000	0.000	0.941	0.949	1.000	0.000
Flickr	Contrast	-68.08097	-44.86871	-34.61137	-33.4696	-11.39911	23.21226
	P > t	0.141	0.441	0.641	0.664	0.978	0.852

Note: t – t-statistic for each comparison; p-value – level of statistical significance (if $p < 0.05$, the difference between groups is statistically significant).
Source: author's own calculations.

Text-based posts on web platforms showed higher popularity compared to photos. This may reflect a preference for informational content on news sites and blogs. On Instagram, photos proved to be more popular than text-based status updates, highlighting the platform's strong visual orientation.

Textual status updates on LinkedIn exhibited significantly higher popularity compared to other formats, indicating the professional and business-oriented nature of the platform. Links and photos were less attractive to users, which is expected given the platform's emphasis on text-heavy professional communication.

On X (formerly Twitter), text-based statuses remain the dominant content format. However, photo content is approaching statistical significance in terms of engagement, suggesting a gradual shift in user interest toward more visual content.

Video content is the most effective on Facebook, substantially outperforming textual formats, as confirmed by high contrast values. Meanwhile, on Flickr, photo content remains the primary format, though the difference from status updates is not statistically significant, reflecting the platform's niche audience.

Figure 2 presents a graphical visualisation of the mean number of hashtag mentions across different content formats (Links, Photo, Status, Video) on selected online platforms: YouTube, Tumblr, Web, Instagram, X (formerly Twitter), Facebook, LinkedIn, and Flickr. The graphs display mean values with 95% confidence intervals, enabling an assessment of the statistical significance of differences between content formats within each platform.

On YouTube, video content has a clearly defined dominance over all other formats. The mean values for video significantly exceed those for statuses, photos, and links. This suggests that video is the most effective content format on this platform, consistent with its video-centric structure. Other content formats demonstrate similar mean values with no statistically significant differences.

On Tumblr, status updates show the highest mean values among all formats, indicating their priority in engaging the audience. Photos also exhibit relatively high average values, while video and link formats show similar but substantially lower results. This may reflect the dominance of textual and visual content on the platform, with a lesser emphasis on video formats.

Within the web environment, links display the highest average values, underlining their leading role in the platform's content structure. Photos and status updates have significantly lower mean values, suggesting that informational content in hyperlinks form is the primary format on web-based platforms. Video occupies an intermediate position, though it does not show statistically significant differences.

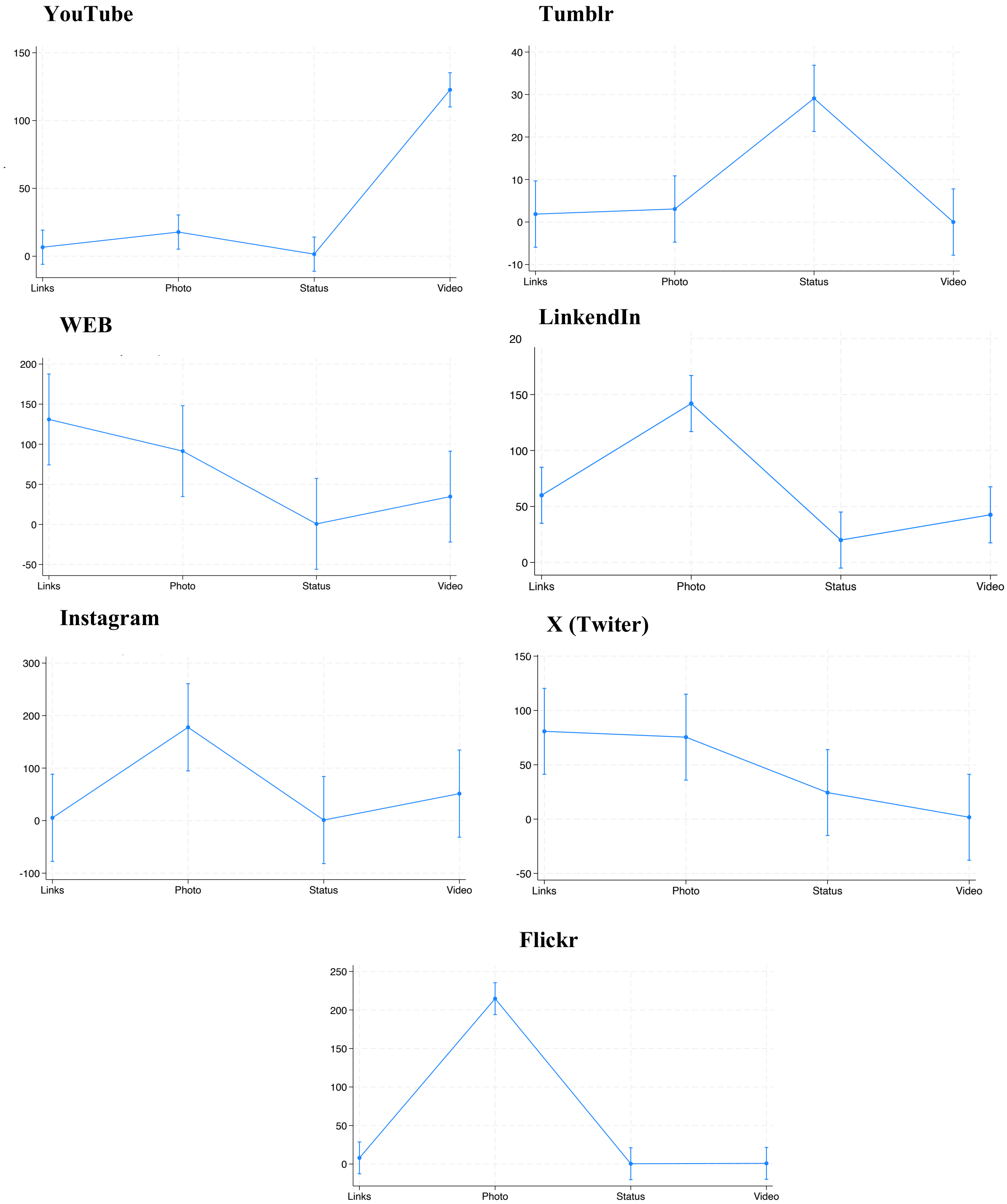


Figure 2. Visualisation of model-adjusted estimates derived from ANOVA testing.
Source: compiled by the authors based on their own calculations.

On LinkedIn, photos emerge as the most effective content format, with mean values significantly higher than those for status updates and videos. This aligns with the platform's focus on professional visual content used in presentations, infographics, and business reports. Links demonstrate the lowest mean values, indicating a limited impact of this format on user engagement.

Instagram exhibits a clear dominance of photo content, consistent with the visual nature of the platform. Videos also show high mean values, though slightly lower than those for photos. Status updates have the lowest average values, possibly due to lower user engagement with text-based content on a highly visual platform.

On X (formerly Twitter), status updates are the most effective content format, aligning with the platform's text-focused orientation. Video and photo formats display similar mean values, while links occupy an intermediate position. Except for status updates, the absence of distinct differences between formats suggests a relatively balanced distribution of user attention between visual and textual content.

Flickr, in turn, shows the highest mean values for photo content, corresponding to the platform's visual nature. Video content exhibits substantially lower average values, indicating its limited role for Flickr's audience. Links and status updates yield similar results, indicating their minor influence on user engagement.

The visualisation results support the earlier findings of the ANOVA analysis regarding differences in content formats and their relative effectiveness across various platforms.

4. Discussion

Assessing the effectiveness of a country's green brand promotion within the digital landscape represents a critical tool for strategic positioning in global environmental communication. This type of evaluation allows for identifying key drivers that foster a positive international image of the country as a committed actor in sustainable development while simultaneously uncovering structural or communicative barriers that may hinder the advancement of its green reputation. The analysis of digital engagement through social media platforms provides nuanced insights into how environmental narratives are interpreted and received by diverse audience segments. These findings lay the groundwork for designing adaptive, evidence-based branding strategies that address global sustainability imperatives and reflect locally embedded values and sociocultural contexts.

The application of sentiment analysis to digital content enables the measurement of the emotional tone surrounding specific aspects of a country's green brand. As demonstrated by the findings of this study, a predominantly positive sentiment is associated with posts tagged with #SustainableUkraine and #GreenEconomy, indicating the strong potential of sustainability-related topics in fostering a favourable national image. In contrast, the hashtag #UkrainianBrand is more frequently accompanied by critical reactions, primarily attributed to the broader political and economic instability. These findings align with the conclusions of Shaheen (2025), who emphasises that the reputational resilience of a national brand is closely linked to the emotional tone prevailing in the digital environment.

The choice of communication channels plays a pivotal role in shaping public perceptions of state environmental policy. The analysis reveals that visual platforms such as YouTube and Instagram are the most effective in generating positive emotional responses. This observation is consistent with the work of Maroto-González et al. (2024), who highlight the credibility-enhancing potential of video formats in promoting green initiatives. Conversely, text-oriented platforms like Twitter/X and Tumblr tend to exhibit a higher concentration of neutral or critical content. At the same time, LinkedIn offers the most significant degree of analytical depth and is thus well-suited for facilitating expert discourse.

A critical aspect of promoting a country's green brand in the digital environment lies in the strategic adaptation of content to the specific characteristics of each platform. As demonstrated by the case of France, tailoring messages to the unique audience profiles of platforms such as TikTok, YouTube, or Telegram enables effective engagement across diverse demographic groups, including both youth and older generations (Maroto-González et al., 2024). The Ukrainian case confirms this trend: the highest levels of emotional engagement were recorded for video and photo materials disseminated via visual platforms. These results are consistent with the findings of Nabivi (2025), who showed that emotionally charged visual content (photo and video posts) significantly enhances the effectiveness of environmental communication on social media, contributing to a more favourable brand reputation among users.

Given these findings, establishing a dedicated centre for digital eco-communication appears to be a relevant institutional step. Such a centre could coordinate national campaigns, conduct targeted audience segmentation, analyse digital footprints, and integrate social monitoring tools. Institutionalising this function would support a more systemic positioning of Ukraine as an environmentally responsible country and increase its reputational capital in the global arena.

Thus, the results of this study confirm that sentiment analysis, when combined with platform-specific analytics, can effectively promote a country's green brand and develop a strategic, adaptive system of digital public diplomacy in the environmental dimension.

Conclusions

Utilising key hashtags such as #GreenEconomy, #UkrainianBrand, #GreenUkraine, and #SustainableUkraine, a sentiment analysis of digital content dedicated to the topic of Ukraine's green brand was conducted in this study. The results demonstrate that posts tagged with #SustainableUkraine and #GreenEconomy exhibit the highest share of positive emotional sentiment, indicating a generally favourable public perception of sustainable development issues within the international digital discourse. In contrast, the hashtag #UkrainianBrand is frequently associated with negative reactions, primarily from discussions of political and economic instability. Content labelled with #GreenUkraine is characterised predominantly by a neutral tone and focuses mainly on disseminating information about environmental initiatives.

The analysis highlights a distinct platform-specific pattern in the formation of emotional tone. Visual-centric social media platforms, namely YouTube and Instagram, tend to generate a higher proportion of positive or neutral emotional responses due to the prevalence of image and video formats. In contrast, text-oriented platforms such as X (formerly Twitter), Tumblr, and selected web resources show a higher concentration of neutral or critical sentiment. LinkedIn, as a platform targeting professional audiences, demonstrates a high degree of analytical depth and a predominantly neutral portrayal of environmental themes.

Furthermore, the study evaluated the effectiveness of content formats in terms of audience engagement. The highest levels of emotional interaction were observed in video and photo materials, particularly on YouTube and Instagram, thereby positioning these platforms as priority channels for communicating and promoting a country's green brand. Although text-based formats (hyperlinks, status updates, analytical commentaries) exhibit lower emotional engagement, they retain relevance for expert and professional communities, particularly on platforms such as LinkedIn and Facebook.

The obtained results significantly enrich the scientific discourse at the intersection of sustainable development, digital communication, and nation branding research. In particular, the study advances the understanding of how the emotional perception of environmental initiatives is shaped within the digital environment and how this perception contributes to a country's reputational capital. Based on hashtag-oriented sentiment analysis of social media, the proposed analytical approach enables the identification of both general trends and platform-specific features of public responses to environmental narratives. This offers a methodological foundation for the further development of tools to assess public support for national environmental policies in real-time.

From a practical perspective, the study offers clear and actionable recommendations for government agencies, marketing professionals, and country branding strategists regarding the optimal selection of communication channels and content formats. Thus, visual-based social media platforms such as YouTube and Instagram are recommended as priority tools for promoting a positive image of the country in the context of sustainable development. Meanwhile, LinkedIn is identified as an effective platform for fostering expert-level discourse and engaging the international professional community.

This article is among the first to apply sentiment analysis methods to the study of a country's green brand in social media using a multi-platform approach. It systematically assesses the emotional tone of digital content based on thematic hashtags, opening new avenues for real-time monitoring of public sentiment toward national environmental policies.

One of the key limitations of this study lies in its reliance on a selected set of hashtags, which, although thematically relevant, may not fully capture the breadth and diversity of the environmental discourse across digital platforms. Additionally, the analysis was conducted using publicly available data within a specific timeframe, which may limit the generalizability of the findings and does not account for temporal fluctuations in public sentiment. Furthermore, the study does not address potential distortions caused by bot activity, automated content generation, or platform-specific algorithmic amplification, which could influence the emotional tone and visibility of posts.

Future research should consider expanding the geographical scope of the analysis to enable cross-country comparisons of green brand promotion strategies within diverse cultural and informational contexts. Particular attention could also be devoted to the dynamic monitoring of public sentiment in response to specific events, policy interventions, or sustainability-related campaigns. Such longitudinal approaches would allow for a deeper understanding of the temporal and contextual drivers of emotional engagement with environmental narratives and enhance the responsiveness of strategic green communication at the national level.

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Extracurricular Activities in Higher Education: Challenges, Economic Implications, and Practices in Armenia and the EU

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Abstract

This paper explores the role of extracurricular activities (ECAs), specifically student self-government, in fostering leadership and entrepreneurial competencies in Armenian higher education. This case study examines educational management and provides insights relevant to other transition economies, with comparative lessons from Sweden and Poland. ECAs emerge as major drivers of human capital formation by enhancing employability, civic participation, and career readiness: qualities increasingly sought by evolving labour markets. Despite these benefits, many higher education governance systems encounter considerable legislative and institutional limitations on the effectiveness of ECAs and student self-management. This study uses qualitative research methods such as document analysis, focus groups, and SWOT analysis to identify legislative loopholes, institutional vulnerabilities and untapped opportunities in transition economies such as Armenia. The study aims to explore how EU best practices can be assimilated to enhance student participation in governance, employability, and entrepreneurship skills. Key findings indicate legislative and institutional gaps, as well as underutilised opportunities, to strengthen student self-government in Armenia, identifying areas for reform and offering practical recommendations on how to develop effective ECAs. This research also contributes to theoretical and practical discourses in emphasising the transformative potential of ECAs as a means of leadership and employability advancement in contexts without a robust institutional base. By assimilating EU best practices, Armenian universities can foster more equitable and effective student self-governance models that contribute to leadership development and economic outcomes. This study offers actionable insights for policymakers and university administrators, highlighting how strategic governance reforms and proactive student engagement management can maximise the transformative potential of ECAs for human capital development and career readiness in transitional economies.

Key words

extracurricular activities, student self-government, civic responsibility, leadership, employability and entrepreneurial skills, educational management in transition economies, human capital.

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Introduction

Extracurricular activities create an environment for students to develop both academically and personally. By participating in ECAs, students foster essential competencies such as leadership, critical thinking, time management, and decision-making skills that are fundamental to advancing their careers and employability. These activities encompass a wide range of opportunities, including student government, sports clubs, volunteer initiatives, and professional associations. Abelha et al. (2022) emphasise the necessity for higher education institutions (HEIs) to align their curricula with labour market demands by cultivating skills that enhance employability. However, the role of ECAs, and student government in particular, in enhancing employability and leadership remains controversial. While some studies underscore their positive impact on career readiness, others argue that the benefits are unevenly distributed depending on the institutional support and participation (Christison, 2020; Klemenčič, 2011b). This raises the question of how student government is supported and implemented, especially in resource-constrained settings such as Armenia. In Armenia, the development of ECAs has been weak and they have not been well utilised, with limited impact on leadership and employability, in part due to a lack of well-defined frameworks and adequate institutional support. This paper seeks to address these systemic gaps by proposing actionable solutions.

Beyond fostering personal and professional competencies, ECAs hold significant economic potential by enhancing students' employability and entrepreneurial readiness. This is particularly vital in Armenia, where economic challenges and the pressing need to prepare students for a competitive labour market demand urgent action.

The European Training Foundation (ETF) has consistently highlighted the importance of this alignment. In its 2019 report (European Training Foundation [ETF], 2019), the ETF identified key challenges in transforming qualifications to address Armenia's economic needs and emphasized the role of evidence-based policymaking to reduce youth unemployment through enhanced vocational training opportunities. Building on these insights, the 2023 report provided updated recommendations on education and employment policies, particularly focusing on vocational training and skills development to meet labour market requirements (European Training Foundation [ETF], 2023). These strategies closely align with the growing emphasis on ECAs as a means of equipping students with transferable skills and improving their readiness for the labour market. Strengthening ECAs is, therefore, not only an educational imperative but also an economic strategy to increase human capital and promote sustainable development. Despite the potential benefits, there is a notable scarcity of empirical studies examining the combined impact of decision-making, education for sustainable development, and ECAs (Garrecht et al., 2018).

Given the importance of student self-government for professional development, career advancement and civic engagement, this study seeks to bridge the gap between the theoretical framework and practical implementation related to ECAs within higher education institutions in Armenia. The primary objective of this study is to examine current forms and models of organizing ECAs, with a special focus on student self-government, while examining international experiences. Through comparative analysis, the study aims to propose practical recommendations to improve the effectiveness of student self-government in Armenia, leveraging successful EU practices. The study provides a foundation for solutions that address local needs, with solutions tailored to the challenges of limited student participation and inconsistent legislative support.

The following research questions are posed within the framework of the research:

1. Which legislative gaps have a negative impact on student ECAs in Armenia?

2. How does participation in ECAs contribute to the development of economic and civic competencies, and what specific skills are gained through this involvement?

3. Which international experiences concerning student ECAs, particularly in student self-government, can be effectively localized in Armenia?

4. How can the strengths and opportunities relate to student self-government be leveraged to mitigate its weaknesses (sectoral gaps) and address existing challenges in Armenian higher education?

By addressing these research questions, this study not only advances the theoretical understanding of student self-government but also offers actionable insights for policymakers and university administrators. Its originality lies in the integration of both Armenian and international perspectives on ECAs, thereby contributing to broader theoretical discussions regarding the role of student self-government in leadership development and employability. From a practical standpoint, the findings of this study provide policy recommendations for educational management in transition economies on how to effectively adapt successful European models. These adaptations aim to bridge existing gaps in institutional support, legislative frameworks, and student participation. The contributions of this research hold significance for both scholars engaged in the study of educational governance and practitioners seeking to enhance student engagement and outcomes within higher education.

From management perspective, student self-governance is not merely an academic idea, but it is also an asset in strategy for university administrators. Effective engagement of students in mechanisms of self-governance generates leadership, decision-making and entrepreneurial competencies, which are all core elements of human capital. All these competencies are highly desirable in labour markets that are adaptive and directly affect the institution's ability to innovate and transform. Furthermore, infusing best practices in student self-governance provides an example for university administrators who seek to implement more participative, responsive and open styles of governance. This study, therefore, not only serves to fill educationally pertinent gaps but also offers managerial recommendations for optimizing student participation and institutional performance.

The study is structured as follows: The theoretical part reviews international models of student self-government, their organizational principles, and mechanisms of their financing. The empirical section presents focus group research carried out with students of Armenian universities for gathering information on their estimates as to the present state of ECAs and possible ways of its improvement. A comparative analysis of the Armenian model with international experience allows recommending ways of improvement of student self-government in Armenia. This structure allows a systematic exploration of the research problem and results in development of actionable insights for improving ECAs in Armenian higher education institutions.

1. Literature Review

The concept of extracurricular activities in higher education has evolved significantly over the years. Initially introduced in the United States during the 19th century, ECAs began as supplementary components to the core curriculum, including literary and debating clubs at institutions like Harvard and Yale. Over time, extracurricular activities expanded beyond literary and debating societies to include sports and other activities, reflecting the growing recognition of the importance of a holistic student experience. Hevel (2016) emphasizes that the development of student affairs and the inclusion of these activities were pivotal in fostering well-rounded personal and academic growth, marking a significant shift in the priorities of higher education institutions. One of the primary goals of ECAs has been to foster the development of versatile individuals equipped with essential skills for the labour market. Studies demonstrate that participation in ECAs positively impacts students' academic performance, self-efficacy, and personal development (Aymoldanovna et al., 2015; Eizaguirre, 2019; Fredricks & Eccles, 2006; Nassar et al., 2024; Wu & Fernando, 2023). Contemporary research highlights the role of ECAs in nurturing essential skills, such as leadership, communication, and decision-making, which are directly transferable to professional and entrepreneurial settings (Ginosyan et al., 2020; Kondur et al., 2021; Lavrentieva & Sugak, 2024; Pukkinen et al., 2023). In their study, Dickinson et al. (2021) explore the challenges and strategies associated with encouraging student engagement in ECAs. They highlight that while ECAs are recognized for their potential to enhance student development and well-being, students often perceive participation as an additional burden rather than a valuable opportunity. The authors emphasize the need for institutions to actively promote the benefits of ECAs and integrate them into the broader educational experience to foster greater involvement among students. By engaging in ECAs, students can also develop valuable competencies and sustainability-oriented mindsets, equipping them to address complex global challenges and contribute meaningfully to society (Diaz-Iso et al., 2019).

The early concept of ECA has significantly evolved, and most researchers now approach the issue from a broadened and multifaceted perspective. One perspective highlights that students' self-government activities, as a form of ECA, make a critical contribution to their entrepreneurial and employability outcomes. Hui et al. (2021) emphasize that while ECAs can significantly enhance employability skills, their effectiveness often relies on structured institutional support and the level of student participation. Through self-government, students are able to exercise leadership, decision-making and negotiation skills which are also highly relevant and transferable in entrepreneurial ventures and employment (Alimbekova et al., 2018; Patrick, 2022). Indeed, the potency of the ECAs in fostering entrepreneurial skills has been put into evidence by recent studies suggesting that participation in extracurricular programs in entrepreneurship may eventually raise the level of entrepreneurial intentions and career prospects among students (Isac et al., 2023). Hammoda (2023) presents a comprehensive typology of ECAs, emphasizing their alignment with cognitive, experiential, and social learning theories to effectively cultivate entrepreneurial competencies. Mukesh et al. (2024) further emphasize that ECAs focused on social entrepreneurship not only enhance students' practical skills but also create economic value, thereby reinforcing the importance of integrating such activities into higher education curricula.

