Research Article

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ASSESSING ORGANISATIONAL CAPACITIES OF MOTIVATION-DRIVEN PERFORMANCE OUTCOMES IN CIRCULAR ECONOMY TRANSITIONS

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Background. The transition from a linear to a circular economy is a complex process influenced by various external and internal factors, including state regulations aimed at achieving ESG objectives, market conditions, and consumer demand. Internal organisational factors, such as human resources, finance, and technology, determine an organisation's capacity to implement circular models. It is also important to consider the quality aspects of circular solutions that act as motivators and generate benefits not only for the environment and society but also for the implementing organisations.

Purpose. This study aims to quantify and analyse the correlations between external motivators, internal capabilities in the circular economy transition, organisational benefits derived from implementation, and impacts on organisational performance.

Findings. The analysis revealed strong correlations between most circular economy factors and key aspects of organisational performance, highlighting the strategic value of investing in circular economy models. The strongest correlations were found between team capacity and expert effectiveness (0.769), economic performance and financial efficiency (0.756), and resource efficiency and its associated benefits (0.741). Most of the remaining factors demonstrated moderate correlations (0.30–0.59), and only a few indicators demonstrated weak correlations (<0.29), which require further investigation. The results obtained, especially the highest correlation between team and expert potential, highlight the paramount importance of investing in human capital and management competencies as the basis for a successful transition to a circular economy.

Implications. Organisations in Bulgaria that invest in the right enablers (management, finance, technology, and partnerships) are facilitating circular economy transitions and improving their performance to achieve growth and success. This provides valuable insights for informed policy, strategy, and funding decisions. Key motivators and opportunities for implementing a circular economy are closely linked to precise benefits for organisations, such as the strength and expertise of the human factors team. In contrast, interdisciplinary teams required further study due to their weak correlation with expected outcomes.

Keywords: Circular Economy, Investments, Performance Outcomes, Resource Efficiency, Sustainability.

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1. Introduction.

The transition from a linear to a circular economy is a complex process influenced by numerous factors. First, there are factors related to state regulation and support aimed at achieving the expected environmental and social targets and benefits. Market conditions and consumer demand are on the other end of the scale. In addition to these 'external' factors, internal organisational factors reflect the capacity of organisations to implement new economic models. These cover a wide range of aspects, including human resources, finance, and technology.

Human security includes economic, food, health, environmental, personal, public, and political security (United Nations Development Programme, 1994). This paradigm focuses on understanding global human vulnerabilities and encompasses various scientific areas, including security and defence, international relations, strategic management, human resource management, and human rights protection. Even in the ancient period of Greek philosophy, the question of security arose as "the absence of anxiety", a common problem for Epicurean ethics, where violence is commented on, and its presence or absence is directly related to the idea of happiness and the good life (Petrova & Stoykov, 2021).

When examining the enabling factors of the circular economy (CE), it is crucial to consider the quality aspects of circular models that serve as motivators and validate the expected benefits not only for the environment and society but also for implementing entities. Several recent studies have explored circularity as a source of motivation and benefits for implementing entities (Assmann et al., 2023; Liu et al., 2024; Rosário et al., 2024; Suchek et al., 2021; Ting et al., 2023; Zemanová, 2023).

The identified key motivators and benefits are structured around economic advantages, including efficiency and competitiveness, strategic alignment and compliance with regulations, company and brand image, and novel technologies such as ICT. The circular economy is directly linked to corporate social responsibility (Mora-Contreras et al., 2025).

Stoyanova (2019) has conducted an interesting study among 50 corporations in Bulgaria. Research shows that efficiency is a fundamental element of a closed cycle and a source of economic benefits for enterprises (Gubanova et al., 2019). However, creativity is essential in a circular economy, and the principles of creativity within enterprises must be considered (Angelova, 2024). Various certifications, such as EMAS and/or ISO 14001, directly impact the ability to implement circular economy practices (João et al., 2025).