Another significant gap in the existing research is the lack of a clear and universal definition of ‘extracurricular activities’. Literature reviews often highlight the need for a universal approach or clear definition of this term, which can complicate research in this area (Bartkus et al., 2012). Analysing the wording of the concept ("extra" and "curricular"), it can be noted that ECAs refer to activities carried out by pupils or students that are not included in the main curriculum in any form. In other words, such an activity lies outside the formal educational program on the one hand, but at the same time, it is one of the important parts of the educational process. Indeed, several experts (Birzea et al., 2004; Ming Chia, 2005; Nelson et al., 2002) highlight that extracurricular activities are distinct from the formal curriculum and instead fall within the domain of informal education. This highlights the transformative potential of ECAs in bridging the gap between formal education and real-world skill development. As Sternberg et al. (2025) argue, “to prepare students for real-world critical and creative thinking, schools should make more of their learning resemble extracurricular activities that teach real-world skills that are often absent from curricular learning” (p. 16). This perspective reinforces the view that ECAs do not simply complement formal education but play an essential role in equipping students with the necessary competencies for academic success and career readiness.

One of the most common approaches to interpreting the concept of "extracurricular activity" is to consider it according to the type of activity or participation: professional clubs, student self-government, sports clubs, while defining that students' ECAs are closely related to academic performance and positively impact the latter (Ribeiro et al., 2024; Stuart et al., 2011). The types of ECAs are varied and often influenced by the type and size of the university, but the lack of a uniform definition of ECAs in the literature makes comparative research challenging (Diaz-Iso et al., 2020). However, when considering the experience and history of international and local ECAs at the university level, these types can be divided into wide-ranging groups that are commonly found: student self-government, sports clubs, academic and professional orientation clubs, voluntary and community activities, arts and culture clubs, intercultural clubs, entrepreneurial ECAs, such as business incubators, startup competitions, and entrepreneurship clubs and other types of ECAs. The experiences acquired in the various ECAs, such as self-government activities, not only support students’ intellectual and social development but also stimulate further moral growth, civic values, and professional competencies, ultimately fostering long-term political participation and active citizenship (Angwaomaodoko, 2024; Lundberg & Abdelzadeh, 2024; Zarrett et al., 2021). ECAs serve as a significant determinant in the development of productive skills among students and their future career advancement. Research increasingly highlights the critical role of student self-government in shaping career readiness by providing students with hands-on experience in governance, budgeting, and policymaking, which can be directly applied in entrepreneurial contexts. In their analysis, Javed and Srivastava (2024) further emphasize the economic implications of ECAs, arguing that these activities equip students with essential skills and experiences that are highly valued in the job market, ultimately contributing to their future economic success. Entrepreneurial-focused ECAs play a crucial role in developing students' business acumen and risk assessment abilities (Ferreira et al., 2017). Furthermore, self-management enables students to manage projects, hence improving creativity and entrepreneurship skills (Alimbekova et al., 2018; Klemenčič, 2014; Sansone et al., 2021). One of the critical aspects of ECAs is the development of skills that affect employability, as participation in extracurricular activities has been shown to enhance job suitability and perceived employability among graduates (Hui et al., 2021; Peng, 2023; Pinto & He, 2019; Yadav & Yadav, 2024). Recent studies have highlighted the crucial role of professional skills and competencies in assessing the employability of graduates, emphasizing their importance in both workplace environments and higher education contexts (Aliu & Aigbavboa, 2021; García-Álvarez et al., 2022; Jayasingam et al., 2018; Pabian et al., 2011). This indicates that incorporating entrepreneurial-focused ECAs could increase employability among students, particularly in dynamic labour markets where adaptability and innovation are key (Li et al., 2022; Nguyen, 2021).

In contrast, the Armenian higher education system lacks a well-established framework to fully integrate student self-government into ECAs to foster entrepreneurial and employability outcomes. In Armenia, the development of ECAs can be traced back to the Soviet era, when extracurricular activities were organized as ideological and cultural initiatives (Ivanov, 2022). These activities, while limited in scope, provided a foundation for modern ECAs in the country. For instance, post-Soviet reforms have facilitated the emergence of student-led clubs focused on debates and professional skills development, such as those established at Yerevan State University and the American University of Armenia. Although focus group discussions indicate that students recognize the potential benefits of self-governance, they also highlight the lack of institutional support and resources. Notably, research on this topic within the Armenian context remains scarce, with most studies focusing on EU and U.S. educational systems. This gap underscores the need for localized research to explore the long-term career impacts of participation in student self-government in Armenia. Comparatively, EU countries such as Sweden and Poland demonstrate robust systems where student self-government plays a critical role in setting educational policies, advocating for students' interests, and cultivating civic responsibility (Antonowicz et al., 2014).

Additionally, the localized EU models of student self-government in Armenia might enable a very good opportunity for substantial improvement of the level of students' involvement in the institutional decision-making process (Klemenčič, 2011b). For instance, in countries like Sweden and Poland, student self-government plays a very important role regarding setting educational policy, advocating for students' interests, and developing civic responsibility. Enim et al. (2024) emphasize that students become involved in democratic processes, acquire competencies relevant to decision-making, develop leadership skills, and foster active citizenship by participating in governance structures. It is expected that the introduction of such frameworks within Armenian universities will offer students an opportunity to be more engaged in governance processes of their institutions, thus cultivating civic values and preparing them for active membership in society. This model helps students develop a sense of responsibility and commitment within their communities during and beyond their academic careers.

While numerous studies highlight the potential benefits of ECAs, they often generalize the outcomes without providing concrete, measurable evidence of the skills acquired through self-government activities. Moreover, studies predominantly focused on academic and personal development, with limited exploration of its potential impact on such spheres as employability and entrepreneurial outcomes. This research seeks to bridge this gap by specifically investigating how student self-government within ECAs contributes to employability and entrepreneurial skills assessing their direct impact on career outcomes. Additionally, the study explores how students' participation in self-government and in the decision-making process in higher education institutions can foster active citizenship and engagement in democratic processes. Furthermore, this study addresses existing gaps in literature by analysing the potential benefits of adapting EU models of self-government to the Armenian context.

2. Methodology

The core stages of the investigation include three main components: desk research, empirical data collection and analysis. These stages are designed to comprehensively explore both international practices and local conditions in Armenia, providing a thorough framework for comparative analysis and adaptation. The educational systems of Sweden and Poland are selected as international models and in-depth studies are carried out on the forms and models of organizing student activities of the latter and some Armenian universities, including the principles of their formation, rights and functions, funding principles and legal bases. The choice of these countries is justified and based on the fact that the student unions of the mentioned countries are involved in the administration of the universities and, in the case of Poland, also plays an essential role in the development of the scientific and educational fields. One of the essential characteristics of student self-government in Poland is the material base and financial-legal independence from the management of the educational institution. According to the Law on Higher Education and Science, these funds are annually allocated from the university budget to the activities of student self-government. In this way, student self-government bodies are the decisive representatives of the entire student community and play an important role in higher education. Student organizations – scientific, artistic, touristic, sports and cultural, among others – that collaborate with similar partners from abroad have become an important factor not only in the development of intercultural infrastructure, the exchange of experiences, and cooperation between European universities but also in the development of democracy in higher education in Poland (Derkach, 2020). This stage also provides valuable insights for localizing best practices in Armenia.

To address the research questions directly, each method is designed to align with specific aspects of the study:

- Legislative gaps related to student ECAs by Armenian and other EU legal documents are identified through desk research. The research also considers international experiences, such as that in Sweden and Poland, in order to generate a comparative framework. This method is particularly useful for answering the first and third research questions.
- Focus group discussions allow understand what students perceive as gaps and what opportunities exist in student self-government, but also what skills they developed through that. This addresses the second and fourth research questions.
- The data from desk research and focus groups was synthesized in a SWOT matrix, which directly was broken down into tables, showing the cross-sectional relationships between strengths, weaknesses, opportunities and threats. This informs the third and fourth research questions.

Thus, the data collection process consists of two major methods: desk research and qualitative field research. The desk research involves reviewing international literature on the organization and impact of student self-government, focusing on successful practices in EU countries. In parallel, legal documents from Armenian and EU universities are analysed to compare legislative frameworks guiding student participation in governance. The second core stage involves empirical data collection through qualitative methods, specifically focus group discussions as well as their systematization and review using the SWOT analysis method. The combination of these two methods ensures a comprehensive understanding of both theoretical frameworks and practical experiences across diverse educational systems.

The focus group discussion method provides an opportunity to conduct in-depth examination of the primary forms, approaches, quality and effectiveness, the main problems, and students' perceptions and ideas regarding the organization of ECAs in Armenian universities. A total of three focus groups are conducted, each comprising 7-10 participants, representing a diverse sample of students from state, private and international universities. Focus group discussion is appropriate to choose and use because it underlines the experiences of students involved in self-government bodies and reveals their positions and views. Discussions were organized around predefined themes; this means that data on the experiences of students and their opinions on the possible localization of international practices were collected in a systematic way. The methodology of research also ensured a diverse group respondent, detailed below. In all groups, students from different universities or student/youth organizations have participated. This multilayered formation of the groups enables the comparison of opinions and positions of different groups.

The data was systematically organized within thematic categories that corresponded with the study questions. Focus groups transcripts were recorded in order to identify patterns and recurring themes. Data verification through cross validation was done as findings from focus groups were compared to findings derived from desk research. Additionally, member checks were conducted by presenting participants with summarized findings to ensure the accuracy and completeness of their contributions. This triangulation enhanced the validity and reliability of the research findings. As previously outlined, the focus group discussions are conducted within the logical framework of the research methodology. They allow for identifying the primary forms of ECAs, positive dynamics, and existing problems and barriers in higher education institutions in Armenia based on the opinions and associations of the participants. Each session adheres to interview guidelines and follows a structured process to separate objective realities from subjective interpretations, providing a rich dataset for analysis.

Finally, a SWOT analysis is performed based on the information obtained through desk review (literature on international experiences and legal documents) and field research (focus group discussions). SWOT analysis combined with robust research methods and analytical tools has been widely recognized as effective in strategic planning and decision-making, especially in educational and organizational research contexts (Phadermrod et al., 2016). This enables a structured exploration of the internal and external factors a particular domain and to gain a comprehensive understanding of the environment in which policies or practices exist (Gürel & Tat, 2017; Helms & Nixon, 2010). This stage allows for identifying key strengths, weaknesses, opportunities, and threats associated with the current state of ECAs in Armenian universities, and the potential for adopting best practices from Sweden and Poland.

3. Research results

3.1 Student Self-Government in Higher Education Governance: Legislative Frameworks and Comparative Insights from EHEA States

The development of student self-government is an important factor in modernizing the education system and preparing future professionals. The systemic approach is one necessary prerequisite for this development. It involves developing, completing, and investing in programmatic, legislative, and tactical approaches and regulations for the sector's development.

Student self-government in universities is a structured system that enables students to actively participate in university governance and decision-making on matters directly affecting them. While Planas et al. (2011) highlight that student participation is essential in governance, they also emphasize that the extent of student involvement in governance depends both on institutional policies and faculty perceptions. Similarly, Lizzio and Wilson (2009) found that student representatives commonly face challenges when they strive to affect decision-making because of uncertainties regarding their roles. This problem shows why universities require structured support systems for student governance. In recent decades, student participation in the discussion and governance of higher education has gained increasing significance (Bartley et al., 2010). In this context, it is important to highlight that this issue is also emphasized in the Bologna Process, where students are regarded as the primary beneficiaries who should actively participate in shaping their education. The Prague Communiqué (2001) specifically recognizes students as full members of the academic community and underscores the importance of their participation in decision-making processes within universities and other higher education institutions. In 2018, the Paris Communiqué emphasized student participation as a fundamental and essential value of the Bologna Process. Student involvement in university governance can vary in scope and depth, encompassing participation in academic self-administration, engagement in student self-governance structures, and contribution to the quality assurance process. The varying levels of student involvement range from access to information and advisory roles to active dialogue and partnership, with the latter signifying direct participation in university decision-making processes. It is important to recognize that governance and decision-making in higher education occur at multiple levels, from individual academic programs to institutional and even supranational frameworks (Figure 1) (Acharya, 2015; Jungblut, 2011; Klemenčič, 2011a).

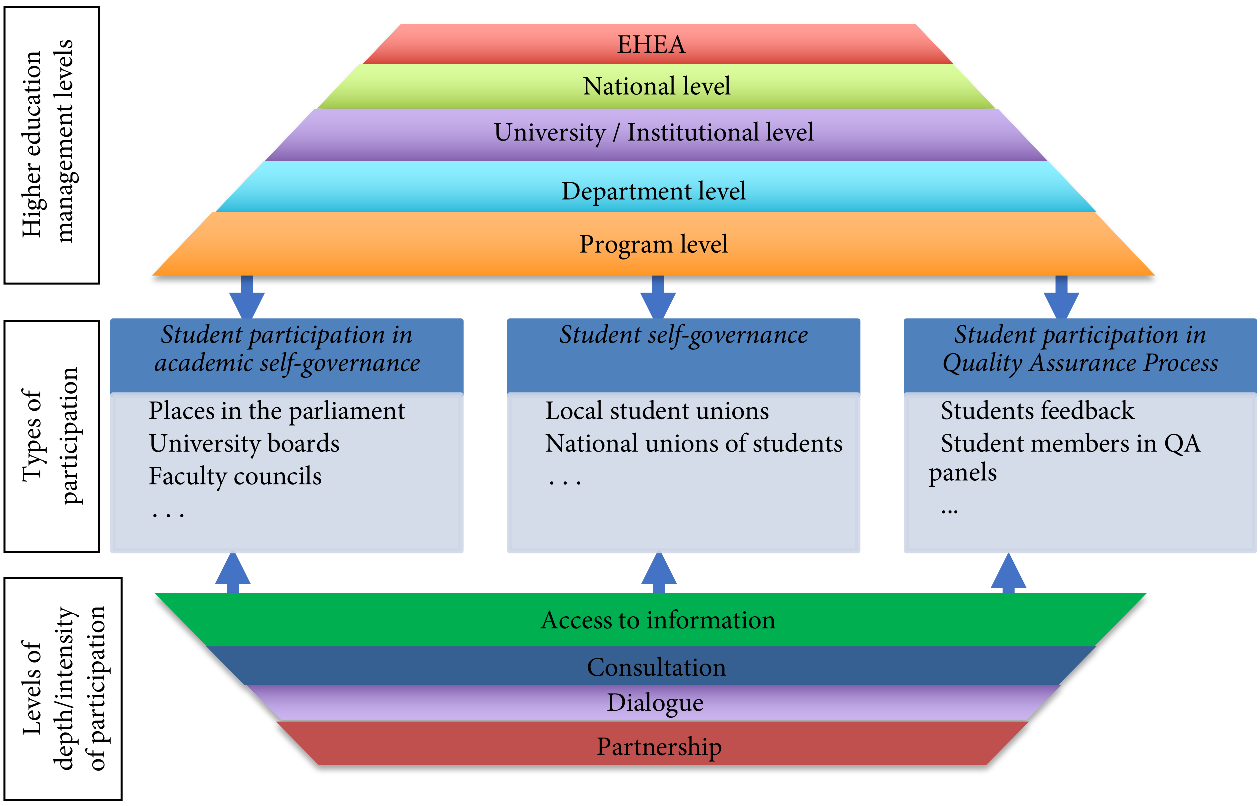

Figure 1. Student participation in the management of the university system.
Source: Developed by the authors based on the works of Jungblut (2011), Klemenčič (2011a) and Acharya (2015).

The European Higher Education Area (EHEA) is an example of supranational governance of higher education, and students can also participate as beneficiaries at this level.

Overall, student participation in higher education governance is crucial at all five levels, as decisions made at any stage ultimately impact students either directly or indirectly. However, the most significant level of involvement is at the university and institutional levels, where decision-making processes have the most immediate and tangible effects on students' academic and social experiences.

The upper levels of the pyramid can also be analyzed through the lens of legal regulations, which determine the extent to which student participation is legally mandated or defined at each hierarchical level. The depth and format of student involvement in university governance vary from the highest to the lowest levels. For instance, while national legislation may outline general frameworks and minimum standards for student participation in higher education governance, specific implementation and regulations at the institutional level are often determined by individual university charters, leading to variations across institutions. Furthermore, student engagement at the highest levels of one governance structure reinforces and enhances their participation at the highest levels of another. This interdependence between different levels of governance applies across all forms of student participation (Figure 1). Regarding legislation on student participation in higher education governance, it is noteworthy that the London Communiqué (2007) emphasized that many EHEA countries were already implementing legislative initiatives to increase student participation.

The findings from the European Students' Union surveys (2018; 2020) highlight the importance of student participation in governance, with the 2020 report focusing on the legal frameworks across countries and the 2018 report emphasizing the actual involvement of student unions in decision-making. While the 2020 survey quantified the prioritization of the social dimension in 15 countries, the 2018 survey focused on student union engagement in shaping policies related to social needs (European Students' Union, 2020; 2018). Moreover, the 2020 report explicitly noted the underrepresentation of students with disabilities, specifically in the mental health sector, signalling the need for further attention to inclusivity (European Students' Union, 2020).

In all cases, student participation in the governance of higher education should be structured and meaningful. The benchmark in this regard is the provision of such participation across all legislation levels. The depth of involvement should encompass not only decision-making processes but also participation in preparatory work, fostering a more inclusive partnership between students and institutional governance."

The literature review indicates that ECAs, including student self-government, play a crucial role in enhancing students' employability and entrepreneurial opportunities, with notable differences between practices in Armenia and the EU. While there are challenges in effectively implementing ECAs, especially in resource-limited contexts like Armenia, the potential benefits make them an essential component of higher education. Future research should focus on developing and testing specific models for integrating ECAs and student self-government into Armenian higher education, drawing on successful EU practices. Practical interventions should aim at adapting these models to the local context to improve both employability and entrepreneurial outcomes and foster a stronger culture of student self-governance.

3.2 Forms of organization of student ECAs in Armenia

At the legislative level, certain elements of extracurricular activities can be found in Laws on Education (Republic of Armenia, 1999) and Higher and Postgraduate Professional Education (Republic of Armenia, 2004). Specifically, Article 17 of the latter enshrines the right of students to participate in the activities of the relevant governing bodies of HEI and to unite in various student organizations. Meanwhile, the Law on Education (Republic of Armenia, 1999) enshrines student representation in university governance, specifying that at least 25 percent of the members of a higher education institution's governing body must be students. The draft Higher Education and Science Act does not include any regulations regarding the funding of extracurricular activities. However, this does not mean that these cannot be funded by the university administration in the same way that various student initiatives are funded. The procedure for allocating funds is determined by the respective statutes or regulations of the respective university, and the amount of the annual funding is determined by the budget draft of the respective year. Thus, it can be concluded that there is no legal mandate requiring the funding of student self-government activities, leaving the extent and allocation of financial support to the discretion and goodwill of individual universities. The draft does not fill this gap; moreover, there is no phrase "extracurricular activity" here. Basically, as of now, the rest of the regulations are defined by the respective regulations of each university. Within the framework of the research, the types of extracurricular activities were studied in the framework of selected 16 Armenian universities operating based on state, private and international agreements, namely Yerevan State University (YSU), Yerevan State Medical University (YSMU), International Scientific and Educational Centre of the National Academy of Sciences of the Republic of Armenia (ISEC NAS RA), Armenian State University of Economics (ASUE), National Polytechnic University of Armenia (NPUA), Brusov State University (BSU), Armenian National Agrarian University (ANAU), State Academy of Fine Arts of Armenia (SAFA), Yerevan State Conservatory (YSC), Shirak State University (SSU), Vanadzor State University (VSU), Gavar State University (GSU), Eurasia International University (EIU), Gladzor University (GU), American University of Armenia (AUA), French University of Armenia (UFAR).

Through the observation and analysis of various forms and approaches to extracurricular activities within the Armenian university system, the following key points can be noted:

a) Extracurricular activities play a vital role in students' lives.
b) A diverse range of extracurricular activities exists and operates across Armenian universities, including voluntary initiatives, self-governance structures, intercultural programs, and sports activities.
c) The most prevalent form of student self-government across universities is organized through Student Councils (SCs) and Student Scientific Societies (SSSs).

The above-mentioned two subsections address the first research question by examining the legislative frameworks in Armenia and comparing them to those within the European Higher Education Area. The findings also reveal significant gaps in Armenian legislation, particularly regarding the institutionalized financial support for ECAs, which limits their effectiveness. Furthermore, the analysis highlights the need for well-defined standards to ensure both non-formal and meaningful student participation in governance. In addition, they help address the second research question by highlighting the importance of these activities for developing economic and civic competencies.

3.3 The Role of ECAs in Shaping Student Development: Lessons from Sweden and Poland

The differences in structure and traditions among various national education systems make generalizing across countries challenging. In Sweden and Poland, ECAs are significant in shaping student development, though the activities and their focus vary according to educational policies and cultural contexts.

Sweden is notable for its strong focus on both teaching and research, as well as its commitment to student welfare. Unlike many other countries, Swedish higher education is structured around professional programs. These programs, which may span multiple academic disciplines, are designed not primarily to award degrees but to equip students with the qualifications necessary for specific trades or professions (Trow, 2007). Sweden promotes a balanced approach to ECAs, where academic achievement is paired with social and emotional growth. Activities are designed to foster not only individual skills but also democratic values, teamwork, and equality. HEIs actively support student self-government, allowing students to participate in decision-making processes, which develops leadership skills and civic engagement. Luescher-Mamashela (2012) discusses how student representation in university governance plays a critical role in shaping democratic engagement and leadership, offering a valuable perspective on the Swedish context.

The student self-government bodies in Sweden are organized through student unions and nations. The student union of one of Sweden's most prestigious universities, Lund, which brings together around 45,000 students, was seen as the one of the most prominent examples (Lund University, 2013). In the Swedish educational system, the next unique classification in student self-government bodies, rarely found among European educational institutions, is the presence of 13 student "Nations," a unique classification of self-governing student organization. This model is exclusive to Uppsala University and Lund University. Student nations, which are largely voluntary, provide an opportunity for students to engage in various activities and connect with Swedes and Swedish culture (Gnewski, 2020). As part of ECAs, student-centred public organizations and associations, such as the Swedish National Union of Students and the Swedish representation of the Erasmus

Student Network, have been considered. Over the decades, these organizations have successfully united local and international students across Sweden's 15 most prominent and active universities. Moreover, Quilitz (2021) emphasizes that engaging students as stakeholders in sustainability initiatives at universities is crucial for fostering a culture of sustainability. This collaboration not only enhances students' understanding of sustainability issues but also empowers them to contribute actively to their institutions' environmental goals. By involving students in decision-making processes related to sustainability practices, HEIs can create a more inclusive approach that reflects diverse perspectives and encourages a sense of ownership among students.

In contrast to Sweden’s broader emphasis on social and civic engagement, ECAs in Poland are often geared toward preparing students for the labour market. There is a strong emphasis on leadership, organizational and communication skills, which align with the country’s educational objectives of fostering responsibility and independence. Voluntary and student organizations or associations are the cornerstone for social capital for Polish students (Markowska-Przybyła & Ramsey, 2016). Poland’s approach focuses on developing students' readiness for labour market participation, with ECAs often linked to acquisition of job-related competencies. Nevertheless, one of the significant indicators of the positive changes that have taken place in Poland in recent decades is the development of student self-government bodies in universities (Antonowicz et al., 2014, 2024). The Law on Higher Education and Science (Republic of Armenia, 1999), adopted in 2018, provides the legal framework for regulating student councils. One of the essential features of student self-government in Poland is the material basis and financial and legal independence from the management of the educational institution. In Poland, the student voice is represented by the Students' Parliament of the Republic of Poland (PSRP), which is made up of representatives of student self-government bodies of universities, operates based on the provisions of the Law on Higher Education and Science and the statute of the PSRP and has the status of a legal entity. The PSRP is the voice of students across Poland and works together with the country's university student organizations to create favourable legislation for students. Council representatives participate on an equal footing in negotiations at the national level and are represented in a number of state bodies and structures. The student self-government is the only representative of the student environment of the educational institution that distributes funds for university-determined student activities. Derkach (2020) examines the Polish system, highlighting how student self-government fosters university autonomy by integrating student perspectives into decision-making processes. These findings align with broader research demonstrating that student self-governance plays a pivotal role in enhancing leadership, governance, and civic engagement in higher education (Hulko & Yaroshenko, 2023; Khusainova et al., 2016). Insights from these two countries could serve as valuable guides for developing frameworks that enhance the effectiveness of ECAs, addressing both the social needs of students and their career readiness. Integrating these approaches can lead to a more comprehensive student development model, where ECAs simultaneously foster civic responsibility, social integration, and employability all at once. A comparative analysis reveals that while EU countries generally have well-established systems for ECAs, including strong frameworks for student self-government, Armenia is still in the development phase. In the EU, student self-government is a key mechanism for cultivating civic engagement and leadership skills, supported by a structured and well-funded institutional framework. By contrast, Armenia faces persistent challenges related to limited resources and a lack of institutional support.

However, Armenia has the potential to adapt successful EU models to its context, particularly in enhancing entrepreneurial and employability outcomes through ECAs and strengthening the role of student self-government as a mechanism for cultivating civic values and active citizenship.

The findings of this discussion and results provide a concrete answer to the third research question with examples of successful models that Armenia can adapt to its context. Thus, actionable insights regarding student governance in Armenia stem for example from Sweden's emphasis on civic engagement, Poland's focus on the financial and legal independence of student self-government. By integrating these best practices, Armenian higher education institutions can develop more effective strategies for supporting student leadership and engagement.

3.4 Analysis of focus group discussions conducted among students

For the most in-depth study of Armenian experiences with the manifestation of extracurricular activities, field research was conducted. Hence, focus group discussions were organized with 27 participants from the primary beneficiaries – 11 universities and 6 student organizations.

The discussion on the concept of extracurricular activities revealed its multidimensional nature, with students perceiving it in varied ways. Based on the participants' opinions, the three focus groups were created, showing a schematic picture of their occurrences of comments on extracurricular activities (Figure 2).

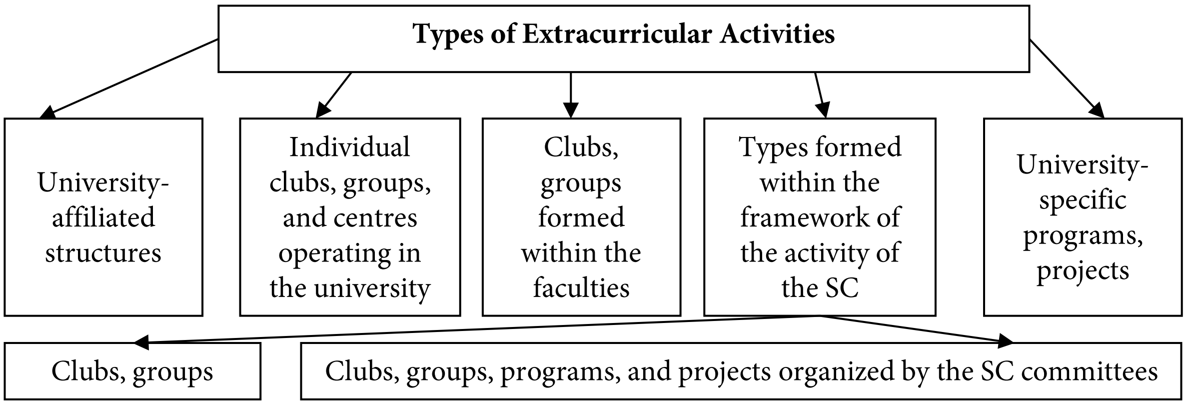

Figure 2. Types of extracurricular activities according to the opinions of the focus group discussions.
Source: Developed by the authors.

A synthesis of university representatives on the types and activities of extracurricular activities further allowed for the identification of several approaches to their classification, as differentiated by the participants (Figure 3).

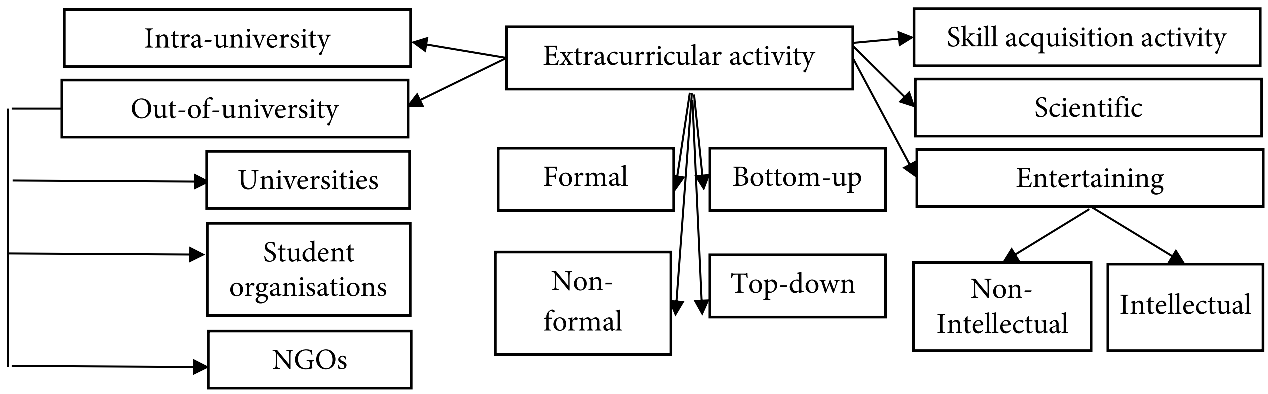

Figure 3. Extracurricular activities according to the preliminary ideas of the discussion participants.
Source: Developed by the authors.

When discussing the problems associated with student self-governance activities, the participants mentioned several key challenges, including the online or hybrid learning, political influences in the past (especially in the case of state universities), lack of transparency and feedback, time allocation, meaningful involvement, scientific orientation, as well as problems with low motivation, indifference, experience sharing, selection of personnel or members, funding conditions and circumstances.

At the same time, several positive developments have been recorded in recent years, including the depoliticization of universities, the emergence of more self-governed, self-aware and informed students, the introduction of online platforms that provided unique flexibility for work meetings, and improvements in exams, grading, and appeals processes facilitated by the student council, among other advancements.

The participants put forward several proposals to enhance the effectiveness of student self-government, including the implementation of transparent and fair elections for student self-government bodies, improved supervision of the quality of self-governance activities, a clearer division of responsibilities, and the removal of inactive members. They also emphasized the need for organizing inter-university debates on student self-governance. Additionally, they advocated for a more student-centred approach by both the state and universities, the adoption of more flexible management practices, the strengthening of connections between education and the labour market, the development of incentive mechanisms, and the integration of student self-government bodies into the legal framework, among other recommendations.

The issue of student participation in university management was also discussed. In general, the discussion participants had different views on whether the 25 percent student representation in the governing bodies of the universities is adequate. When asked about the forms of participation in the management of the higher education system, the majority stated that all three types of participation (participation in the management of teaching, quality assurance and student self-government) were present. Perhaps the "depth/ intensity of participation" was the issue in which the opinions expressed were diverse, both at the level of individual universities and among representatives of the same university. The relative majority of participants believe that dialogue is the format in which students relate to university management processes. Referring to the levels of participation in the management of the university, the participants of the discussion mainly mentioned the department and institutional levels (Figure 1).

By explicitly addressing the second research question, these findings identify the particular skills students develop as a result of participating in ECAs, including teamwork, leadership and organizational capabilities. In addition, they provide an answer to the fourth research question by suggesting where reform can be done and strategies to deal with these weaknesses.

3.5 SWOT-analysis

Within the framework of this research, the application of the SWOT analysis method allows not only a separate consideration of the field of extracurricular activities and the identification of its weaknesses and strengths, threats and opportunities, but also a comparative analysis with the extracurricular activity models of Sweden and Poland trying to locate their experiences and propose solutions based on this. Such an integrated approach provided a versatile analysis of the studied phenomenon (Table 1).

Table 1. SWOT analysis of international experience (Sweden, Poland).

Strengths	**Opportunities**
• In Sweden, the Law (*Swedish Higher Education Act*) clearly defines the procedures for obtaining and operating student self-government status. Students' Parliament of the Republic of Poland (PSRP) also operates based on the Law on *Higher Education and Science of the Republic of Poland.* • There is a collective body of student self-governance, PSRP, a legal entity that works with the Ombudsman. Representatives of PSRP, serving on advisory bodies such as the Board of Main Science and Higher Education, the Polish Accreditation Committee, the Committees of Sejm and Senat, and various working groups within the Ministry of Science and Higher Education, ensure that students' voices are considered in social discussions.	• Student organizations can receive financial support from the university by submitting a grant program (Poland). • Student self-governing bodies have financial and legal independence from the management of the educational institution because the Law stipulates the mandatory provision of material funds to self-governing bodies (Poland). • PSRP has representation in various state bodies (Poland).

• A variety of types of extracurricular activities in the field of self-government, which also differ in their functions, including solving social issues of students (Nations, student unions, associations and political parties - Sweden). • A high level of accountability, defined by clear legal procedures. • Personnel rotation: existence of legally defined procedures for the duration of mandates. • Extracurricular activities aimed at preserving traditional cultural values.	• High motivation of students to participate in extracurricular activities. • The existence of clear procedures for document circulation of extracurricular activities contributes to increasing the effectiveness of the organization of quality assurance processes.
Weaknesses • In the university's collegial body, students' participation in the senate is at least 20 percent (Poland).	**Threats** • Online classes that hinder active extracurricular activities. • The pandemic caused the reduction of financial resources.

Source: Developed by the authors.

Summarizing the main provisions and conclusions presented in the SWOT analysis, it can be observed that the drafting of the Law on Higher Education and Science of the Republic of Armenia, along with the discussions surrounding it, represents one of the most significant opportunities for making positive changes in the field (Table 2, Table 3).

At the same time, it is noteworthy that Article 27 of the aforementioned draft, which restricts student participation in university administration processes, raises concerns when compared to the provisions of the current Law. The draft aims to clarify and further develop the processes and procedures related to extracurricular activities and contribute to the regulation of the area. As these results directly refer to the fourth research question, they evaluate how strengths and opportunities can be turned to counter weaknesses and threats in the current system. Further, it suggests practical lessons for aligning Armenian ECAs with Sweden and Poland's best practices addressing the third research question. The results highlight that enhancing student self-government and ECAs can also serve as a lever for better institutional management. Having well-structured self-governmental arrangements enables HEIs to devolve responsibility, innovate, and cultivate a new generation of student leaders with entrepreneurial mindsets. The arrangements also close the gap between management and students, enabling feedback mechanisms that are necessary for responsive and nimble management. The comparative study demonstrates that in Sweden and Poland, these kinds of structures are part of good governance, providing useful insights for higher education governance in transition economies to reform their management styles and enhance the involvement of students in decision-making.

4. Discussion

This study aimed to investigate the potential of extracurricular activities, namely student self-government, in HEIs of the Republic of Armenia (RA) in comparison with the models in Sweden and Poland. The findings of the study testify that student self-government could be of huge significance while shaping students' employability, entrepreneurial outcomes, and civic engagement. The results are presented in relation to previous research, with a discussion of their implications and suggestions for further investigation.

The findings are in line with the literature that cites ECAs as a necessary factor in developing leadership and entrepreneurial competencies, with a student government in the frontline. Other studies, such as those by Sansone et al. (2021) and Isac et al. (2023), also recorded how ECAs nurture entrepreneurial skills through participation in decision-making processes and management of projects. Meanwhile, the results confirm the conclusions of earlier studies: student self-government activities give practical experience in leadership, governance, and budgeting transferable to professional contexts (Alimbekova et al., 2018).

Table 2. SWOT analysis for the Armenian case.

Strengths	**Opportunities**
• The Law on *Higher and Postgraduate Professional Education of RA (Article 17, Clause 4)* defines the right of students to participate in the work of university management bodies (Republic of Armenia, 1999). • The Law also stipulates the right of students to unite in student councils, student scientific societies and other student organizations *(Article 17, Clause 7).* • The Law on *Education* of RA *(Article 28, Clause 10)* stipulates that "at least 25 percent of the members of the governing bodies of the higher educational institution are students" (Republic of Armenia, 1999). • The existence of a variety of youth and student organizations and their active functioning, both at the local and international levels. • Variety of types of extracurricular activities available in universities of RA: – structures operating adjacent to the university, – individual clubs, groups, centers operating at the university, – clubs, groups formed within the departments, – types formed within the scope of the activities of the SC, – types formed by individual programs and projects of the university. • Student participation in the management of the university system is generally implemented in 3 main formats (participation in academic management, quality assurance and student self-government). • According to the depth/intensity of participation, dialogue is the main format in which students relate to university management processes.	• The legislative framework of the sector is under discussion and reforms. • Student self-government bodies have the right to use alternative financial sources that are not prohibited by Law (sub-grants, entrepreneurial activities, grants outside the university). • Opportunities for students to voice their problems in university management bodies. • The Armenian National Student Association (ANSA), which previously united many student and youth associations, may have a great potential and mission.
Weaknesses	**Threats**
• The term 'extracurricular activity' is neither used nor defined in the Law and the draft of the Law, which hinders the establishment of the scope and clarity of the field. • In the case of non-state universities, the control over the 25 percent representation of students in the governing bodies of the university defined by the Law on Education of RA (Article 28, Clause 10) remains weak (Republic of Armenia, 1999). • There is no ombudsman institute dedicated to addressing student issues. • Extracurricular activities, in particular, work in a self-governing body, are not considered as work experience or other advantages. • Lack of personnel rotation; lack of legally defined procedures for the duration of mandates. • Limited opportunities for regional extracurricular activities (including self-government bodies). • Partnership, as the highest level of student participation (intensity/depth) in university management processes, is not yet functioning as well. • Supranational and national levels as the highest levels of participation in university management do not yet exist; mainly, participation takes place at the department and institutional levels.. • Lack of initiative among students to raise funds.	• The politicization of university self-governance/management bodies. • Online courses that hinder the full development of self-management activities. • Lack of confidence in student self-government bodies, both by students and professors. • Financial and legal dependence of self-governing bodies on the university. • Weak control of budget expenditures, lack of transparency and accountability. • Lack of legal provisions to recognize volunteering as an extracurricular activity • The draft Law on Higher Education and Science (Republic of Armenia, n.d., Article 26) limits students' participation in university management processes to at least 25 percent. • The draft Law on Higher Education and Science (Republic of Armenia, n.d., Article 20, Clause 13) prohibits engaging any funding for the activities of student bodies other than those provided by the university. • Lack of information about other types of extracurricular activities. • Lack of motivation and engagement among students. • As a result of the inactivity of SSSs, the SCs often take over the functions of the former

Source: Developed by the authors.

Table 3. Matrix of cross-sectional SWOT analysis for the Armenian case.

Strengths – Threats • Activating the ANSA or creating a similar self-governing collective body to define its political direction and representation in various state bodies (in the example of the Student Parliament of the Republic of Poland) will promote students' participation in decision-making and prevent the dangers of student councils being politicized. • Revise article 26 of the draft Law on Higher Education and Science, which limits the mandatory participation of students in university management processes as defined by the current Law. If the current Law stipulates that students have "at least" 25 percent representation in the governing bodies of the university, then this provision (minimal threshold) is absent in the draft law; that is, it will be regulated by the internal charter of the university and at the discretion of the university, the governing board may also not include students. The draft (Article 27, Clause 6) only specifies that students make up to 10 percent of the total number of academic council members. • According to the draft, volunteering will be recognized as a type of extracurricular activity, and the credits set for it will contribute to the activation of student volunteering activities. • Design formats in which appropriate control will be established by the charter of universities, transparency and accountability of self-governing bodies will be ensured, which in turn will also contribute to the growth of trust in student self-governing bodies. • Using the activities of youth and student organizations in the local and international spheres to increase the level of information about extracurricular activities and their types, both within the university and beyond, will also contribute to the growth of motivation and involvement. • The university charter clearly defines and separates the functions of the SSSs and SCs, while also creating opportunities for network cooperation between universities, which will help increase their activity. • Financial and legal independence of self-governing bodies from the management of the educational institution should be ensured by establishing the mandatory provision of material funds, as shown in Poland.	***Weaknesses – Opportunities*** • According to the draft on *Higher Education and Science;* – put the term "extracurricular activity" into circulation, – to formulate provisions and minimum imperative norms regarding the financing of extracurricular activities, – establish control over the maintenance of at least a 25 percent ratio of students to the number of members in the governing bodies of the university, particularly in relation to non-state universities, – to develop formats in which the work in the student self-government bodies will be considered as work experience according to the charter of the universities, – establish formats by which the rotation of personnel will be ensured in self-governing bodies according to the charter of universities (according to the example of Sweden). • Initiate the creation of an ombudsman institution dealing with student issues by activating the ANSA or creating a similar organization, following the example of the Student Parliament of the Republic of Poland. • By activating the ANSA or creating a similar self-governing collective body, increase the activity of regional extracurricular student associations, create network cooperation. • With the activation of the ANSA or the creation of a similar self-governing collective body, students' participation in university governance processes should be brought to partnership on national and supranational levels. • Organize special courses for local self-government bodies to use alternative financial sources (sub-grants, entrepreneurial activities, grants outside the university).
Strengths – Opportunities • According to the draft Law on *Higher Education and Science;* – to strengthen the right of students to participate in the work of university management bodies, to unite in student councils, student scientific societies and other student organizations, – leave unchanged the ratio of students to at least 25 percent of the number of members in the governing bodies of the university, establishing new control mechanisms for its implementation – establish a credit system for active participation in extracurricular units, increasing the involvement of students in various extracurricular associations. – establish new mechanisms for increasing the levels and intensity of student participation • To increase the activities of students at the local and international levels by activating the ANSA or creating a similar self-governing collective body.	***Weaknesses –Threats*** • The lack of personnel rotation in student self-government bodies leads to the formation of an atmosphere of mistrust, reducing motivation and involvement. • Gaps in the current Law have a negative impact on the organization of extracurricular activities, activation processes and efficiency. • The draft Law prohibits external funding that may cause limitations for student bodies, overlooking the reality in Armenia, where many student initiatives are supported by Erasmus+, DAAD, Fulbright, TEMPUS, and other international educational programs, and hindering the development of student entrepreneurship and social programs. • There is a substantial disparity between regional and urban extracurricular activities in terms of activity and involvement. • In non-state universities, the control is weaker in terms of ensuring students' participation in university management processes and compliance with the provisions of the Law.

Source: Developed by the authors.

This research, however, covers a gap in the literature that has not been well addressed by earlier works, especially in Armenian society, where self-government is still in its developing phase compared to EU models. Although a number of studies have focused on EU countries (Klemenčič, 2011b), institutional support and resources are so lacking in the Armenian HEIs that previous experiences in the aforementioned countries cannot be taken as wholly applicable here. It remains a finding of great salience, which has not basically been discussed in previous investigations, that successful EU models need adaptation to the educational landscape of Armenia.

Adapting EU models of student self-government to Armenia could have significant positive impacts, not only on employability and entrepreneurial skills, but also on fostering civic responsibility and student engagement in decision-making processes. This finding aligns with studies like those by Klemenčič (2011b), which emphasize the role of student self-government in fostering civic engagement and active citizenship. The Armenian context, however, adds an extra layer of complexity due to the lack of established frameworks and institutional support for student-led initiatives, as revealed in focus group discussions.

The most important unexpected outcome of this research is how much Armenian students consider self-government as a means to develop career-oriented skills, but at the same time be able to contribute much to the field of civic engagement and democratic values. Many previous studies tend to concentrate on employability issues only (García-Álvarez et al., 2022; Jayasingam et al., 2018), while this paper outlines the double role of students' self-government in professional and civic spheres. This double role may have larger implications for the roll-out of ECAs in Armenia by suggesting that attention needs to shift away from employability toward civic and democratic participation.

The findings of this study have important managerial implications for university leaders and higher education administrators. As far as they demonstrate that robust student self-governance and properly organised ECAs develop entrepreneurial and leadership competencies and institutionalise efficiency, the findings perfectly fit into general educational management strategies. In particular, establishing formal student engagement channels, implementing a shared governance tradition, and enhancing the integration of ECAs in university practices can be forces driving organizational innovation, responsiveness, and deeper stakeholder involvement. These are consistent with international trends in higher education management, where student-emancipating institutions that engage students as equal partners in governance become more adaptable and thriving in chaotic settings. Thus, the managerial lessons of this study's findings extend far beyond the Armenian context and offer relevant lessons for educational managers in other transition economies and globally.

The present study gives valuable insight, but the following aspects require further investigation. First, future studies could conduct longitudinal research following students involved in student self-government or other forms of ECA and their eventual careers over periods of time for clearer insights into what really happens in the long term after involvement in ECA. This would give a quantified insight into the impact of student self-government on employability and entrepreneurship.

The question, then, is how different kinds of ECAs like cultural clubs or sport teams relate to student self-government in enhancing employability and leadership skills. Indeed, it would provide a fine-grained understanding of the various ECAs and respective contributions to career outcomes and development of entrepreneurship skills and employability.