This study examined the relationship between the key motivators of the circular economy and the benefits of the link between internal factors that enable the transition to a circular economy and the benefits for implementing firms. It builds on the concept that microeconomic benefits may accompany the environmental and societal advantages of a circular economy (Borrero & Yousafzai, 2025).

2. Literature Review.

The circular economy is considered a transition rather than a revolution, emphasising mutual benefits and synergies (Völke et al., 2019; Terziev et al., 2025). Toppinen et al. (2020) emphasise the importance of developing tools to verify and measure these benefits. Specific instruments support decision-makers in assessing benefits in advance, thereby enabling organisations to identify initiatives that will benefit them and their stakeholders (Kravchenko et al., 2019; Vafaei et al., 2016).

However, companies are criticised for being driven by motivations based on economic returns rather than delivering social, environmental, and economic benefits in an integrated and sustainable manner (Velenturf et al., 2019). Ghisellini et al. (2016) do not consider the circular economy an appropriate tool for growth-oriented economic systems; that is, it cannot be claimed to support further economic growth.

The relationship between various advanced technologies, such as big data analytics (BDAC), responsible scientific research, and the environmental performance of manufacturing companies is essential (Sahoo et al., 2023).

However, there is room for considerable research to bridge these different perceptions. Many scholars have explored how the enabling factors of the circular economy support sustainability and drive organisational growth. De Mattos and Albuquerque (2018) identified strategies and enabling factors (e.g., stakeholder engagement, innovation, regulatory support) that help structure circular business models. These factors align with business development and growth, particularly in emerging markets.

The outcomes of a study examining the comprehensive assessment of the sustainability and innovative development of municipalities in Bulgaria have been published in the academic literature (Tsonkov et al., 2022; Tsonkov & Kostev, 2023). Such models can also be adapted to assess organisations in the context of their full inclusion and contribution to building a circular economy in Bulgaria (Dimitrova et al., 2025; Goranova & Anguelov, 2025).

According to another analysis based on interviews with representatives of European companies, regulatory support, standards, and economic incentives are crucial for implementing a circular economy (Völker et al., 2020). Rizos et al. (2021) argued that this opens up new markets for companies, enabling them to achieve revenue diversification through increased competitiveness.

Piila et al. (2022) use issue life cycle theory to show how circular economy drivers evolve and contribute to organisational growth over time. Krachunov and Ovcharova (2022) proposed an aggregated algorithm for coherent optimal management to achieve the sustainable development of industrial zones and production systems. They derived a general target function for satisfaction and the inherent material and emotional costs associated with subjects engaging in exchanges with one another, aiming for sustainable development.

Graessler et al. (2024) review how organisational change processes, driven by circular economy principles, can lead to improved performance, innovation, and long-term growth. Howe and Lavy (2025) highlight the importance of leadership and internal capabilities.

A systematic review of 111 articles published between 2014 and 2025 analysed the theoretical foundations, governance, and enabling technologies of the circular economy (Teixeira, 2025). According to this analysis, digital tools and renewable solutions support the circular economy by promoting innovation and scalability in the construction sector. The key motivators identified are cost efficiency and resource optimisation, competitive advantage, regulatory pressure, environmental certification, social responsibility, and brand image (Ting et al., 2023). In addition to market demand, knowledge, and innovation (Assmann et al., 2023), technological drivers have been highlighted, particularly the use of innovative technologies and platforms for collaborative consumption (Rosário et al., 2024).

Currently, effective resource management and energy efficiency are critical. Hool et al. (2024) highlight the importance of utilising raw materials and materials efficiently to achieve higher results, lower costs, and protect personnel. Key organisational benefits include cost savings, competitive advantage, improved public image, economic growth, and job creation (Pozzetto & Leoni, 2025).

Despite internal barriers, implementing a circular economy at the micro-level yields tangible organisational gains (Zemanová, 2023). Suchek et al. (2021) outline several advantages, including increased resilience, customer loyalty, and long-term profitability. Based on case studies of UK businesses, Liu et al. (2024) concluded that the circular economy is a source of business value creation, encompassing the development of new products and services, improved operational efficiency, and strategic differentiation.