Third, it would be useful to investigate the cultural and institutional factors that facilitate or hinder the effective localization of the EU models of student self-government in Armenia. This would examine how Armenian universities and policy makers might work towards EU frameworks in a manner that best fits local cultural and educational conditions.

Finally, a look into the role of digital platforms and online ECAs in facilitating leadership skills, but also focused on the post-pandemic context, is called for in future research since online environments provide unique opportunities for student engagement and leadership development that may differ from more traditional in-person activities.

Conclusions

The research on student extracurricular activities, including student self-government, described the current organizational forms, models, gaps, and possible reforms in the Armenian context, drawing on some comparisons with European experiences, especially in Sweden and Poland. Employing qualitative approaches, such as document analysis, focus group discussions and SWOT analysis, the study identified key findings and proposed recommendations for improving the management and effectiveness of student self-government in Armenia.

The research findings revealed that gaps in the legislative frameworks related to student self-government in higher education institutions of Armenia negatively impacted the organization and effectiveness of the ECAs at promoting employability, leadership and entrepreneurial skills. This was attributed to a lack of rotation and transparency within the personnel composition of the student self-government bodies, which undermines the building of trust, motivation, and involvement among students. Despite all these challenges, the study also reaffirmed that student self-government is key and vital in developing leadership, decision-making, and entrepreneurship skills that complement students' career prospects.

The study also pointed out inequalities between urban and regional universities, as well as between state and non-state institutions, with respect to both the level of activity and involvement of student self-government bodies and compliance with the laws on student participation in university governance. Such findings suggest a need for reforms for enabling equal and more effective patterns of student self-government across all Armenian universities.

The findings of this study lead to several important policy implications. First, the need for legislative reforms in reinforcing students' participation in university governance and assuring at least a 25 percent student representation within decision-making bodies is of paramount importance. This will help in enriching students with leadership and civic engagement motives. Furthermore, the policy should introduce compulsory principles for financing student self-government bodies to make them financially and legally independent from university management. A good model, which could be transferred to Armenia, is that of Poland, whereby student self-governments are financially independent and receive resources from university budgets.

This means that setting up formal mechanisms for rotating personnel and implementing principles of accountability within the framework of student self-government bodies would make their activities much more transparent and help to restore students' trust. Moreover, it would enable students to state work in student self-government in their records as work experience, which is an important factor in finding employment afterwards. An ombudsman institution for student affairs, finally, following the example of Armenian National Students' Association (ANSA), would be a further development in the direction of overseeing and maintaining student self-government.

Although this study adds significantly to the insights provided in the literature, it has some limitations which should be considered in future research studies. One of the major limitations of this research is the inability to trace over time (the lack of longitudinal data) the possible long-term influences of participation in student self-government on students' careers. Furthermore, in the Armenian context, there was a gap in the literature related to the issues under study, which did not allow relying on secondary research and Armenian research data.

This study makes important contributions to the broader field of higher education, particularly in understanding the role of student self-government in fostering employability, leadership, and civic engagement. Such a comparison – the Armenian context versus EU models – allows the research to draw on how European best practices could be localized toward the particular needs and challenges that Armenian universities are facing.

These results underpin the structured student self-government as an instrument of professional and civic development. The research results and recommendations given from this study (such as improvement of the legislative frameworks, financial independence and transparency) can ensure that ECAs contribute more substantially to the preparation of students for successful careers while simultaneously promoting active citizenship and democratic engagement.

The findings of this study highlight the necessity for university management to view student self-government and ECAs as more than ancillary activities, but indeed as strategic drivers of human capital development and institutional development. Universities are recommended to prioritize the incorporation of leadership and entrepreneurial competencies in their extracurricular and governance frameworks, providing the preconditions for active student participation in decision-making and managerial competencies acquisition. Operational steps entail putting into code the representation of students on key governance structures, setting up accountability mechanisms that are transparent, and supporting projects enhancing employability and entrepreneurship. University leaders, through such strategies, are in a position to govern student engagement more effectively and instill institutional change in line with contemporary economic and management science principles.

The study, therefore, concludes that the institution of student self-government indeed has the potential to fill the gap that exists between academic learning and the demands of the labour market. In view of the fact that Armenian higher education institutions are undertaking reforms that provide an enhanced role for students in university governance and access to resources and training, they are in a position to better prepare their graduates to meet the challenges in the labour market and contribute to the creation of a new generation of active and responsible citizens.

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Factors Influencing the Expected Advantages and Disadvantages of Continuous Feedback-Based Performance Appraisal Systems

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Abstract

The objective of this text is to facilitate a discourse on conventional performance appraisal systems and new solutions within these systems, grounded in continuous feedback. Additionally, the text aims to test selected factors that influence the favourable reception of such systems by employees. A survey of 137 Polish current employees revealed that their perceptions of traditional employee appraisal systems were more favourable than anticipated from American research. Despite acknowledging deficiencies in the operational effectiveness of these systems, the employees expressed a positive evaluation of their perceived effectiveness. The expected advantages of a continuous feedback-based performance appraisal system were also given a high rating, and its potential disadvantages a low rating. However, no correlation was found between the ratings of traditional and continuous feedback-based systems. The study demonstrated that anger towards an organisation exerts an influence on perceived advantages of continuous feedback-based systems, which is moderated by the presumed outcome of periodic assessment. Furthermore, younger respondents assigned significantly lower ratings to the anticipated disadvantages of this performance appraisal system in comparison to their older counterparts.

Key words

performance appraisal systems, periodic assessment, continuous feedback, new performance appraisal.

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Introduction

Performance appraisal systems are an important tool for managing work efficiency, and can be beneficial for employees, teams, organisations and even broader groups of stakeholders, because by influencing the performance of the organisation's operations, they also affect its environment. Since the beginning of the 21st century, critical voices have intensified, primarily in American literature, but also Polish literature (Zieliński, 2013; Bohdziewicz & Urbaniak, 2013; Czajka, 2013; Fudala-Barańska, 2016), whether showing that the functioning of traditional performance appraisal systems (TPAS) are inconsistent with the principles of good practice (Zieliński, 2013; Bohdziewicz & Urbaniak, 2013; Czajka, 2013; Fudala-Barańska, 2016), or calling for a radical change in these systems by basing them on continuous feedback (Buckingham & Goodall, 2015; Lawler et al., 2016; Ledford et al., 2016b; Ledford & Schneider, 2018; Tanjung et al., 2024). The topic is all the more important because innovations in the area of human resource management affect not only the organisations that adopt them, but also economic growth at the national level (Danova et al., 2021). However, there has been little research to date on the determinants of success in implementing these continuous feedback-based new solutions, and in particular on employees' reactions to them. This is especially so in the case of Polish scientific literature, as we do not know of any Polish studies in this area. Hence, our goal is to start a discussion on the validity of implementing new performance appraisal systems in Polish companies, and more precisely to indicate the arguments behind the need to modify traditional performance appraisal systems, and to analyse selected factors that may influence the perception of new solutions, i.e. the continuous feedback-based performance appraisal system (CFBPAS). Based on the opinions of 137 employees, some determinants of opinions about traditional and new solutions in the field of performance appraisal were checked, in particular whether opinions about TPAS affect opinions about CFBPAS. It was found that – contrary to expectations resulting from American research – Polish employees positively assessed the perceived efficacy of TPAS, although they noticed several inappropriate actions during its implementation in the company. The respondents also rated the expected advantages of CFBPAS as high, and their potential disadvantages low, but no correlation was found between the ratings of traditional and continuous feedback-based systems. The results supported the premise that anger towards an organisation – moderated by the presumed results of periodic assessment – has an impact on the perceived advantages of CFBPAS, and that younger respondents rated the expected disadvantages of CFBPAS significantly lower than older respondents. However, no impact of attitude to manager and to job was observed.

The article is organized as follows. The first part briefly presents discussions about performance appraisal systems. Special attention is directed to the difficulties identified in the literature concerning traditional appraisal systems, which have become the basis of new solutions based on continuous feedback. New solutions and the current state of knowledge on their effectiveness as performance appraisal tools are briefly outlined. Part 2 presents the methodology of the empirical study, and the third – its preliminary results and a discussion. The last part includes conclusions drawn from the studies presented and indicates the needs for further research.

1. Literature review

Performance appraisal system (PA for short) is a management tool that has been used for over 100 years in companies to increase work efficiency (DeNisi & Murphy, 2017). In its traditional form, it is based on periodic evaluation of the work of subordinates by their direct superiors. These systems became popular in the USA in the 1960s, when companies were looking for tools that would allow them to unquestionably recognize which employees achieve above-standard work results (Capelli & Tavis, 2016; DeNisi & Murphy, 2017; Pulakos et al., 2019). This was necessary to substantively justify above-standard wage increases for these employees, in the face of trade unions' pressure for increases based on seniority.

In Poland, these systems do not have a legal definition (Górnicz-Mulcahy, 2020) and are implemented in companies as an individually created management tool, focused on the goals adopted in the company. It is commonly accepted to divide these goals into several groups, such as administrative goals, informational goals, and motivational goals (Pocztowski, 2018), or administrative goals, developmental goals, role-definition goals and strategic goals (Lameque et al., 2023), but there are often many more specific goals (Ludwiczyński, 2007; Pocztowski, 2018). It is usually indicated that PA performs two basic functions – evaluative (verification of how an employee performs his or her duties) and developmental. Capelli and Tavis (2016) stated that the changing emphasis on the current importance of these functions changed the opinion about how such systems should be constructed in companies, due to the different requirements of a PA for the correct implementation of these two functions. For the evaluative function, the precision and irrefutability of the assessment result is important in order to be able to base on it personnel actions that have wider consequences (dismissal or promotion of an employee), while in the developmental function, the collected information is only a starting point for developing an improvement action plan, hence in these cases the novelty of the information or the credibility of its source becomes more important than precision.

Capelli and Tavis (2016), who analysed the history of the development of periodic performance appraisal methodologies through the changing emphasis on these two functions, note that the period starting in the 1980s, in which the primary aim was to recognize outstanding and poor employees in the company, and therefore the pressure on the accuracy of performance evaluation for these employees, has already passed. Currently, in the second decade of the 21st century, the demands for the developmental utility of PA are becoming stronger.

Since the beginning of the XXI century, there has been an intensifying discussion on social factors that undermined the ability of a manager to objectively and fully adequately evaluate the work of his subordinates. It is argued that the role of the manager is not only to carry out the company's instructions and represent the company to the team, but primarily to fulfil the role of the team leader (Murphy & Cleveland, 1995; DeNisi & Murphy, 2017; Murphy, 2020; Schrøder-Hansen & Hansen, 2023). As a team leader, the manager primarily influences team members, providing reliable feedback to some and undeserved praise or blame to others, in order to realize his/hers plans on how to achieve the best performance of the team, but also how to pursue some of his/her personal interests. These social determinants of the leader's evaluation of team members mean that neither modifications of evaluation scales, nor even special training for managers, can eliminate the consequences of the fact that managers implement, including during PA, their own policy towards employees (Murphy & Cleveland, 1995; Levy & Williams, 2004; DeNisi & Murphy, 2017; Murphy, 2020). Nonetheless, TPAS imposes the role of an objective and precise "measurement tool" on managers during the assessment.

TPAS in a company is based on commonly known and relatively objective assessment criteria, which managers are obligate to use to assess their subordinates. As part of this organizational procedure, a process of evaluating subordinates by their immediate supervisors and setting goals for the next year occurs periodically (usually once a year). In TPAS, setting goals for the next year also involves identifying the subordinate's developmental needs related to the company's priorities in the next period and the individual expectations of employees within these priorities.

Analysing potentially possible assessment systems, Pocztowski (2018, p. 275) proposes to classify performance appraisal systems according to several independent criteria: assessment purposes, assessment principles, assessment criteria, assessment entities, assessment subject, assessment techniques, assessment frequency and assessment procedures. Leaving aside for a moment the purposes of assessment, which – as we indicated above, change while remaining related to assess the staff actual competences, and/or development of these competences – TPAS is the specific type according to this typology. In TPAS the subordinate is assessed by his direct manager in terms of his work in the past period – usually a year – at one predetermined point in time. Traditionally, work is assessed in all its dimensions, as defined by the employee's role and understood by his or her superior, although in practice, wherever possible, the assessment concerns the achievement of the goals set in the previous interview. These goals and objectives are often measurable (typically in Management by Objectives or through a set of KPIs for the area of responsibility), but the evaluation of how to achieve them is usually more difficult to measure. In TPAS, the subject of the evaluation is the employee's work, so for those jobs where it is difficult to set KPIs, the evaluation must necessarily involve differently defined measures of performance in order to provide a fair basis for personnel actions based on the results of the evaluation, such as pay increases, bonuses, or transfers between positions (promotions or demotions).

The part of the assessment that concerns the way of cooperation in the organization is currently usually based on several corporate competencies that define the principles of cooperation. These competencies have a nomenclature specific to a given organization, related to its culture and principles, but they usually concern typical principles of interpersonal cooperation in the organization (communication skills, attitudes toward cooperation), as expressed in the language used to define the company's mission and culture. (Woźniak, 2011). They are described through behaviourally anchored scales to help objectify the assessment of "things that are hard to measure."

The versions of the TPAS that have been in use since the late 20th century basically only use behavioural scales to assess the way of acting and precisely defined goals and responsibilities in the area of performance outcomes. TPAS assumes a number of principles intended to facilitate the creation of a sense of fair classification of employees, such as the knowledge of the evaluation criteria in advance, the confidentiality of the assessment, the possibility of presenting and discussing the employee's arguments, and even the requirement to discuss the sources of the employee's problems and needs, the non-satisfaction of which hinders their work (Ciekanowski & Ostrowska, 2013; Pocztowski, 2018). The procedure of the periodic performance appraisal system not only establishes a schedule of activities and the basic principles of their implementation, but usually assumes that a cascade of meetings (called periodic performance appraisal interviews) will take place – from the top managers down –, a conversation (face-to-face rather than through technologically mediated communication) between a direct superior and a subordinate, during which goals are communicated and company priorities are presented.

The objective of these appraisal interviews, in addition to determining the assessment, is to demonstrate the strategic priorities that the company adopts for the subsequent period. Therefore, in the course of these meetings, which are held from the highest-ranking managers down to the rank-and-file employees, the aforementioned priorities are communicated, in concretization to each of the jobs or roles an employee holds.

From the vantage point of an organization's future, the strategic and role-definition functions assume paramount importance. Conversely, from the individual employee's perspective, the elements of the meeting that demonstrate how their superior evaluates their work may hold greater significance. This evaluation, which includes an analysis of the employee's strengths and weaknesses as they relate to their work performance, serves as a fundamental basis for various personnel decisions. It also facilitates the determination of development opportunities that align with the company's strategic priorities and the employee's career aspirations. In practice, the substantive part of the appraisal interview comprises three elements. The first is to determine the assessment of the employee's performance through a discussion concerning the adopted priorities for their work during the preceding appraisal interview. It is based on generalized feedback, in which the manager presents his assessment and arguments for it, and the employee presents his/her opinion and explains any ambiguities, which may change the manager's opinion. The second element of the appraisal interview is setting priorities or goals for the next period, and the third element is the employee's career development plan. The latter element is based on discussing the developmental needs of the subordinate and establishing (taking into account the company's strategy and available resources) a development action plan to be implemented in support of the achievement of the established goals. These three, partially related elements are usually – as many as 89% of companies combine periodic performance appraisals with raises (Mercer, 2013) – additionally complemented by a discussion about financial expectations and determining salary raises or proposals for the pay increases submitted by the manager.

It is understandable and included in the rules of this procedure that data from appraisal interviews are transferred to HR as the basis for a number of further personnel actions. This is because the results of these interviews are the outcome of an internal audit of the human resources they have, their development plans and their expectations regarding the training and working tools that would help them to implement the company's plans in the following year.

Thus, it can be said that – if the periodic interview actually measures the quality of an employee's work – the TPAS serves two management purposes well: it provides data to justify the distribution of raises and promotions, and it indicates to management who is talent worthy of attention

(Buckingham & Goodall, 2015; Cappelli & Conyon, 2018). The second purpose of these interviews - corrective and developmental actions and conveying to the employee how his or her supervisor sees his or her work – is of less immediate importance from a management perspective, but has a long-term impact on talent development and how the company will operate in the future (Buckingham & Goodall, 2015). To achieve the latter goal, more important than the accuracy of the assessment is the ability to motivate the employee to work on himself/herself and enable development activities, because even feedback that is not necessarily accurate can be a good basis for development activities. However, it is difficult to achieve this goal through a conversation held once a year, so the schedule of periodic evaluations is not conducive to success in achieving development goals, unless these conversations are only a supplement and summary of continuous feedback and development work.

As already mentioned, constructive criticism of TPAS has a history of over a hundred years, but one of the shortcomings of TPAS, which McGregor pointed out already in 1957 (DeNisi & Murphy, 2017), still characterizes these systems. Namely, the assumed implementation of the 3 goals, administrative, informational and motivational, during employee evaluation is impossible, because combining a conversation about raises with a conversation about the problems a subordinate has at work limits honesty and mutual trust. Nevertheless, under the influence of scientific criticism, but also due to changing business conditions, TPAS has undergone refinement changes over the years, a good example of which was the introduction of behavioural scales. Another example of such changes was the introduction of training for evaluators (and often also for those being assessed). Contemporary attempts at radical modifications in the TPAS, however, resulted not so much from scientific criticism showing the complexity of the social context of implementing the annual assessment (Levy & Williams, 2004; DeNisi & Murphy, 2017; Murphy, 2020), but from revealing the effects of using forced distribution of grades. The forced distribution evaluations assumed that the manager had to identify a given number of the weakest and of the best member of the team and its use as part of evaluation systems became a fashion in the 1990s – attributed to the successes of J. Welch at GE (Capelli & Tavis, 2016) – in American companies to imitate GE solutions. This fashion expired rapidly at the beginning of the 21st century, and in the second decade of the 21st century, their harmfulness to organizations (Google, Microsoft) is emphasized (rather than their advantages), such as the potential identification of talents.

An additional factor – in addition to the proliferation of team-based project work, i.e., the kind where individual contributions become difficult to measure and harmful to emphasize – has been the emphasis on effective employee development actions within the company that is prevalent in the second decade of the 21st century.

Historically, this shift to the new types of performance appraisal systems has occurred gradually. According to Ledford et al. (2016a), the beginning of the modification of TPAS was the simplification of rating scales, which began around 1995. That's when companies began to move away from multi-point (typically 5 points, but even 7 points) Likert scales on multiple (10) dimensions. The reason for reducing the dimensions and simplifying the scales was (in addition to evidence of the unreliability of multidimensional scales) no need for precise and detailed employee classification. In particular, it was due to the radical (relative to, for example, the 1970s and 1980s) reduction in the scale of raises (the average wage increase in the US was less than 3%). Thus, the administrative purpose of performance appraisal became to identify only 1–3% of the worst employees (for possible dismissal), and with regard to the remaining employees, managers made their own decisions on raises. At the same time, it has been observed in companies (which has also been confirmed by academic research – cf. the review in (DeNisi & Murphy, 2017) that feedback from multiple sources (collected in a 360-degree system) provides a good incentive to work on developing one's competencies. In addition, there has been a proliferation of coaching in companies (and again – found scientific support for its effectiveness), which has fostered criticism of the periodic interview as an ineffective development tool.

At the beginning of the 2nd decade of the 21st century, it became common in the scientific and business literature to emphasize that the performance appraisal system needs radical modification, because in a team-based project economy, in a highly volatile environment, it is not possible to set annual plans or evaluate work in such a distant perspective. In particular, large consulting companies, oriented to the internal development of their employees' competences (recruited as young university graduates), were interested in intensifying this development. Intensive feedback and coaching based on the results of work in individual projects, or even individual phases of these projects, rather than based on the establishment of annual development needs, became a basic tool in them.

A growing body of research data from diverse samples has appeared in the academic and business literature suggesting a shift away from TPAS. Capelli & Tavis (2016) show that 88% of companies surveyed plan to change their performance appraisal system. Another study found that of 430 companies surveyed, 12% had already eliminated performance appraisals, 25% planned to do so (HCI, 2015; Pulakos et al., 2019); in another study – conducted on 296 companies – 6% of companies had eliminated PA, 15% planned to do so (CEB, 2016; Pulakos et al., 2019). It has often been argued that TPAS are ill-suited to the rapid dynamics of company work, to projects and teamwork, to the dependence of work performance on context, and that linking TPAS results to compensation decisions demotivates and hinders corrective action.

Alternatives to TPAS have been emerging in many companies (Buckingham & Goodall, 2015; Lawler et al., 2016; Ledford et al., 2016b; Ledford & Schneider, 2018; Lievens et al., 2020), hence there is no single standard that can be called a new way of performance appraisal of employees. However, it is common for them to use continuous feedback, i.e., collecting information from multiple people with different roles in projects about an employee's performance on an ongoing (rather than periodic) basis. Companies like Deloitte, Gap, Microsoft, Adobe, and PwC are considered forerunners of this trend (Lievens et al., 2020, p. 9).

Collecting information through "360-degree feedback" usually is leveraged by the potential of social media and the willingness of today's employees to use social media tools to provide feedback to one another following projects or collaboration incidents. In properly designed feedback presentation formats, anyone who has come into contact with an employee has the opportunity to type in praise or remarks, pointing to a specific incident and his or her action in it, and can express his/her opinion on the perceived strengths of the person being assessed. Feedback gathering ICT bases built in this way can form the basis for a conversation between the supervisor and the subordinate, usually more frequent and shorter than in TPAS – for example, at Delloitte once a week for 15 minutes (Buckingham & Goodall, 2015). The frequent use of crowdsourcing feedback methodology (Mosley, 2012), in which, like in 360-degree feedback, feedback is collected from many, but - as in crowdsourcing (Woźniak, 2013) – undefined in advance individuals, creates a broad information base for the person being assessed and for management who want to better understand what type of employee they are dealing with. As a result, opinions about the employee are collected all year (and not at a specific moment in the calendar), the number of people providing feedback increases, and for HR it is possible to build a graph showing who shows appreciation to whom, recognizing people who are actually key to the operation of various teams.

Usually, this continuous feedback is technologically mediated (implemented as entries in enterprise social media (Gupta & Sharma, 2023)), hence it is necessary to supplement this information with traditionally implemented coaching and/or frequent meetings with the manager (Buckingham & Goodall, 2015; Ledford & Schneider, 2018). However, it should be borne in mind that, just like in social media, typical problems arise in such systems, related to careless expression of opinions. Hence, the possibility of negative entries is usually limited and short positive entries dominate, such as "Good job!" or "Pros!" rather, than more extensive and precise information ("You don't use extensive face-to-face interactions enough"). From the perspective of company managers who want to base important personnel decisions on this data, the real problem is the credibility of these entries, and only AI-powered analyses may deal with this, for now to a limited extent (MIW, 2023).

It should be noted that the use of PA belongs to the so-called good management practices supported by business schools and American standards of management education (Ghoshal, 2005; Arnaboldi et al., 2015), and thus, as these practices become more popular in other parts of the world, they are becoming widely used in the form of TPAS. In fact, their popularization in a specific country is influenced by 3 mechanisms: the adoption of Anglo-Saxon business standards in management education, and –adopting them at a different speed – in the practice of companies, and - independently - the popularization of New Public Management. Hence, in different countries of Eastern Europe, these practices have a different degree of use and history of implementation.

TPAS as a tool for managing work efficiency in the New Public Management (NPM) model (Arnaboldi et al., 2015), an ideology of transferring business practices to public administration, was introduced at different time in public and local government administration in European and non-European countries. For example, in Poland, the use of TPAS has been mandatory in public administration since 2008, but in local government administration in the Czech Republic, research showed the initial stages of the dissemination of these practices in 2016 (Špalková et al., 2015), while in Ukraine the implementation of these practices began only in 2016 (OECD, 2024). These differences can be seen today – for example, Ukrainian universities are starting to implement periodic assessment systems (Shaulska et al., 2021), while in Polish countries it has been a standard required by law since 2018 (Woźniak, 2023).

Treating TPAS as a tool of good business practice suggests that in private organizations – at least in the initial periods of absorption of Western models – a higher level of implementation of these practices should be expected than in administration, where their popularization requires a legal change. It is therefore not surprising that comparative studies using the Cranet database, which periodically collects data from 32 countries around the world, show that on average in Eastern European countries the dissemination of performance appraisal is still lower than in Anglo-Saxon and Scandinavian countries (70% and over 90%, respectively), but the differences between the scale of use in business and public organizations are radically decreasing in the following years (Poór et al., 2021).

In business, in addition to the absorption channel resulting from the content taught in business schools, the most important channel for the dissemination of traditional model of performance appraisal is the use of this practice in international companies. Research shows that the probability of using PA is greater in companies with international than domestic capital (Buchelt, 2015; Varma et al., 2023), but even this adaptation channel – separate from the adoption of NPM patterns by the administration – does not erase cultural differences in the reception of PA (Varma et al., 2023), which was found, among others, by comparing their reception in individualistic and collectivist cultures (Varma et al., 2023), but also by subsidiaries of international companies operating in Eastern European countries (Zając, 2011).

It is also known that the type of international company is important for the scale of TPAS application, i.e. companies with Anglo-Saxon and Scandinavian origins are more likely to apply Anglo-Saxon management practices. It is therefore not surprising that differences between Eastern European countries in the scope of adaptation of Anglo-Saxon management practices patterns are significant (Poutsma et al., 2015), and in particular that the prevalence of PA in Czech and Slovak organizations – according to a number of studies on different samples – is significantly lower than the above-mentioned 70% (Urbancová et al., 2017; Špalková et al., 2015), which can be explained by the lower share of companies with Anglo-Saxon origins among international companies operating in the Czech Republic and Slovakia (Poutsma et al., 2015).

From this perspective, the conclusions from American studies on the attitudes of employees and managers towards PA can be considered not fully adequate to the opinions of Polish employees, but – assuming a relatively early adaptation of Anglo-Saxon management practices in Polish companies – one can expect similar tendencies to those in the US. The following facts support this view: the relatively early adaptation of these management tools in Polish companies and administration, the strong orientation towards admiring of American examples, which typical Polish society, and the significant share of foreign capital investments of global or American origin. On the other hand, the practice of Polish periodic assessment systems is relatively short, so their operation may be closer to the original assumptions and more consistent with the rules that were expected for these systems than in American systems with a 100-year history, which have undergone multiple changes in their objectives. One can also expect differences resulting from cultural differences between Polish and American society – despite a similar level of individualism, a low level of tolerance for uncertainty may promote more negative reactions of Poles towards actions inconsistent with TPAS rules. The purpose of the empirical study described here was to collect and compare the opinions of Polish employees about TPAS and a continuous feedback-based appraisal system, understood as described above. The rationale for conducting this study was the absence of pertinent research in the scientific literature. To the best of our knowledge, there is a dearth of studies that demonstrate how the reception of TPAS influences the evaluation of new systems. The findings of this nature appear to be imperative for the implementation of novel performance appraisal systems. In preparing the study – in view of the very scanty research on the functioning of performance appraisal systems in Polish companies – we had to make a number of assumptions. First and foremost, we assumed that, as in the US, where studies have shown low TPAS ratings for years (Aguinis et al., 2011), this system would also be negatively evaluated in Poland. After all, it has long been believed that "the performance appraisal process is hated by managers and employees alike" (Lee, 1996, p. 1) and studies show that employees are dissatisfied with the results of employee evaluations –according to (Chun et al., 2018) this applies to 66%. Similarly, negative attitudes toward TPAS are expected given the results of a Gallup survey, which showed that 71% of employees in the U.S. believe that their periodic performance evaluations were not entirely fair (Wigert & Man, 2017). Therefore, a generally negative assessment of the traditional system was to be expected, although it is possible that there were varied assessments of possible sub-dimensions of the perception of this system.

Based on these general indications from the U.S. literature about attitudes toward PA, we expected a negative assessment of the perceived efficacy of TPAS, namely the belief that it does not provide valuable developmental or differential information about how people perform. It should be noted, however, that a number of specific studies (Achara et al., 2024; Azzahrunisa et al., 2024; Battur & Trieveni, 2023), conducted in various developing countries (i.e., those where appraisal systems have a relatively short tradition of existence as a tool of modern management), show a positive impact of the periodic performance appraisal system on declared work efficiency. A number of studies also show that employees expect performance appraisal system to be effective (Adler et al., 2016; Czajka, 2013; Fudala-Barańska, 2016; Pulakos et al., 2019). Hence, it can be expected that only strong inadequacies in the functioning of such systems would cause them to be recognized as failing to achieve their main goals, which suggests that our hypothesis about Polish employees' negative opinion of the TPAS is not obvious.

An obvious prerequisite for perceiving the appraisal system as effective in achieving evaluation and development goals is to recognize that its concrete implementation meet the criteria of fairness (Lyu et al., 2023; Maharvi et al., 2023; Taneja et al., 2024). This is a separate aspect from the evaluation of perceived efficacy, i.e., the judgment that, for example, periodic appraisal serves developmental purposes and accurately diagnoses the quality of work. In other words, the lack of acceptance of the employee performance appraisal system may be due to non-acceptance of its assumptions and a low assessment of the perceived efficacy of this system, but it may also be the result of bad experiences resulting from misuse or degeneration of the system (non-compliance with the rules and regulations of the performance appraisal system). Therefore, the study of opinions about the performance appraisal system should be multidimensional, including both perceived efficacy, and– the perception that it does not function according to the principles that are declared. Studies show that the grade an employee receives in a traditional periodic appraisal system depends primarily on the appraiser (in a survey of a sample of 4 500 (Scullen et al., 2000) 62% of the variance in appraisal was explained by the "appraiser" variable, and only 21% by "appraised"). We expect that Polish respondents may question the efficacy of the entire periodic performance appraisal procedure, but most importantly - they will perceive incompatible actions of the manager, such as politicking (Drory & Vigoda-Gadot, 2010; Vigoda-Gadot & Vashdi, 2012) and other behaviours that contradict TPAS rules and principles.

The influence of age is a factor that can be expected to play a role in the evaluation of TPAS. Research on Generation Z shows that its representatives expect truthfulness, transparency, and organizational ethics from organizations (Francis & Hoefel, 2020). Generation Z differs from Generation Y in that Generation Z displayed more anger than Generation Y when they see corporate social irresponsibility (Abbasi et al., 2024). Therefore, we assume that younger respondents (who belong to Generation Z) will be more sensitive to the action inconsistent with TPAS rules.

Familiarity with the rules of the TPAS (knowledge of the system) will be a factor independent of the other evaluations, as awareness of the rules should not be related to an opinion on the inconsistency of system implementation with its rules and letters, nor its efficacy. It is worth noting that Polish research (Budziak & Figurski, 2017) shows widespread (declared by 100% of respondents) knowledge of the principles of the performance appraisal system and much lower satisfaction with its fairness – only 59% felt they were fairly appraised. Similar results -– high knowledge of the system but poorer evaluation of the practice of its operation – were obtained in Jordan (Alabbas et al., 2024), India (Battur & Trieveni, 2023), or Nigeria (Achara et al., 2024).

H.1.1. At least two factors can be identified in the opinion of TPAS, among which the opinion of the implementation of the performance appraisal system (inconsistency of system implementation with its rules) will be distinct from the degree to which its efficacy is evaluated.

H.1.2. These evaluations will be, on average, negative, with younger employees (belonging to Generation Z) evaluating the inconsistency of system implementation with its rules of TPAS more harshly than older employees.

In our search for variables that influence perceptions of TPAS we chose attitude toward the company, or more precisely, anger toward the organization, opinions about cooperation with the manager and general attitude toward work (amotivation). The selection of these variables was determined by their distinct roles in influencing the perception of the various dimensions of the periodic performance evaluations implemented within the organization. Additionally, these variables are associated with the respondents' attitudes toward distinct areas of their organization, such as their general attitude toward work, their attitude toward the company, and their perception of the manager's behavior. A number of studies have shown that fairness perceptions regarding the conduct and results of appraisals affect the overall evaluation of this system and its consequences for performance (Taneja et al., 2024; Al Muniri & Hashim, 2024; Alabbas et al., 2024). Thus, we assume that perceived inconsistency of system implementation with its rules of TPAS will negatively affect the evaluation of system efficacy and correlate with amotivation and anger toward an organization. It can also be expected that individuals with longer working experiences will be more likely to question the efficacy of TPAS in their organizations as a result of perceived inconsistency of system implementation with its rules of this system, as a longer history of employment increases the likelihood of exposure to organizational flaws or unethical behaviours during performance appraisal process. This is consistent with research on an organizational cynicism (Reichers et al., 1997; Johnson & O'Leary-Kelly, 2003), which indicates that employees with longer tenure may exhibit higher levels of organizational cynicism due to accumulated experiences of disappointment, unmet expectations, and perceived organizational injustice.

In the study of Taneja et al. (2024), negative evaluation of cooperation with a manager (operationalized as low Leader-Member Exchange LMX) – correlated negatively with TPAS fairness ratings. Hence – despite the fact that the opinion of a manager's inappropriate actions from the perspective of the performance appraisal procedures applies only to the PA and not to the manager's work as a whole – it can be expected that the overall opinion of a manager's poor cooperation correlates with the opinion of his/her inappropriate (inconsistency of system implementation with its rules) actions in the performance appraisal activities. The manager is usually regarded as a representative of the company to employees (Mintzberg, 2009), and this is the assumed role for him/her in TPAS (Evans & Tourish, 2017; Hill & Plimmer, 2024), hence a positive correlation of cooperation with the manager with perceived efficacy of TPAS can be expected. On the other hand, since contact with the manager is often very close in modern organizations, this hypothesis is not obvious.

The following hypotheses regarding the factors influencing opinions about TPAS were formulated:

H.1.3. Perceived inconsistency of system implementation with TPAS rules negatively affect perceived efficacy of TPAS, but this is moderated by seniority in such a way that those with longer employment histories are more likely to downgrade perceived efficacy of TPAS as a result of perceived inconsistency of system implementation with its rules.

H.1.4. Amotivation and anger toward an organization correlate negatively with perceived efficacy of TPAS and positively with perceived inconsistency of system implementation with TPAS rules.

H.1.5. Cooperation with the manager correlate positively with perceived efficacy of TPAS and negatively with perceived inconsistency of system implementation with TPAS rules.

The primary rationale for the relationship between TPAS ratings and CFBPAS ratings comes from research on change in organizations. According to the findings of numerous studies in the late 20th century, we assume that negative evaluations of the status quo foster a favourable attitude toward change, while positive evaluations of the status quo foster a negative attitude toward change (Kotter, 2012; Majowska, 2013; Laig et al., 2021). So, we can conclude that a negative evaluation of a particular aspect of TPAS will favor a positive evaluation of CFBPAS and vice versa.

H.2.1. The evaluation of TPAS affects the evaluation of CFBPAS in such a way that perceived inconsistency of system implementation with TPAS rules affect positively the expected advantages of CFBPAS and negatively the expected disadvantages of CFBPAS, while perceived efficacy of TPAS affects positively the expected disadvantages of CFBPAS and negatively the expected advantages of CFBPAS.

At the same time, it is expected that attitudes toward the company (anger toward an organization) and working there (amotivation) will negatively affect perceptions of the novas implemented by the organization. A meta-analysis by Chiaburu et al. (2013) showed that breaches in psychological contracts contribute to the development of cynicism. Assuming that anger toward an organization and amotivation will be indicators for perceived breaches in psychological contract, it can be thought that this will block the expectation of the benefits that come with change.

Research shows that individuals who perceive their outcomes as favourable are less likely to view the procedures negatively, even when they would typically find the procedures unfair (Brockner et al., 2000). So, the negative impact of anger toward an organization on expected advantages of CFBPAS can be reduced by high outcome of periodic assessment.

H.2.2. Amotivation negatively affects the expected advantages of CFBPAS.

H.2.3. Anger toward an organization negatively affects the expected advantages of CFBPAS. This influence is weakened by the presumed high (better than average) result of periodic assessment.

One of key values of generation Z is regular feedback (Gabrielova & Buchko, 2021). As “digital generation”, more innovative and open to change (Hechl, 2017) members of Generation Z should be especially open to CFBPAS as a) an innovation, b) an innovation based on continuous feedback. Also, we can assume that employees with shorter tenures, who have not had the opportunity to accumulate bad workplace experiences (unfair actions on the part of the company and managers), as well as unfavourable or apparent changes in organizational procedures, will approach innovations in the field of employee evaluation with more confidence. Thus, they will rate the expected advantages of CFBPAS higher and their disadvantages less critically.

H.2.4. Younger age and shorter seniority will negatively affect expected disadvantages while positively affecting expected advantages of CFBPAS.

2. Methodology

2.1 Participants

The data was collected by a master's student in the part-time program of one of the authors, Ms. N. Pazura, who agreed to include the authors' questions in her survey. Thus, the sample has been collected with a snowball methodology, hence the demographic characteristics are specific, i.e. they correspond to the characteristics of part-time students of low age and seniority, rather than those of a typical employee. 150 people were surveyed. After removing incomplete responses, 138 remained. A summary of the respondents' demographics is given in Table 1.

Table 1. The respondents demographics.

Characteristics	N=138	Percentage
Gender		
Female	74	54.0
Male	63	46.0
Age		
Under 26	67	48.9
26 –36	37	27.0
37 –50	22	16.1
More than 50	11	9.0
Level of education		
At most secondary education	14	10.2
Student	56	40.9
Master degree	67	48.9
Total length of employment (seniority)		
Up to 4 years	60	43.8
5-14	39	28.5
15-20	18	13.1
More than 20	20	14.6
Positiion		
Entry-level employee	49	35.8
Specialist	64	46.7
First line manager	15	10.9
Middle manager	9	6.6
Company size		
Micro	24	17.5
Small	27	19.7
Medium	29	21.2
Large	57	41.6

Source: Own elaboration.

2.2 Measures

Amotivation was measured using three items derived from (Guay et al., 2000): “There may be good reasons to do this activity, but personally I don’t see any,” “I do this activity but I am not sure if it is worth it,” “I don’t see what the activity brings me,” and “I do this activity, but I am not sure it is a good thing to pursue it.”. Participants responded on a five-point Likert-type scale (from 1 – strongly disagree to 5 – strongly agree). The factor analysis extracted one component with no items being discarded. The Kaiser-Meyer-Olkin measure of sampling adequacy (henceforth KMO) was 0. 68 and the Bartlett test of sphericity ($\chi2$ =439.10, df=6, p<0.001) proves the adequacy of the correlation matrix. 68.93% of variance were explained. Loadings ranged from 0.65 to 0.91; Cronbach’s alpha=0.84.

Anger was measured using three items adapted from (Khan et al., 2023). “Sometimes I hate the company I work for,” “My workplace is often a source of irritation for me,” and “I am often angry at the company I work for.” Participants responded on a five-point Likert-type scale (from 1 – strongly disagree to 5 – strongly agree). The factor analysis extracted one component with no items being discarded. KMO=0.71; the Bartlett test of sphericity: $\chi2$ =263.83, df=3, p<0.001; 83.15% of variance explained. Loadings ranged from 0.89 to 0.95. Cronbach's alpha=0.90.

Cooperation with the manager was measured using three items: "My manager leaves me free to act", "My manager listens to my ideas for solutions to problems', "My manager is usually good to work with" (ad hoc scale). Participants responded on a five-point Likert-type scale (from 1 – strongly disagree to 5 – strongly agree). The factor analysis extracted one component with no items being discarded. KMO=0.71; the Bartlett test of sphericity: $\chi2$ =198.59, df=3, p<0.001; 78.44% of variance explained. Loadings ranged from 0.86 to 0.92. Cronbach's alpha=0.86.

Presumed result of periodic performance appraisal was a dichotomous variable with a value of 1 if a participant presumed that they had been rated better than their colleagues (63.5%) and 0 otherwise.

Age was coded 1 for respondents older than 25 years (51.1%), 0 – otherwise.

Seniority was coded 1 for respondents whose total length of employment was more than 4 years (56.2%), 0 – otherwise.

In order to obtain opinions about the TPAS, 20 statements were formulated on various aspects affecting the overall evaluation of the system: knowledge of the procedure (the sample items: "I know the evaluation regulations," 'I am familiar with the evaluation criteria and rules'), perceived efficacy and purposefulness of the TPAS (the sample items: "Performance appraisal is a good way for us to identify training needs," "Performance appraisal is an opportunity for us to collectively set goals to be achieved"), inconsistency of system implementation with its rules. The sample items: "Periodic performance appraisal is a good opportunity in our country to report on colleagues" (rev.), "Good grades in performance appraisal are obtained mainly by people who live well with the manager". Participants responded on a five-point Likert-type scale (from 1 – strongly disagree to 5 – strongly agree).

A principal components analysis with an oblimin rotation and Kaiser normalization resulted in a three-factors solution (Table 2) accounting for 62.64% of the variance. Items with loadings <0.3 and cross-loaded ones were suppressed. KMO=0.70; the Bartlett test of sphericity: $\chi2$ =516.73, df=55, p<0.001. The factors were labelled: 1 – Perceived efficacy of TPAS, 2 – Perceived inconsistency of system implementation with TPAS rules, 3 – Knowledge of the procedure.

Table 2. Traditional performance appraisal systems ratings – the rotated factor loadings.

Items	Components		
	1	2	3
Performance appraisal is a good way for a manager to find out which of his employees need help and what kind	0.844		
Performance appraisal is a good way for a manager to find out what difficulties a specific subordinate has at work	0.816		
Performance appraisal is an objective measure of the quality of my work	0.815		
Performance appraisal is a fair way for us to determine who deserves a bonus and/or raise	0.725		
Performance appraisal is a good opportunity for a manager to demonstrate his power and "show who's boss" (rev)		0.877	
Performance appraisal is a fictitious activity from which no one expects anything (rev)		0.807	
Periodic performance appraisal is a good opportunity for us to report on colleagues (rev)		0.789	
Periodic performance appraisal assessment wastes everyone's time (rev)		0.656	
I am familiar with the criteria and principles of performance appraisal assessment			0.886
During my last periodic performance appraisal, I was provided with sufficient justification for awarding this grade			0.844
I know the grading regulations			0.405
Cronbach's alpha	0.817	0.796	0.573

Note: 1 – Perceived efficacy of TPAS, 2. – Perceived inconsistency of system implementation with TPAS rules, 3. – Knowledge of the procedure.
Source: Own elaboration.

In order to obtain opinions about CFBPAS, 19 statements were formulated regarding the expected advantages and disadvantages of this system. After the removal of items with cross-loadings a principal components analysis with an oblimin rotation and Kaiser normalization resulted in a two-factors solution (Table 3) accounting for 62.92% of the variance. KMO=0.91; the Bartlett test of sphericity: $\chi 2 = 1381.22$, df=120, $p<0.001$.

Table 3. Continuous feedback-based performance appraisal system's ratings – the rotated factor loadings.

Items	Components	
	Expected advantages of CFBPAS	Expected disadvantages of CFBPAS
Such a system would be better for employees	0.853	
Such a system would motivate me to improve my work	0.831	
I would like to introduce such a performance evaluation system in my company	0.819	
Such a system would be better than the one currently in my company	0.818	
Such a system would provide a lot of information enabling more fair bonuses allocation	0.812	
Such a system would be better for the company	0.809	
Such a system would provide a lot of information for more equitable promotion	0.802	
Such a system would motivate me to improve my skills	0.796	
Such a system would be fair	0.780	
Such a system would reduce the loss of time when conducting periodic assessments	0.759	
Such a system would reduce conflicts around periodic performance appraisal assessments	0.744	
Such a system would provide me with a lot of information to improve my work	0.674	
In such a system, there is no good way to distinguish reliable opinions from unreliable or biased ones (rev)		0.800
We could easily make a group of people who would praise each other (rev)		0.794
Opinions about my achievements from people working with me would be unbelievable (rev)		0.756
This method of collecting opinions can be easily fooled (rev)		0.751
Cronbach's alpha	0.946	0.783

Source: Own elaboration.

3. Research results

All statistical analyses were completed using IBM SPSS Statistic software (v. 29) and PROCESS Procedure for SPSS Version 4.2. Statistical significance was set at the 0.05 level. Table 4 shows sample descriptive statistics.

Table 4. Descriptive statistics.

Variable	Mean	SD	95% CI for mean		Median
			Lower bound	Upper bound	
Anger	2.93	1.33	2.70	3.14	3.00
Amotivation	2.82	1.08	2.63	3.00	2.75
Cooperation with the manager	3.48	1.13	3.29	3.67	3.67
Perceived efficacy of TPAS	3.21	0.99	3.04	3.38	3.25
Perceived inconsistency of system implementation with of TPAS rules	3.43	1.08	3.25	3.61	3.50
Expected disadvantages of CFBPAS	2.92	0.94	2,76	3.08	2.75
Expected advantages of CFBPAS	3.40	0.95	3.24	3.56	3.33
Age	0.51	0.50	0.43	0.60	1.00
Seniority	0.56	0.50	0.48	0.65	1.00
Presumed result of periodic assessment	0.64	0.48	0.55	0.72	1.00

Source: Own elaboration.

Table 5 demonstrates correlations among the variables used in this study.

Table 5. Correlations between variables.