3. Methodology.

This study presents the results of an empirical investigation into the primary internal factors driving the transition from a linear to a circular economy in organisations in Bulgaria. The questionnaire was distributed to managers and experts with experience in implementing circular economy projects, specifically to 150 organisations implementing circular economy and resource efficiency projects.

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The selection of companies was based on a recent review of business organisations implementing circular economy projects in the Republic of Bulgaria (Unified Management and Information System, 2020) and the EU (EU Funding and Tenders Portal), while excluding terminated projects that have not and are not expected to be completed successfully (Goranova & Anguelov, 2025).

The analysis was based on 34 validly completed questionnaires collected in 2025, representing a 22.7% response rate. According to Baruch and Holtom (2008), who concluded that representativeness in survey research is influenced by several factors, including the method of sample selection and the specific characteristics of the population being studied. They believe that a return rate above 20% is usually considered acceptable in social sciences. Therefore, given the clearly defined sample and diversity of respondents, the survey results can be considered sufficiently representative for this study.

The results align with recent scholarship on survey response rates and representativeness (Holtom et al., 2022), which concluded that representativeness should be assessed not only by percentage but also by the contextual factors that influence data quality and inference validity. The sample achieved a satisfactory balance across the key stakeholder groups.

Since multiple responses were allowed, the distribution of affiliations was as follows (percentages indicate the share of respondents selecting each category): public administration managers and experts (35.30%), private sector managers and experts (35.03%), consultants and academics (29.04%), and NGOs (22.15%). Respondents could select multiple categories that applied to them. The percentages reflect the proportion of respondents who identified with each group and do not sum to 100%. A significant proportion of respondents had substantial experience. Nearly half of the respondents indicated that they had gained expertise in the field for over 10 years.

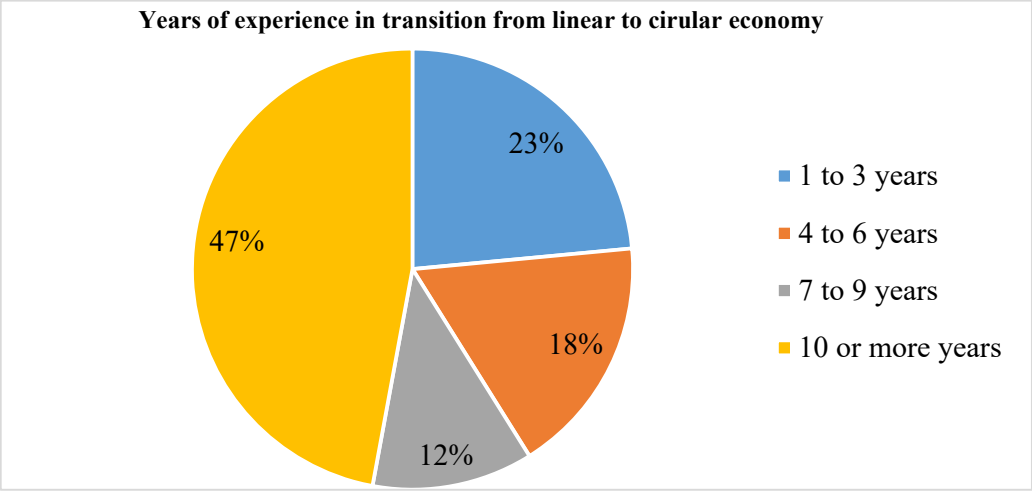

Fig. 1. Distribution of Respondents by Years of Professional Expertise, 2025.

The survey addressed the main groups of factors enabling the transition from a linear to a circular economy, providing details on each group. Additionally, it examines the quality aspects of circular models that serve as motivators and benefits for implementing such entities. The main sections are linked to different aspects of the transition from a linear to a circular economy.

1. Introduction (Expert positioning).
2. Groups of actors (Integral assessment of groups of factors), including assessment of risk factors/ stages.
3. Factors and indicators (detailed assessment of individual factors).
4. Quality features of circular models.
5. Benefits to companies from implementing circular models.