Variable	Pearson correlations								
	1	2	3	4	5	6	7	8	9
1.Anger									
2. Amotivation	0.59**								
3. Cooperation with the manager	0.28**	0.23**							
4. Perceived efficacy of TPAS	-0.08	0.04	-0.01						
5. Perceived inconsistency of system implementation with TPAS rules	0.01	-0.03	-0.02	-0.30**					
6. Expected disadvantages of CFBPAS	-0.01	-0.06	0.00	0.03	-0.01				
7. Expected advantages of CFBPAS	-0.33**	-0.23**	-0.08	0.12	0.03	0.055			
8. Age	0.01	-0.00	-0.12	0.07	0.08	0.172*	0.06		
9. Seniority	-0.09	0.01	-0.02	0.07	0.18*	-0.026	0.02	0.55**	
10. Presumed result of periodic assessment	0.19*	0.17	0.22**	0.01	-0.03	-0.176*	-0.14	-0.13	-0.15

Notes: **Correlation significant at the 0.01 level,* correlation significant at the 0.05 level.
Source: Own elaboration.

Hypothesis 1.1. was supported by factor analysis presented in the "Measures" section. In fact, the factor analysis yielded three factors: apart from the expected ones, also knowledge of the procedure with low internal consistency (Cronbach's alpha below the accepted norm of 0.70). Therefore, this scale was excluded from further analyses.

The descriptives of the TPAS ratings' measures (Tab. 4) show that:

- ratings of perceived efficacy of TPAS are not generally negative (lower bound of 95% CI for mean>3; Me= 3.25);
- ratings of perceived inconsistency of system implementation with TPAS rules are generally negative, i.e. respondents do notice cases of violation of the rules for conducting periodic assessments (lower bound of 95%CI for mean = 3.25; Me= 3.5).

The t-student test shows (t (135) =-0.948; p=0.172) that there is no significant difference in ratings of perceived inconsistency of system implementation with TPAS rules between younger and older subjects. This only partially supports hypothesis 1.2 that states that ratings of TPAS will be negative, i.e. the average respondent will rate the perceived effectiveness of TPAS below the neutral value (3) and the perceived inconsistency of system implementation with TPAS rules above this value.

To test Hypothesis 1.3. the PROCESS macro (Hayes, 2017) was applied. The analysis revealed that the (perceived inconsistency of system implementation with TPAS rules) x (seniority) interaction is not significant (p=0.939), since the simple effect of perceived inconsistency of system implementation with TPAS rules on perceived efficacy of TPAS is negative and significant (B=-0.306, SE=0.117, p=0.010). The model was statistically significant F (3, 133) =5.310, p=0.002. R Square =0.107. Thus, this hypothesis is partially supported. Perceived inconsistency of system implementation with TPAS rules influences negatively perceived efficacy of TPAS, but this relationship is not moderated by seniority.

As can be seen in the correlation table (Tab. 5), hypotheses 1.4 and 2.1. should be rejected.

To test hypotheses 2.2 and 2.3 the PROCESS macro (Hayes, 2017) was applied. The effect of Anger towards an organization on expected advantages of CFBPAS moderated by Presumed result of periodic assessment with amotivation as a covariate was examined.

The analysis revealed that the (Anger) x (Presumed result of periodic assessment) interaction is significant (B=0.289, S.E.>=1.121, p=0.018), whereas Amotivation effect was not significant (p=0.617) which means that hypothesis H2.2 should be rejected. Conditional effects of Anger at values of presumed result of periodic assessment is presented in Table 6. The model was statistically significant F(4, 132) =5.949, p=0.0002. R Square =0.153. There is significant (F(1, 132) =5.687, p=0.019) R Square change due to the moderation effect = 0.037 which means that the interaction effect accounted for 3.7% added variation in expected advantages of CFBPAS. These results indicate that there is negative relationship between Anger and expected advantages of CFBPAS among respondents who presumed that their periodic performance assessment results are at best average, but not among those persons who presumed that their assessment result is higher or definitely higher than average. Therefore, hypothesis H2.3 is supported.

Table 6. Conditional effects of Anger on expected advantages of CFBPAS at values of presumed result of periodic assessment.

Presumed result of periodic assessment	Effect (B)	S.E.	t	p
0 (average at best)	-0.3845	0.1047	-3.6729	0.0003
1 (higher or definitely higher than average)	-0.0960	0.0842	1.1404	0.2562

Source: Own elaboration.

In order to verify hypothesis H2.4 independent samples t-tests were performed (Table 7). Younger respondents rated expected disadvantages of CFBPAS significantly lower than the older ones. Cohen's d=0.35 indicate that age has small impact on expected disadvantages of CFBPAS. There are no significant differences in ratings of expected advantages of CFBPAS. Seniority does not differentiate significantly respondents' opinions. Thus, this hypothesis is only partially confirmed.

Table 7. Comparisons of ratings of expected advantages and disadvantages of CFBPAS.

Variable	Categories	n	Expected disadvantages of CFBPAS			Expected advantages of CFBPAS		
			M	SD	t-test	M	SD	t-test
Age	18-25	67	2.75	0.86	t (135) =2.028; p=0.022 Cohen's d=0.35	3.34	1.02	t (135) =0.705; p=0.241
	More than 25	70	3.08	0.98		3.46	0.88	
Seniority	Up to 4 years	60	2.95	0.90	t (135) =-0.307; p=0.380	3.38	0.79	t (134.64) =0.225; p=0.411
	More than 4 years	77	2.90	0.97		3.42	1.07	

Source: Own elaboration.

4. Discussion

The main results of our study are negative, i.e., they undermine the assumptions made for the survey about the negative evaluation of TPAS among Polish employees and the relationship of attitudes toward CFBPAS with the evaluation of TPAS. Thus, analysing these assumptions again, we can say that Polish employees do not negate the efficacy of TPAS (lower bound of 95%CI for mean of perceived efficacy of TPAS = 3.04), even though they perceive that it does not function according to the rules (lower bound of 95%CI for mean of perceived inconsistency of system implementation with TPAS rules = 3.25). This suggests that our respondents are more similar to respondents from samples from countries where performance appraisal systems are a relatively new management tool than to respondents from US samples.

The relatively strong perception that TPAS are not implemented according to its main principles extends the result from Budziak and Figurski's (2017) study. They indicated that the respondents perceive a low level of fairness in the performance appraisal system, while the result obtained here shows that this is not only due to a feeling of unfairness of the evaluation result, or politicking by the manager during the evaluation process, but also to a failure to follow the principles behind the procedure and treat it as a bureaucratic obligation.

This interpretation of the falsification of hypothesis 1.2 is supported by the fact that the majority of respondents (64%) felt that their periodic evaluation scores were higher than those of other employees. This suggests that our respondents are beneficiaries of TPAS despite the fact that they perceive that in practice it functions inconsistently with the expectations and rules set for it.

This interpretation is in line with previous research results, which indicate that a sense of distributive justice (and in our case, the perception of self-benefit as a result of the system) is associated with a positive attitude toward the performance appraisal system (Taneja et al., 2024). Then, positive verification of H1.2. in terms of perceived inconsistency of system implementation with TPAS rules means that perceiving inconsistency of system implementation with TPAS rules in the operation of the performance appraisal system does not preclude a positive evaluation of the system as achieving some of its goals.

The positive verification of Hypothesis 1.3. in terms of the relationship between perceived inconsistency of system implementation with TPAS rules and efficacy of TPAS should not be surprising in line with research on social justice (Colquitt et al., 2001, 2013), which indicates correlations between these different dimensions of justice. However, our result extends previous findings that were based on the concept of justice, as the measures we used are at best loosely correlated with the concepts traditionally studied in social justice theory.

Firstly, efficacy goes beyond distributive justice because it relates to the realization of the stated goals of the TPAS procedure, and only one of its 4 components (Table 2) relates directly to the recognition that each appraisee receives a grade consistent with his or her merit. Two of the other components relate to the realization of the manager's role as a person who supports the subordinate in solving problems on the job, and thus relate to his/hers managerial role per se rather than to interactional or distributive justice.

Secondly, our variable of perceived inconsistency of system implementation with TPAS rules goes well beyond the feeling of procedural injustice. While it relates to how TPAS is practiced, the reference of the assessment is not to ensure that the individual acts in a way that allows him or her to have their rationale heard and decisions made impartially, as in the assessment of procedural justice, but to ensure that the actions are in accordance with the company procedure's stated policies. Again, only one of the components of perceived inconsistency of system implementation with TPAS rules directly relates to politicking by the manager, but the others relate more to the fact that the procedure is not taken seriously in the organization. Thus, it can be said that the positive verification of H1.3. in the part on the relationship between evaluation of the practice (perceived inconsistency of system implementation with TPAS rules) and evaluation of the objectives of the procedure's implementation (perceived efficacy) indicates that our respondents expect that organizational procedures to be carried out in accordance with their letter and spirit (even when the violations of the procedure does not affects them directly) to recognize that the goals of these procedures are being met.

Hypothesis H1.4 assumed that a negative attitude towards the organization, whether measured by anger towards it or a sense of meaninglessness of work (amotivation), results in a negative perception of all procedures (including, in particular, the periodic performance appraisal system) functioning in the organization. The lack of correlation between both anger towards an organization and amotivation and opinions about the PA system suggests that the respondents differentiate between aspects of the organization's functioning. The independence of the perceived efficacy of TPAS assessment from amotivation suggests that periodic assessment is understood as a subsystem separate from everyday work. This may mean that periodic assessment is not perceived as a tool for assessing work (a person demotivated to work does not expect benefits for themselves from its assessment), but as a tool – for example for developing competences – and therefore something that can be beneficial for the employee even if they don't like their workplace. On the other hand, our study showed that anger toward an organization conditional on presumed results of periodic assessment is important in shaping opinions about expected advantages of CFBPAS. There is significant negative relationship between anger toward an organization and expected advantages of CFBPAS but only in those surveyed who presumed that their periodic performance assessment results are at best average (B=-0.3845, S.E.=0.1046, p<0.001). According to hypothesis H2.3, high scores on the periodic assessment reduce this relationship (B=-0.0960, S.E.=0.0842, p=0.256). Thus, distrust of possible new organizational procedures (CFBPAS) associated with anger toward an organization disappears if employees experience favourable outcomes from using a similar procedure (TPAS). This would imply a lower risk of resistance to the introduction of CFBPAS among ambitious employees, even those who find reasons to be critical of their workplace.

It is symptomatic that in our study both anger towards an organization and amotivation are positively (though weakly) correlated with cooperation with the manager (0.28 and 0.23, respectively), which means that the managers of our respondents do not contribute to negative feelings towards the company and a decrease in their motivation. It is also worth noting that the average score for cooperation with the manager is high (lower bound of 95%CI for mean = 3.29 on a 5-point scale), which, combined with the high score for presumed results from the periodic assessment (63.5% of our participants presumed that they had been rated better than their colleagues), suggests a "common front" policy towards periodic performance appraisal procedures. This suggests that the manager is treated not so much as a representative of the company, but rather as a team member, i.e. a person with whom it is good to cooperate, even when the company as a whole is not a good place to work. Since the stronger the anger towards the company and the amotivation, the better the cooperation with the manager is assessed, then s/he is treated as a separate actor and not a faithful implementer of company procedures. This interpretation separates the assessment of cooperation with a manager not only from the assessment of the company as such, but also from the periodic performance assessment procedures and – what is not obvious – the way it is carried out. This result seems to be a specific feature of our sample of Polish young employees, as previous research has shown that the opinion about the fairness of performance appraisal is related to the relationship with the manager (LMX). This would mean that among our respondents, the sense of community with the line manager is high.

However, it should be noted that there are some other possibilities for interpretation of this positive attitude towards the manager despite the negative perception of the correctness of TPAS implementation. Our respondents presumed they had high evaluation in the periodic assessment, hence they can be considered beneficiaries of TPAS and the manager's actions, even those that are not in line with the TPAS rules. Positive feedback on their previous behaviours, which is included in a high evaluation in the periodic assessment, can be perceived as a recommendation for the future ("continue like this"), and thus have a feedforward character (Kluger & Nir, 2010; Budworth & Latham, 2025), i.e. a recommendation to continue acting in a certain way. This type of conversation dynamics leads to better relations between the manager and the subordinate (Budworth et al. 2015; Budworth & Latham 2025). In our case, this means that a positive assessment of cooperation with a line manager may result from the dynamics of the relationship created by an appraisal interview that emphasizes the positive aspects of previous behaviour at work, and not from perceiving the manager as a member of the team rather than a representative of the management of the organization.

The third possible explanation for the positive evaluation of cooperation with the manager despite the perception of his or her actions being inconsistent with the TPAS rules may be power distance or other cultural factors that shape the relationship between young employees and their (usually older) manager. This study did not measure cultural factors, so there is a need for future research to decide which explanation is the proper one.

The lack of correlation between the ratings of CFBPAS and the ratings of separated aspects of TPAS (falsification of H.2.1) seems to be the most surprising result of our study. It suggests no direct relationship between TPAS assessment and perception of new solutions. We can assume that we are dealing with a difference in opinions about CFBPAS from opinions about TPAS. Ratings of expected advantages of CFBPAS are high (lower bound of 95% CI for mean = 3.24 on a 5-point scale), there is therefore a positive attitude towards changes in the rating system. It does not result from a complete negation of TPAS (lower bound of 95% CI for mean of perceived efficacy ratings = 3.04 on a 5-point scale), but rather from the need to obtain feedback. For our respondents, TPAS was a rather harmless tool, because the presumed result of periodic performance assessment is high (Table 4). Since the old system is relatively positively perceived in terms of realizing the meaning of its operation, i.e. providing diagnostic data for the development of competences, the "driver" of the assessment of the new system is not the desire of change resulting from dissatisfaction with the old system. In other words, our main hypotheses, based on American literature stating employee reluctance to the traditional periodic performance appraisal system, were based on a false assumption that our subjects were similar to US workers. Our research clearly showed that our respondents have a relatively positive attitude towards TPAS and know the principles of this procedure, even though they notice that its implementation does not meet its assumptions (which, as expected, affects the perceived efficacy of TPAS). The fact that this does not prevent respondents from seeing the advantages of CFBPAS may also result from the fact that many of them learned about this new type of performance appraisal system from our survey (as most of them are young and on entry level employees). It is worth to mention that in order to avoid question order bias, the questions about CFBPAS followed questions about TPAS, which in turn could have caused a kind of social desirability bias, as a result of the confrontation of the old system with the new one, i.e. presumably end vogue.

Determining whether the lack of correlation between the ratings of CFBPAS and TPAS is a feature of Polish employees as such, or of a specific group of young professionals with short work experience (48.9% of our respondents are less than 26 years old, and 75.9% are less than 37; 43.8% of them have no more than 4 years of seniority, and only 14.4% have been working for more than 20 years), additionally presuming good results of their periodic assessment, or the research instrument design, requires further research, and in this respect our results are an invitation to research and indicate that full analogy in the functioning of performance appraisal systems in the USA and Poland should not be assumed.

Only partial confirmation for H.2.4. shows that variables related to the respondents' life and professional experience, i.e. age and seniority, do not differentiate their opinions on advantages of CFBPAS. Regarding disadvantages, Generation Z respondents are significantly less critical of CFBPAS, perhaps due to greater experience with social media.

Conclusions

Basing on the opinions of 137 employees collected via e-questionnaire, it was checked whether the perception of TPAS affects expectations about CFBPAS. Following the American literature (Lee, 1996; Capelli & Tavis, 2016; DeNisi & Murphy, 2017; Pulakos et al., 2019; Buckingham & Goodall, 2015; Lawler et al., 2016; Ledford et al., 2016b, Ledford & Schneider, 2018), a number of assumptions regarding the negative attitude towards the functioning of TPAS in Polish companies were made, and hypotheses about influences of negative assessment for TPAS on assessment of continuous feedback-based performance appraisal system were stated. The primary result of the study presented here was to show that – contrary to expectations – the ratings for efficacy of TPAS turned out to be high. The relationship between the negative perception of certain aspects of the traditional system and the assessment of new systems was also not confirmed (H.2.1).

The result, showing that the respondents' opinions about both assessment systems are basically positive, suggests that Polish periodic performance appraisal systems are still able to achieve their main goals, or at least – that the respondents, despite noticing irregularities or violation of rules in the implementation of the periodic performance appraisal procedures, believe that these systems efficiently realize their main diagnostic and administrative goals. At the same time, the favourable assessment of new performance appraisal systems based on continuous feedback suggests the readiness of the respondents to accept CFBPAS, or at least to try such systems.

It was found that perceived inconsistency of system implementation with TPAS rules influenced negatively the perceived effectiveness of TPAS. Respondents also rate the expected advantages of CFBPAS high and their potential disadvantages low. No correlation was found between the assessments of traditional and continuous feedback-based performance appraisal systems.

The study tested whether the assessment of the traditional and new performance appraisal systems is conditioned by environmental variables, i.e. attitude towards the company measured by an anger towards the organization, opinions about cooperation with the manager and general attitude towards work (amotivation). Contrary to a number of previous studies that showed the relationship of similar contextual variables with assessments of various aspects of traditional periodic appraisal systems, which were conducted in the language of organizational justice (Taneja et al., 2024; Al Muniri & Hashim, 2024; Alabbas et al., 2024), our study did not confirm the impact of these contextual variables on the assessment of TPAS. However, the hypothesis regarding the less critical attitude of young workers towards CFBPAS was confirmed, as younger respondents rated expected disadvantages of CFBPAS significantly lower than the older ones ($t(135)=2.028$; $p=0.022$ Cohen's $d=0.35$). The positive verification of hypothesis H.2.3, which assumed the influence of anger towards an organization on expected advantages of CFBPAS moderated by presumed result of periodic performance assessment, confirms the influence of outcome favourability on the formation of opinions about procedures, as the impact of anger on the expected advantages of CFBAS was noted only among those respondents who presumed their periodic performance appraisal results are not higher than average.

This study complements scientific knowledge about the determinants of perception of new and traditional performance appraisal systems in the following respects. Firstly, it was shown that the assessment of the functioning of the periodic performance appraisal system is not one-dimensional and that perception of inconsistency with the rules and principles of TPAS do not mean negating the achievement of the system intended goals.

Secondly, it complements research on the practical functioning of periodic performance appraisal systems carried out in various countries by expanding the range of variables used to explain the relationships between assessments of various aspects of the functioning of these systems, in line with the demands recently voiced in the scientific literature (McClendon et al., 2020). Scientific research so far is conducted mainly in the language of organizational justice, which means that aspects related to the general attitude towards the company as such, beyond trust (Almutairi & Othman, 2024; Sumayya & Raziq, 2019) or identification with the organization (Lyu et al., 2023), or the assessment of cooperation with the manager as such, were not studied. Previous research has linked variables related to the functioning of an individual in the relationship with the manager (Taneja et al., 2024) or with the assessment of justice or politics (Murphy & Cleveland, 1995; Murphy, 2020), and did not treat it as a variable describing the context in which the employee functions.

Thirdly, our study provides further confirmation that employees expect increased feedback from company's performance appraisal systems. Previous studies, conducted on large American samples (Lawler et al., 2016; Ledford et al., 2016b) and small ones, e.g. Indonesian (Azzahrunisa et al., 2024), showed a positive attitude of respondents to performance appraisal systems based on continuous feedback, but we are not aware of any studies of this type, based on the opinions of Polish employees. The advantages and disadvantages of such systems described in the text, as well as already reported solutions that are adopted in a number of international companies, suggest that such performance appraisal systems, based on continuous feedback, will also begin to appear in Polish practice, as already international companies in Poland are oriented into developmental appraisal (Zając, 2016).

Hence the importance of research on the perception of such systems by Polish employees and the search for conditions for their positive perception, which can help in planning their implementation in a way that facilitates their positive acceptance.

Further research should focus on the reasons for the most surprising result indicating high ratings for both perceived efficacy of TPAS and expected advantages of CFBPAS and the lack of correlation between the two. We can assume, in line with the results of previous research showing that the perception of distributive justice promotes a positive assessment of the periodic performance appraisal system, that it was the specificity of the group surveyed that resulted in positive assessments of both types of assessment systems, hence generalizations regarding a positive attitude towards TPAS and CFBPAS are premature. However, these outcomes may result from the specificity of the sample. Most of our respondents turned out to be beneficiaries of the traditional performance appraisal system, as they declared that their periodic grades obtained under the traditional system were higher than the grades obtained by their colleagues. In addition, as already mentioned, the results may have been influenced by the design of the questionnaire, in which, in order to avoid question order bias, the items examining TPAS evaluation preceded those directed at examining opinions about CFBPAS, with which we may have induced social desirability bias. Although the questions on CFBPAS were not suggestive and included both advantages and disadvantages of these systems, the juxtaposition of the old system with the new (modern) one may have had this effect. Further research should be conducted on a larger and better stratified sample to include employees from different age groups. It is also worth taking into account the type of organization from which the respondents come – the factor completely omitted in the current study – as one can expect a more favourable attitude towards new forms of PA based on continuous feedback from employees working in technology companies or on a project basis, and a less favourable attitude towards those from stable, more conservative organizations, such as traditional administration or heavy industry companies.

Despite the focus on Poland, it is also worth considering the potential significance of differences in the maturity of PA systems in a given country or its culture. It can be expected, as already emphasized in the discussion, that in countries with relatively recent institutionalization of PA in organizational practices, the attitude of employees towards TPAS will have a greater significance for the acceptance of new forms than in Poland. Similarly, in more collectivist societies or with a greater power distance, the acceptance of PA forms based on continuous feedback may be lower. The study did not take into account cultural factors, assuming that structural factors, such as the implementation trajectory and the history of PA systems (in country, as a proxy for the company the respondent is working), will have the main impact on the reception of new systems. However, this is worth verifying in studies that differentiate cultural factors with similar implementation histories of these systems in given countries.

To clarify and possibly minimize the impact of social desirability bias on the results, it would be beneficial to use two versions of the questionnaire: in one, questions exploring opinions about TPAS would precede those about CFBPAS, and in the other, vice versa. It should also not be forgotten that individual implementations of employee evaluation systems differ, so case studies would be particularly valuable for practice.

It should be clearly stated that the research described here has a number of limitations and should therefore be treated only as an invitation to further exploration of the topic. The most important of them is the sample, both in terms of its demographic specificity (the predominance of young and educated respondents, which results from the nature of the snowball methodology), as well as their disproportionate percentage of people convinced that they obtained a high (higher than their colleagues) periodic grade in the performance appraisal assessment. The latter feature, however, may result not (only) from the specificity of the sample, but also signal the degeneration of periodic performance appraisal systems currently used in Polish companies. Since there are no Polish studies showing distributions of grades in the periodic performance appraisals that are currently obtained in Polish companies, even similar to US data (Cappelli & Conyon, 2018), it is difficult to determine without further research which of these explanations better fits the data analysed here.

A limitation related to the demographic characteristics of the respondents (age and level of education) may have influenced the results, as younger and better educated employees have a lower identification with the organization and lower organizational commitment (Schultz & Schultz, 2002, p. 316), which fosters more critical evaluation of organizational practices, including perceived fairness of performance appraisal. Younger employees also have different expectations towards feedback than older employees, as they are more oriented toward its practical utility rather than its informational content (Wang et al., 2015). Hence, it can be expected that a more representative group in terms of age and education might be less critical of the practical implementation of TPAS, but also less enthusiastic about new solutions based on continuous feedback. On the other hand, there are studies that show no differences between age cohorts with respect to perceptions of conflict during performance appraisal (Locker & Teague, 2024), so these features of our respondents' group may be not important.

It should also be remembered that the study was based on opinions collected in a survey conducted at a random moment in relation to the periodic performance appraisal assessment schedule. This means that it is based rather on memories, and opinions about the practice of TPAS are memories already processed by memory mechanisms, as well as further experiences brought by professional life in the period since the last periodic performance evaluation. It can therefore be assumed that carrying out the study freshly after the performance evaluation, and in the face of concerns about the consequences of the performance appraisal system's operation, would yield different data, hence it is worth conducting an analogous study in connection with the date of the conducted periodic performance appraisal.

The third important limitation concerns the inability to take into account the specificity of the industry or company from which the respondents come from. It is reasonable to assume, and even Polish research shows it (Fudala-Barańska, 2016), that relatively small differences in the practice of TPAS implementation may result in significant differences in the perception of the system's operation. Therefore, research should refer to the system functioning in a specific company or industry and its typical organizational culture (e.g. among clerks – Bohdziewicz & Urbaniak, 2013; Czajka, 2013), rather than to TPAS as such, which was adopted in our study due to its pioneering nature.

To recapitulate, the obtained results suggesting the favourable attitude of Polish respondents towards performance appraisal systems based on continuous feedback require further research so that the generalizations suggested here can constitute the basis for organizational practices. Undoubtedly, broader research on the Polish practice of traditional periodic performance appraisal is also needed in order to meet the expectations of younger employee groups regarding the wide dissemination of feedback and - perhaps even - basing performance appraisal on this type of data.

Despite these limitations, our research can already provide some hints and recommendations for human resource management practice.

First, even if we limit this conclusion to young employees (Generation Z), the research presented here confirms their expectation of continuous feedback, which suggests that organizations should quickly launch practices that address this expectation. There is no need to wait for the formal replacement of TPAS by CFBPAS to introduce – maybe on a small scale first – some continuous feedback practices.

Secondly, contrary to the recommendations of the theory of change, there is no reason to question the reasonableness of the goals set for TPAS, or otherwise undermine the efficacy of TPAS, because the employees' expectation of continuous feedback does not result from their rejection of TPAS, but – presumably – from their desire to develop their competences. This means that when implementing continuous feedback-based performance appraisal systems (using enterprise social media), it is enough to emphasize their functions in the area of competence development, and it is not necessary to criticize the current practice.

Thirdly, it also seems that by implementing assessment systems based on IT systems analogous to social media, one can emphasize their usefulness for developing competences even when the opinions collected in them are not entirely accurate. However this advice based on opinions of the respondents who have good relations with line managers. Maybe in different situation there could be a fear that managers would misuse the content collected in the continuous feedback system, which will create resistance to the system implementation.

There is also no need to fear that generational differences will have a significant impact on how employees of different age will respond to the introduction of systems based on collecting continuous feedback. Assuming also that the analysis of the entries will be done in a subordinate-manager diagonal, there should also be no concern that generational differences will be significant in the implementation of these systems. The previously cited research on the difference in expectations of feedback (Wang et al., 2015) suggests different perceptions of the usefulness of the data provided by feedback in older and younger employees, but the difference actually relates to the use of the data obtained, not the attitude toward collecting it.

Even if older employees treat feedback more as someone else's view of reality than a legitimate developmental recommendation, for both age groups, multi-source feedback can be useful in their – separately shaped – path to further competence improvement. In other words, it is not the new appraisal system that may cause concern for more age advanced employees, but the low coaching skills of managers. Hence, it would be advisable to precede any – even a small scale and on pilot form – CFBPAS implementations with coaching training for both groups (managers and employees), so that managers know how to take advantage of the benefits of this approach and subordinates are not afraid of it.

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Enhancing Regulatory Compliance in Foreign Investment Management Under the Shadow of Big Data Analysis – A Fresh Insight from Malaysia

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Abstract

Big data emergence has brought a new trend in the current world of business. BDA enhance a firm to keep update with current changes and design its strategies, make effective decision and explore new market opportunities. The Malaysian Digital Economic Market has a growing trend in BDA, as according to The Digital Economic Corporation Commission of Malaysia expected a growth of US $ 1.9 million in BDA market. This is the country listed top in the 2022 Milken Institute Global Opportunity Index for having potential to attract foreign direct inflows in the country. Malaysia observed MYR 24.4 billion foreign direct investment in the year 2022. Being a large Islamic state, Malaysia holds various cultural and a tradition value having an increasing international outlook, put emphasize collective well-being and humane treatment in the society and prefers to maintain harmony among people. The country adopts sharia compliance and provides suitable framework to attract foreign investments. Finding a research gap on BDA's impact on regulatory compliance of FDIM, this paper examines the role of Big Data (endogenous variable) on the enhancement of regulatory compliance (exogenous variable) of foreign direct investment management (exogenous variable) in Malaysia. The study developed survey-based questionnaires for data collection and applied partial least square based structural modelling equation (PLS-SEM) for analysis purpose. The main survey was conducted in a market research firm having more than 5000 Malaysian IT managers and business analyst. Findings of the study indicate a significant positive role of BDA on RC, and partial positive mediating role on RC & FDIM. However, RC positively influences FDIM whereas, BDA is insignificantly negatively related with FDIM. The paper provides valuable insights for the policy makers of Malaysia to utilize the advantages of BDA in attracting more FDI through enhanced regulatory compliances.

Key words

Big data analytics, foreign direct investment management, regulatory compliance.

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Introduction

The digital growth of today's world is so fast and data volumes have become more organized in response to volume from terabyte to more high, data varieties including structured, unstructured and hybrid, the data growth speed is too high; this is what we called "Big Data" (Arshad et al., 2023). Big Data is the next stage of innovation, competition and productivity and its implication is expected to become a key factor for organizations concerning strategic decision making and business forecasting in the near future (Acciarini et al., 2023; Rajagopal et al., 2022; Saleh et al., 2022). Big Data Analytics is a term recognized as a Business Intelligence and Analytics related field which refers to BI&A technologies concerned mainly with mining of data and statistical analysis (Chen et al., 2012). Today's organizations are paying more attention towards Big Data Analytics to be updated with the current changes in business (Awan et al., 2021; Wright et al., 2019). Big Data Analytics allow an organization to boast its operation and decision making through information technology and quantitative analysis (Goyal et al., 2020). By applying big data analytics, organization can enhance their business decision making through exploring new opportunities in the market (Aziz et al., 2023).

Today's business traditional practices have been transformed by Big Data Analytics (Ferraris et al., 2019; Obschonka & Audretsch, 2020; Sivarajah et al., 2020). Big Data Analysis (BDA) capabilities affect a firm's performance (Gupta et al., 2020; Mikalef et al., 2020). These capabilities include staff's and management's talent as well as flexibility in BDA's infrastructure (Alkatheeri et al., 2020). BDA infrastructure refers to technology and technical software that enable data scientist to improve quickly, utilize and support necessary system components (Garmaki et al., 2016). Investments in BDA infrastructure and its flexibility can enhance organization performance and efficiency (Al-Darras & Tanova, 2022) BDA has capacity to change the manner of firm's competition through creating a better understanding, processing and exploiting the large quantity of data receiving from various internal and external sources (Saeed et al., 2023; Shah, 2022). Further, familiarity with knowledge management plays a crucial role in accelerating BDA capabilities. BDA capabilities refers to BDA ensures that data will be classified and analysed into useful information for the firms and transformed them into related big-data knowledge effective process of decision making and thus improves performances (Ferraris et al., 2019). BDA management capabilities refers to the ability of BDA managers to organize in a structured manner to manage BDA's resources according to business needs and priorities (Kim et al., 2012). Big Data Analytics and Capabilities (BDA&C) have the strength to divert conventional business strategies. BDA technologies and capabilities enable business to take decisions from derived data (Oufan, 2021). Effective marketing, income increasing opportunities, customization and upsurge operational capacity are predicted advantages of BDA capabilities. Advancement in infrastructural development, management potential, technical and personal expertise are strong influencers of BDAC (Singh et al., 2021). To drive benefits of BDA and high performance, a firm requires BDA personnel expertise. BDA personnel capability describes data scientist's skills and knowledge about using analytical technologies, data analysis and making insights to deal with BDA (Bharadwaj, 2000).

The Malaysian Digital Economic Corporation Commissioned (MDEC) stated that Malaysian big data analytics market is expected to grow up to US $ 1.9 million from $ 1.1 million in 2021. The service sector will contribute 64% of the entire data driven along with banking and telecommunication nearly contributing one-third (Felker, 2025). The vice senior president of MDEC, Raymond Siva stated that COVID -19 pandemic has proven to be a game changer in up surging the demand of big data analytics. He further stated that companies investing in BDA will continue to increase their existence for having Malaysia as a base for regional and global business unit to operate their core responsibilities. MDEC commented that BDA is crucial for a digital Malaysian economy, and it will result in other digital technological growth such as Internet of Thing (IoT), Artificial Intelligence (AI) and advanced automation. The institute further suggested a collaboration of private sector in attaining the desire level of digital investment in the country. The government support along with MDEC-Led capacity and local and international partners, the institute will better equip the workforce with in-demand for fast-growth digital-led jobs ranging from online content production, data science analytics and programming. It will support talent development under BDA culture in the country and it will help Malaysian talent and economic players to secure $ 13 trillion revenue to be added by data fuelled applications to the world economy by 2030 (The Edge Market, 2023).

A better business infrastructure leads good ideas to take root, create job opportunities and make life better for the citizens (Qureshi, 2020). The more complex, turbulent and vigorous business environment effects the operations and performance of businesses to a greater extent (Moreno et al., 2020). It is the need of organization to direct their concerns towards formulating models and making strategies to determine their profit motives, survival and growth (Alrowwad et al., 2020). It is recommended to easier the process of starting a business; it will increase more investors' entry and in turn create more job opportunities (Hameed & Irfan, 2019). This will help in sustainable development of private sector and enhancement of FDI inflow in developing countries (Berger & Gsell, 2021; Gizaw et al., 2023; Pandey et al., 2022).

Malaysia ranked top in the 2022 Milken Institute Global Opportunity Index as the best performing countries among Southeast Asian largest economies for having the potential to attract foreign investments in the country. Malaysia registered RM 48.1 billion foreign direct investments inflow in the year 2021 and RM 13.3 billion in the following year 2022 due to economic recovery from pandemic of COVID-19 (Jamil et al., 2022). The Ministry of Malaysian International Trade and Industry stated the FDI's are financial instruments (equity & investment fund shares and debt instruments) in the direct investment enterprise of Malaysia by foreign direct investors. Foreign Direct Investments in Malaysia are not regulated under any legislation, regulation and guidelines. Government has issued sector specific regulation which regulates Malaysia. There are very few restrictions for FDI in the country and foreign investors can hold up to 100% ownership in all investments in new projects of some sectors. FDI investment on different sectors are usually regulated by regulatory approvals like permit and license, limitations of ownership on foreign equities and minimum requirement for Malaysian equity ownership in the proposed project. The Government of Malaysia continued investor's interest in the economy by offering several tax incentives. Under The Pioneer Status, companies can enjoy partial tax exemption of income tax for five years. Companies eligible under the manufacture of promoted activities can pay income tax on 30% of its statutory income while companies qualify for service sector activities can pay income tax on its 70% statutory income. Companies also apply for ITA (Investment Tax Allowance) which grant them 60% allowance on the approved capital expenditure for five years and ITA can be offset for 70% statutory income for analysis of each year and any unutilized balance can be carried forward to the next year until fully utilized

Malaysia was known in past as the exporter of tin and rubber but nowadays, the country is an important trading partner of US and Europe. Malaysia, being a large Islamic nation with a diverse population of Malays, Chinese and Indian, holds many cultural values with having an increasingly international outlook. Malaysia put emphasize on collective well-being with humane treatment on society that respects hierarchical variations. The tradition shows positive confrontational behaviour that prefers to maintain harmony among people. The country expects its leaders to be corporative while adopting autocratic style than participative. Malaysia demands foreign managers to avoid actions that hurt these values (Kennedy, 2002).

Fraud prevention in business environment can't be controlled through internal policies but the management needs to be stronger in implying fraud prevention measures (Umar et al., 2020). The certainty of being caught environment is an effective deterrent step for discouraging fraudulent acts. The

Malaysian government has made some laws and regulations for individual and organization to take actions against fraud. The Company Commission of Malaysia (CCM) is responsible for the enforcement of The Companies Act 1965 (Act 125); Business Registration Act (Act 197); Companies Trust Act (Act 100) and various other laws. CCM also work with other regulatory authorities like Insolvency Department of Malaysia, Bank Negara Malaysia, Security Commission of Malaysia and other government authorities to ensure that all business organizations are following good governance practices (Azis et al., 2020).

Foreign Direct Investment (FDI) is an important means of technology transfer. It plays a significant role in the development of host country. Development has no specific definition, and it is an open ended process. United Nations define development as social and economic growth that improves the quality of life. FDI enhance labour training and R&D development in the host country and hence develop a nation. Nations require domestic sufficient savings for capital formation but developing countries lack this savings. In that case, FDI fill the gap of insufficient savings and helps in capital formation (Rani, 2023). According to Tsen (2005) FDI is a sort of investment which includes insertion of foreign countries fund in a project that operates in another country from investor's side. FDI is a long-term participation, usually involves expertise collaboration, cross border ownership, transfer of technology, green field investment and joint ventures. It is a cross-border governance of organization carries abroad investment into local goods and services.

Foreign direct investment has brought investment capital, technology and knowledge management required for economic growth in Malaysia. FDI inflows positively affect the regional gross domestic production and economic growth (Har et al., 2008). Foreign direct investment in Malaysia is observed to be dropped by MYR 12 billion in the first quarter of 2023 from MYR 24.4 billion in quarter one of 2022. The quarter third of 2021 was weighed down by immense cost burden, up surges in borrowing cost and overall worldwide recession due the pandemic on that year. The most contribution in FDI made by service sector of MYR 6.2 billion followed by mining & quarrying (3.4 billion MYR) and manufacturing (2.4 billion MYR). Singapore, US and Hong Kong are the three main sources accumulated 46.2% of the total FDI in Malaysia. In 2021, FDI increases to MYR 73.3 billion from MYR 48.1 billion in the country (Department of Statistics, 2023).

Emergence of big data has transformed business strategies of today's world (Singh et al., 2021). Malaysia has a growing market for BDA and it is the country having potential to attract foreign direct investments with a friendly legislative framework (Hammouri et al., 2022; Umar et al., 2020). Previous literature lacks to explore the role of BDA in FDI regulatory compliance enhancement. This paper examines the key role, BDA plays in enhancing the regulatory compliance of foreign direct investment in Malaysia, using questionnaire-based survey method and PLS-SEM for the estimation of model. This paper contributes to the literature by proving an insight on the role of BDA in the desired variables which has previously not been studied.

Introduction is written in the first part of the paper, this section contains description of variables i.e. Big Data (Infrastructure Flexibility, Management Capabilities and Personal Expertise Capabilities), Regulatory Compliance (Social Norms & Values, Legitimacy and Deterrence) and Foreign Direct Investment. The second part contain literature reviews of research related to the variables of the paper. Methodology has been written in the third part, and it presents data collection and test results. The fourth part discusses findings of test results along with citations of other research paper. Results and discussions have been provided in the fifth part. Conclusion has been written in the sixth part of the paper and seventh part describes the limitation and policy implication of the work.

2. Literature Review

2.1 BDA and Organizational Performances

Organizational ambidexterity and knowledge management capabilities are the factors influencing the relationship between organizational strategic flexibility and organization's ability to conduct BDA (Rialti et al., 2020). BDA&C is positively associated with innovation performance and this effect is more significant under low/high environmental uncertainty condition while this relation is influenced by a mediating role of organization's strategic flexibility and strategic innovation (Zhang & Yuan, 2023).

Saeed et al. (2023) stated that BDA-enabled dynamic capabilities (DC) positively affect a firms marketing exploitation and exploration and these in turn increase a firm's market and financial performance. A firm's market exploitation and BDA-enabled DC is moderately affected by environmental dynamism.

2.2 Foreign Direct Investment and BDA

Foreign direct investment creates opportunities to attain sustainable goals and increase productivity gains therefore, all countries are interested to attract it. MNCs collect a huge volume of structured and unstructured big data when desiring international expansion through FDI, but summarizing such data is practically not feasible. MNCs, nowadays depend on machine-based algorithm for finalizing data for their FDI projects. The artificial intelligence application of statistical tools can help drive time series graphs and forecast revenues for FDI variables. Foreign Investors can specify their search on industry or product to manageable from various investment options in the host country. Big data advancement offers the enterprises a cost-effective method to take decisions and manage their resources (Verma et al., 2022). The forecast of foreign direct inflow in Malaysia (2021-2030) made from Autoregressive Integrated Moving Average Method indicates an upsurge of inflow from 2021 to 2023 but a decline in the year 2024. The inflow back with a slow pace in the year 2025 till 2030. The criteria set by foreign investors are responsible for this pattern.

H1: BDA positively influences FDIM.

2.3 BDA and Regulatory Compliance

Jamil et al. (2022) studied the COVID-19 impact on financial crime and regulatory compliance. The paper also makes comparative analysis of financial crime and regulatory compliance mechanism before and after the occurrence of pandemic. The COVID pandemic has impose both challenges and opportunities to the financial crime patterns. COVID brings a reduction in physical crime but an increment in cybercrimes. The study implies that financial institution should work together with the regulators to fight with the criminals' high technological skills. The government funds initiative to assist especially small firms need to be utilized completely to improve the regulatory compliance in Malaysia (Jamil et al., 2022).

Diniyya et al. (2021) argue that financial technology development has provide numerous business models to fulfil customer's desire. Such innovation requires proper supervision to reduce chaos in the financial system and Malaysia and Indonesia are the countries registered by CCAF and top ASEAN countries for having high Fintech firms. Indonesia is lacking in providing cybercrime security laws for customer protection when compared with Malaysia, and this is threatening to Fintech industry. Malaysia treats Initial Coin Offerings under RMO while Indonesia runs it under Commodity Future Regulatory Agency (Diniyya et al., 2021).

H2: BDA positively influences Regulatory Compliance.

2.4 Islamic FinTech and Sharia Compliance

In the list of Global Islamic Financial Technology Index; Malaysia, Indonesia and United Kingdom are among the top five countries. The listed countries in GIFT are most conductive for the progress of Islamic financial market and ecosystem. Sharia compliance is the basis of Islamic Financing regulation while weak management and low sharia compliance are two hurdles still persisting in the implementation of Islamic Fintech. A good Fintech Islamic ecosystem requires quality of Islamic Fintech Sharia governance, cooperative regulations and policies and sharia supervisory board (Muryanto, 2022).

Malaysia is very committed to maintain worldwide Islamic financing leadership. The modern financial activities require shariah compliance regulations for governance. It is necessary to introduce subsidiary legislation according to Islamic Financial Service Act (IFSC) 2013, produce a regulatory sandbox for Islamic FinTech firms, emphasize the importance of Shariah Advisory Council members processing knowledge in the technological aspects to ensure satisfaction of shariah compliance regulation in the Islamic finance industry (Razak et al., 2021).

2.5 Regulatory Compliance and FDI

Gizaw et al. (2023) observed that persistent betterment in business environment is necessary for countries willing to take advantage of investment and trade by regional cooperation. Making an attractive environment of business for progress is an emerging concept of today's international development organizations and a friendly environment allow this idea to become reality, and this will lead to open different job opportunities and improve life standards in host countries. The authors collected time series data from World Bank for the period 2010 to 2019 and investigate the impact of business regulations on foreign direct investment. The study reveals that construction dealings, applying agreements, access to credit and electricity, tax payment and protection of minority investment have a significant impact on the inflow of FDI in East African countries (Gizaw et al., 2023).

The anti-money laundering regulations have an impact on economic growth as well as on foreign direct investments growth in country. The study of Ofoeda et al. (2022) on AML regulations on economic growth and foreign direct investments suggested that the AML regulations stimulate growth, the growth enhancing impact of FDI is more pronounced in countries having high level of AML regulations.

H3: Regulatory Compliance positively influences FDIM.

2.6 FDI Motivators

There are four categories of FDI motivation which are: Efficiency Seeking, Strategic Seeking, Resource Seeking and Market Seeking. The determinants of FDI include economic factor (market volume, cheap skilled labour & raw material availability, economic strategies of the host country), regulations of FDI (Fiscal and Monetary policies, exchange rate policies and labour market policy), and facilitations of business. Other determinants include stabilities of macroeconomics, wages, human capital, natural resources, infrastructure, geographical and cultural variations and the nature of entry of FDI. Greenfield FDI's enhance economic growth, set up new operation units, offer employment opportunities and export revenues by new technological introduction. Brownfield FDI make few changes in the ownership of developing countries engaged in cross-border M&A's (Rani, 2023).

According to Ling et al. (2020) financial, macroeconomics, regulatory policies, social and environmental are the key driving aspects of sustainable foreign direct inflows in a country. Countries with effective start-up regulations, minority investment protections and better infrastructure and procedures for international cross border trades can attract more FDIs (Contractor et al., 2021).

2.7 Behavioural Willingness to Adopt BDA

There are two key factors that determine the behavioural willingness to adopt to Big Data Analytics in the government sector of Malaysia. The first factor is the production of greater results through technology and it will increase performance demands. Task Technology Fit is the second factor. Further, initial trust has not been found out to be key factor and it is adversely related with the intention to adopt BDA (Sahid et al., 2021). The competitive pressure, relative advantage and environment uncertainty are some significant factors force SME's for BDA adoption. BDA adoption intention and regulatory compliance relation is moderately effected by the support of top management (Iranmanesh et al., 2023).

Younis (2022) studied the behaviour of Malaysian organizations toward accepting big data analytics and driving benefits through Enterprise Business Intellectual Maturity Model. The author uses EBIMM questionnaire and gathered data from large scale Malaysian organizations. The findings reveal that Malaysian companies are prepared for big data economy. 94% organization under survey reached a definite maturity level, having decent abilities and competencies to drive benefit from it. Further, no institutions reached the level of improvement, indicates the need of more investment in technology, talent and culture to make Malaysia, an economic hub for big data analytics (Younis, 2022).

2.8 BDA Influence on Social and Financial Performances

The big data and predictive analysis have grounded financial sector but there is little information available on how big data effect social and environmental performances. Ali et al. (2021) investigated the impact of Big Data estimative analysis on Islamic bank's social and environmental performances using two moderators which were dynamic capability view and organization culture in the context of Malaysia. The results reveal a significant impact of BDPA on social and environmental performances however, organizational culture is neutral in the nexus of social/ environmental performances with BDPA (Ali et al., 2021).

Data Analytics is an assuring domain in auditing as it provides greater audit performance accuracy and digital transformation of audit work. Application of Data Analytics in auditing has immense benefits as it will reduce errors, increase transparency, enhance audit quality and strengthen stakeholders' confidence (Hezam et al., 2023).

H4: RC mediates the positive relationship between BDA and FDIM.

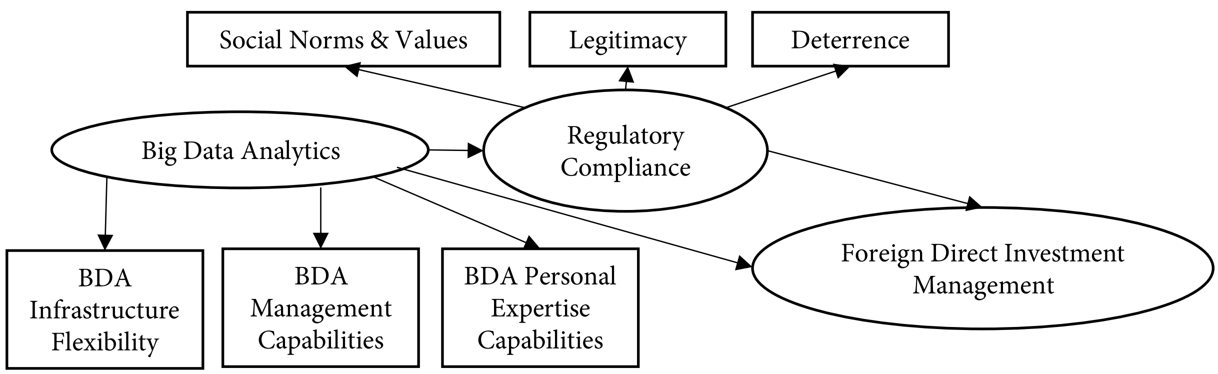

Figure 1. Hypotheses and Conceptual Framework.
Source: developed by the authors.

The hypotheses generated from the study literature focus on the relationship between constructs variables are:

H1: BDA positively influences FDIM.
H2: BDA positively influences Regularity Compliance.
H3: Regularity Compliance positively influences FDIM.
H4: RC mediates the positive relationship between BDA and FDIM.

3. Methodology

In this study, the methodology is conduct by the positivism-philosophy and quantitative survey method. We adopted the questionnaire-based survey method because it captures causal relationships between constructs and hence provides generalizable statements on the research setting. Moreover, surveys can accurately document the norm, identify extreme information and delineate associations between variables in a sample. Also recommended survey research for explanatory and predictive theory in order to ensure greater confidence in the generalizability of the results.

The research design of our study is based on a quantitative technique to obtain the report from a collection of data analysis to validate the literature by Structure Equation Modelling (SEM) analysis and check the mediator role in our study construct.

The survey questionnaire used in the study consists of previously published multi-item scales with favourable psychometric properties. All the constructs in the model were measured using 7 - point Likert Scales (strongly disagree – strongly agree). A cross-sectional survey was used to collect the data and test the research model.

The main survey was conducted by a market research firm with a database of more than 5,000 Malaysian IT managers and business analysts. There are two reasons why we choose this market firm: 1) it has the resource of a large list of more than 5,000 Malaysian IT managers and business analysts, 2) it has a professional reputation for its survey quality control. An online questionnaire was distributed to 500 people using simple random sampling. In around two weeks, we received responses from 350 people.

After getting the survey data through questionnaires and ensure the whole dataset is reliable after the screening and error checking of dataset. In order to assess the higher-order BDA capabilities model, the study applied SEM because it estimates hierarchical models by removing the uncertainty of inadmissible solutions using its flexible assumptions (Hair et al., 2011). However, before entering the data for SEM and Mediation analysis of our study, a reliability test analysis is conducted to ensure Cronbach's Alpha each measured variable is reliable and supports for path analysis of SEM. Moreover, in this study the data analysis is performed by SPSS20 and AMOS 24.

4. Results

The data analysis of our study is distributed into three parts, firstly we discussed demographic & descriptive analysis and check the reliability of our study model. Secondly, analyse the path coefficient of SEM model and testing our study hypothesis and check the goodness of fit of SEM model. Thirdly, to check the mediation effect in our study by Path Coefficient Bootstrapping Model.

The demographics of the respondents are as follows with respect to the gender, there were 245 males, accounting for 70%. While females made up 30% of the targeted population. According to the age, 80 (32%) were aged 20-30 years, 96 (39%) 31-40 years, 49 (20%) aged 41-50 years, and 25 (10%) aged 51-above years. Respondent had different position in the Information Technology and Financial Institutions industry were IT experts (25%), Compliance Manager (30%), Financial Analyst (35%) and 10% of Financial Law Firm respondents from Malaysia.

Table 1 displayed a selected item matrix for the construct of Big Data Analytics, Regulatory Compliance, and Foreign Direct Investment Management.

Table 1. Descriptive Statistics.

Variables	Mean	Std. Deviation	Corrected Item-Total	Cronbach's Alpha	N
BDA_IF	4.95	1.291	0.789	0.845	350
BDA_MC	5.37	1.392	0.68	0.97	350
BDA_PEC	5.00	1.278	0.78	0.976	350
RC_SNV	5.09	1.370	0.731	0.98	350
RC_Legi	4.91	1.381	0.816	0.978	350
RC_Deter	5.01	1.406	0.826	0.94	350
FDIM	4.91	1.441	0.832	0.976	350

Source: developed by the authors.

The first step is the measurement items of each variable have achieved more than a cut-off point. The mean values of the construct variable have achieved about to 5.0, which has indicated significant agreement on respondent between measured variables. Moreover, the standard deviation shown of each item is 1.3, which is a high standard deviation which discloses that numbers are more extend.

The reliability of our study construct's variable is desirable, because the Cronbach's Alpha of our construct variables is more than 0.70 it means the construct reliability is very good. However, the corrected item-total correlation is 1.70 that is desired in order to confirm items with the sample size of the study's respondents is 350.

Table 2 represents that the matrix of construct reliability and validity for three variables such as, exogenous variable, mediating variable, and endogenous variable.

Table 2. Construct Reliability and Validity.

Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Big Data Analytics	0.922	0.94	0.553
Regulatory Compliance	0.952	0.965	0.581
Foreign Direct Investment Management	0.91	0.932	0.605

Source: developed by the authors.

Each variable's Cronbach Alpha is >0.70, which is more than desirable on our study construct. The Average Variance Extracted (AVE) has achieved the amount of variance, which has captured a variable association to the amount of variance causing measurement error. The AVE has achieved the desired values >0.50 means the construct variables are validating because all variables AVE value is greater than 0.50.

Table 3 represents that the collinearity statistics with the Variance Inflation Factor (VIF) and Tolerance, are both generally used for measured of the degree of multi collinearity of the exogenous variable with the other exogenous variables in a regression model VIF has achieved acceptable value from 1to 3 or less than 5 but our study construct the VIF values are more than 5 or less than 10, it means there in no collinearity issued between them (BDA and RC).

Table 3. Collinearity Statistic by VIF method.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	Constant	-0.389	0.115		-3.395	0.001		
	BDA	0.219	0.067	0.186	3.246	0.001	0.104	9.565
	RC	0.835	0.063	0.761	13.292	0.000	0.104	9.260

Note: Dependent Variable: FDIM.

Source: developed by the authors.

Figure 2 shows a path diagram for the causal relationship between the three variables of our study. All variables that are affected by other variables, Regulatory Compliance and Foreign Direct Investment Management are endogenous variables, while Big Data Analytics in exogenous variables.

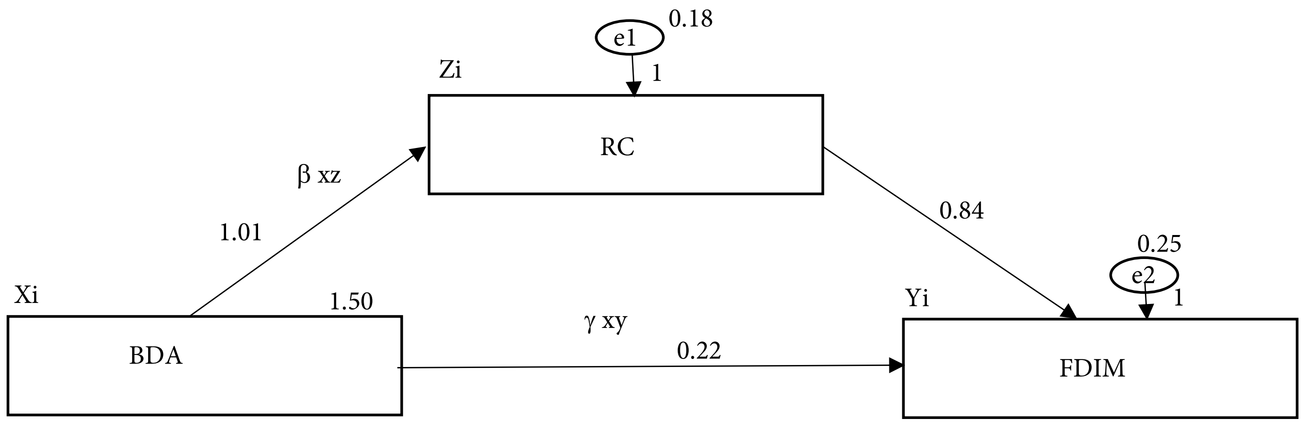

Figure 2. Path of Coefficients by SEM.
Source: developed by the authors.

This analysis includes exogenous factors to facilities the examination of endogenous variables through SPSS-AMOS 24. The basic design was constructed by using observed facts (rectangle) to develop.

Table 4 is the pathways to testing the mediation effect using SEM required significant correlations between independent variable, mediating variable, and the ultimate dependent variable (Hair et al., 2011).

Table 4. SEM Pathways Testing Mediation Among RC, BDA, and FDIM.

Pathways	t-statistics	p-value	Result	Remarks
RC → BDA	54.710	0.000	Significant	H1 accepted
BDA → FDIM	3.255	0.001	Significant	H2 accepted
FDIM → RC	13.330	0.000	Significant	H3 accepted
BDA → RC → FDIM	2.439	0.016	Significant	Partial Mediation Accepted

Source: developed by the authors.

According to the Table 4 the first relationship between BDA and RC performed is statistically significant as p-value (0.000) is less than 0.05. However, the second relationship between BDA and FDIM performed is statistically significant as p-value (0.001) is <0.05. The relationship between the mediating variable of RC and FDIM has performed output at the p-value is (0.000), which is strongly significant relationship.

The conditions of mediation proposed by Baron and Kenny (1986), all pathways of our study is significant, now there is Partial Mediation exist in the study construct.

The direct effect is the pathway from the exogenous variable (BDA) to the outcome while controlling for the mediator (RC). Therefore, the path diagram (γxy) is the direct path. The indirect effect defines the pathways from the exogenous variable to the outcome through the mediator, this path represent through the (βxz and γzy). Finally total effect is the sum of the direct and indirect effects of the exogenous variables on the outcome, γxy + βxz γzy (Table 5).

Table 5. Decomposition of Effects in SEM Mediation Analysis: RC, BDA, and FDIM.

Total Effects			Direct Effects			Indirect Effects		
Variable	**BDA**	**RC**	**Variable**	**BDA**	**RC**	**Variable**	**BDA**	**RC**
RC	1.014	0.000	RC	1.014	0.000	RC	0.000	0.000
FDIM	1.065	0.835	FDIM	0.219	0.835	FDIM	0.847	0.000

Source: developed by the authors.

The discriminant validity indicates that two measurements that are not meant to be associated are in fact not associated. Excellent construct validity requires the presence of both forms of validity. The HTMT analysis is used to determine discriminant validity, with the cut off threshold for severe discriminant validity being 0.850 and for liberal discriminant validity being 0.90. According to Table 6 all items fulfil the criteria of the discriminant validity because all values are greater than the cut off values (0.90 and 0.85) respectively.

Table 6. The results of HTMT Analysis.

Variables	BDA	RC	FDIM
BDA	x		
RC	0.946	x	
FDIM	0.906	0.937	x

Source: developed by the authors.

Figure 3 is the model of path coefficient bootstrapping between direct and indirect relationships among the variables and our study hypothesis testing.

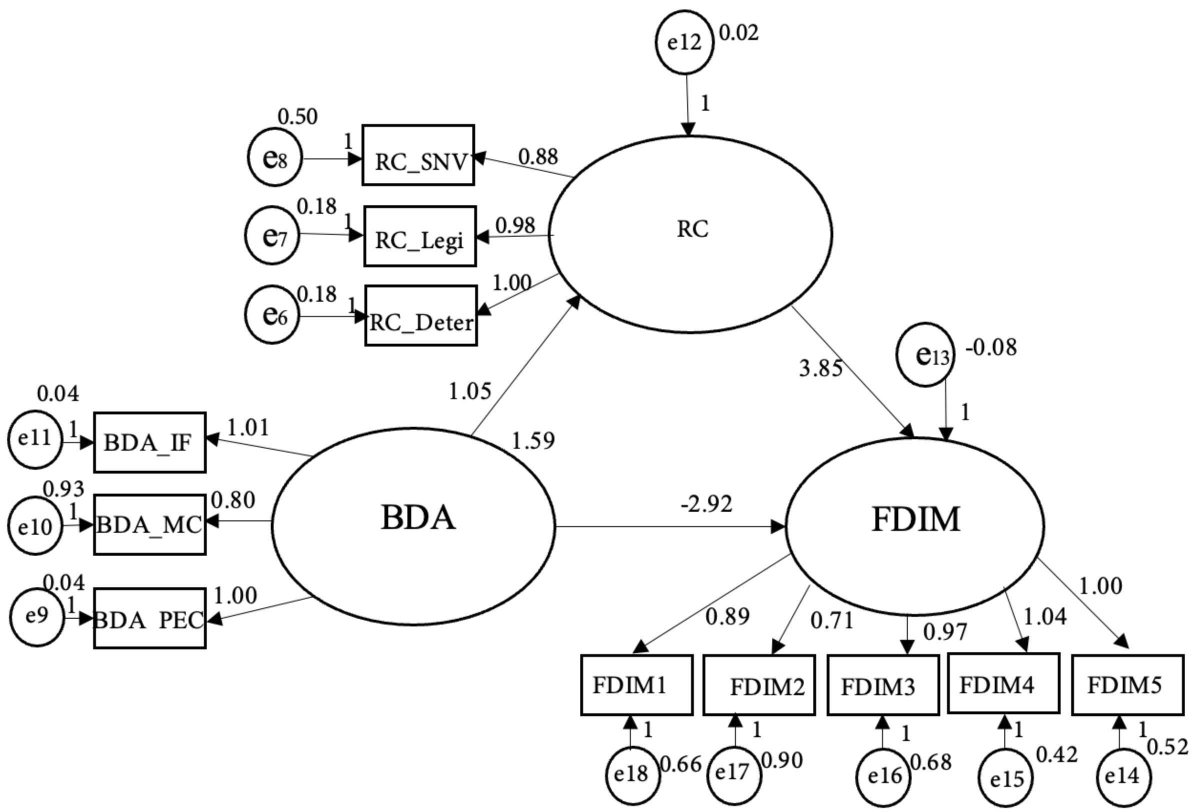

Figure 3. Path Coefficients by Bootstrapping and indirect effect.
Source: developed by the authors.

According to Table 7, the results find out that the first hypothesis of H1 has been accepted between BDA and RC because t-statistics is 49.30, which is >1.96 cut-off threshold (Hair et al., 2011) and p-value is 0.000 executed by bootstrapping. The second hypothesis H2 is statistically insignificant due to t-statistics is -1.681<1.96 and p-value (0.090) is greater than the 0.05 between BDA and FDIM. However, the relationship is also statistically significant between RC and FDIM due to t-statistics and p-value criteria are meet.

Table 7. SEM Results for Direct and Indirect Pathways Among BDA, RC, and FDIM.

Pathways	t-statistics	p-value	Result	Remarks
BDA → RC	49.302	0.000	Significant	H1 accepted
BDA → FDIM	-1.681	0.090	Insignificant	H2 not accepted
RC → FDIM	2.343	0.019	Significant	H3 accepted
BDA → RC → FDIM	2.439	0.016	Significant	Partial Mediation Accepted

Source: developed by the authors.

Therefore, specific indirect effects relationships among BDA and FDIM performance of mediating variable of RC strongly supports to partial mediation. Thus, specific indirect effects have identified by t-statistics and p-value accordingly 49.30 and 0.016 respectively, therefore the model has been empirically identified with partial mediation.

5. Discussion

The study output indicates a positive relationship of big data analytics in RC enhancement. found that artificial intelligence is going to be the most powerful technology to deal with financial crimes in the financial institution. Treleaven (2015) suggested big data adoption in enhancing regulatory compliance in financial sector. Through BDA, financial regulation can be enhanced across multiple jurisdictions, new automated reporting and analytics standards can be created, and this reduce systematic risk, industry performances, financial services and provide economic benefits.

Law enforcement policies are revolutionized by big data, algorithm and computing technologies. Cell phones data, transportation data, internet and social media data, biometric and facial recognition data are used to investigate, predict fraudulent activity is law enforcement presumptive (Coleman, 2023).

BDA is negatively associated with foreign direct inflows in Malaysia according to the findings of this study. The risk associated with BDA hinder the inflow of foreign direct investment in Malaysia. The findings of Ghasemaghaei (2020) confirms the negative impact of bigness of data for data security concern and task complexity. The big data analytics impact can be varied depend on level of data security concerns, task complexity, data accessibility and data diagnostics. Clarke2016) outlined the threat of big data analytics that occur from reutilizing data, consolidating data from various sources and applying analytical tools for concluding results. (Pedro et al., 2019) Stated that there are a number of barriers to organizational effectiveness with BDA and recommended a new legal compliance regarding "Data Protection".

The analysis of the study finds a positive impact of regulatory compliance with foreign direct inflows in Malaysia. According to Gizaw et al. (2023) policy makers should construct a robust business regulation framework and ease the procedure of executing business to attract FDI inflows in their economies to promote regional economic growth. The findings of (Krifa-Schneider et al., 2022) on the nexus of FDI and corruption stated that less corruption in advanced economies bring more inflow of FDI whereas emerging economies, corruption doesn't matter. Corruption can attract FDI but is not sustainable in long-term. Contractor et al. (2020) also concluded that countries having robust agreement enforcement and more effective international trade regulation can attract more FDIs. The paper's output of Mahbub and Jongwanich (2019) also suggest regulatory aspects as most influencing factors for firms when engaging in FDIs.

Legal uncertainties can deter foreign direct investment in a developing country. Legal risk and uncertainty have many forms i.e. double tax agreement, corruption etc. The increased ratio of statutory corporate income tax on the destined source country negatively affect foreign direct investments (Zagler, 2023).

The mediating role of big data analytics between regulatory compliance and foreign direct investment management is partially approved in the test results of the paper. Mangla et al. (2021) argued that project knowledge management and project operational capabilities require mediating role of big data analytics. Marenga et al. (2023) suggested a legislative framework for the promotion of FDI in a region.

Financial institution is also going through a new era of big data analytics, which plays a crucial role into converting financial and economic environment. The evaluation of Wang (2022) revealed that big data analytics implementation support a firm to enhance regulatory compliance to detect fraud, conduct real time analytics, mitigate risk and manage customer portfolio. Corporations can provide customized services to their customer through customer portfolio management, customer data management and even in live analytics. Firms can better understand market trends, predict financial market, patters and irregularities.

Conclusion

Big data analytics is the competitive edge of current business world. Firms with efficient utilization of BDA can increase their financial gains. The current research paper focuses on finding the significant influence of BDA on RC and FDIM of Malaysia. Malaysia is a country having high potential for attracting FDI with a growing investment in BDA market. The regulatory compliance is related with the two factors i.e. BDA and FDIM. According to the analysis report, BDA positively influence regulatory compliance enhancement as it helps in making accuracy in audit work, deter financial frauds and generate analytical reports. Data security protection and task complexity arise a negative influence of BDA over FDIM. However, Legal framework and regulations, robust agreement and international trade enforcement laws as well as small investor's protection can attract more FDI. Further, the analysis indicates a partial positive mediating role of BDA between RC and FDIM. BDA supports to regulate compliances as it will help in deterring fraudulent activities, enforcement of international agreement laws and provide better decision-making opportunities for international managers which in turn increase more FDI in the country. The country can increase foreign inflows through making an ease in the regulations for foreign investors to establish in the region. Big Data Analytics can be utilized to make more betterment in the regulation compliances to deter fraudulent activities and promote healthy business environment for foreigners.

This study is a contribution to the literature of big data analytics (BDA) which is an emerging concept and has changed the business strategies and decision-making methods by providing enormous data. The paper uncovered the role of BDA in regulatory compliance enhancement of foreign direct investment management in the context of Malaysia. Although many authors have worked on BDA and FDIM or Regulatory Compliance and FDIM, but this is the first study combined the three variables which is significant contribution to the literature of related variables. The paper provides insight of BDA's role in regulatory compliance enhancement, BDA's impact on attracting foreign direct investments in Malaysian economy, role of RC towards attaining foreign investor's attentions and the mediating effect of BDA on RC and FDI. The paper guides regulatory authorities of Malaysia to draft policies to avail benefits of BDA for regulatory compliance enhancement and attracting more FDIs in the country. Further, this paper helps scholars for future research direction in the field of BDA and its relationship with the other two variables. The paper suggested to focus on deterring the negative use of BDA for data security concerns, utilizing BDA's capability to robust regulatory compliance and design policies to increase foreign investments.

Despite having theoretical and practical implication, this study has several limitations. The current paper has three variables i.e. BDA, RC and FDIM. The role of BDA on domestic investments of business in the country has not been made a part of this study. Future studies can be made on BDA's impact on the financial, economic, social and political factors of the country for attaining FDI's concern. Behavioural, cultural norms and demography can also make influence on BDA's impact on RC and

FDIM but none of the variables have been included in the study. Threat or risk related to BDA adoption has not been made discussed in this study. Upcoming scholars are recommended to shed light on these factors for their research. Further, the results of this paper can't be generalized to the country having economic and cultural variations from Malaysia. Authors are recommended to conduct the study on multiple economies and analyse the results of the variables.

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