Most questions require respondents to evaluate opportunities, factors, challenges, and benefits using the scale presented in Table 1. The study focuses on the following research problem and associated hypotheses:

Hypothesis 1. The key circular economy qualities motivating organisations operating in Bulgaria to adopt circular models ("key motivators") result in improved performance of implementing entities.

Hypothesis 2. The key factors enabling the implementation of circular models in organisations operating in Bulgaria ("main enabling factors") also result in improved performance of the implementing entities.

The research problem was addressed by examining the following correlations among the results of the survey sections:

– Correlation between Quality features of circular models and Benefits to the companies from implementing circular models

– Correlation between Integral Positioning of Key Factor Groups and Benefits to the companies from implementing circular models.

The outcomes of the correlation analyses are illustrated through "heatmaps" that help to identify which "key motivators" and "main enabling factors" are most likely to result in relevant benefits for the implementing entities.

Table 1. 7-Point Likert Scale for Impact Assessment.

Score	Impact Level	Description
1	None	Not a factor
2	Negligible	Negligible factor
3	Low	Minor factor
4	Moderate	Moderately significant factor
5	High	Significant factor
6	Very High	Highly significant factor
7	Critical	Key factor

However, these should not be interpreted as roadmaps for directly pursuing the benefits. The benefits for companies depend on specific circumstances and the state of the business and include the consequences of implementing circular models. The survey research employed a rigorous statistical correlation methodology, specifically the Pearson correlation coefficient, to provide an accurate quantitative measure of the linear relationships between variables. This approach enhances analytical reliability and minimises interpretative ambiguity, supporting evidence-based conclusions (Maiwada & Okey, 2015).

For each factor-benefit pair, the correlation coefficient $R_{x,y}$ was computed:

$$R_{x,y} = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2}\sqrt{\sum_{i=1}^{n}(y_i - \bar{y})^2}} \quad (1)$$

Where:

x_i – the score for factor x by respondent i;

y_i –the score for benefit y by respondent i;

n – the total number of respondents;

$\bar{x}$ and $\bar{y}$ –the factor and the benefit mean:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i \quad (2)$$

$$\bar{y} = \frac{1}{n}\sum_{i=1}^{n} y_i \quad (3)$$

This custom association score calculates the average normalised product of scores across respondents, measuring how strongly the coupled parameters co-occurred at high values. This is appropriate as it aims to emphasise joint intensity.

Table 2 and 3 illustrate the preliminary relationships between key motivators and benefits, as well as between the main factor groups and benefits, as outlined in the defined hypotheses. The parameters belonging to the two groups were coupled for the correlation analyses, and the coupling was based on expert assessment.

Table 2. Key Circular Economy Enablers and Corresponding Organisational Benefits.

Key Motivator	Associated Benefit
Resource efficiency (optimising resource use and minimising waste through recycling and material reuse)	Enhanced resource efficiency
Durability and reparability (designing long-lasting and easily repairable products with extended life cycles)	Enhanced resource efficiency
Sustainability (reducing harmful emissions and environmental impact through green technologies and sustainable materials)	Enhanced environmental performance
Leadership (capacity to develop and implement new circular solutions and technologies)	Improved expert capacity
Project management (managing projects incorporating circular practices, from concept to execution)	Improved expert capacity
Financial incentives (subsidies, tax reliefs, and grants from government or donor organisations)	Improved financial and economic performance
Economic indicators (return on investment for circular model implementation; cost per unit of circular production)	Improved financial and economic performance
Industrial symbiosis (collaboration between industries for optimal use of waste and by-products)	Enhanced resource efficiency
Interdisciplinary teams (coordination of experts from engineering, economics, waste management, and other fields)	Improved organisational image domestically and internationally
Innovative design (designing products for easy disassembly and recycling, reducing pollution, and improving resource use efficiency)	Improved infrastructure and equipment

Table 3. Groups of Circular Economy Enablers and Corresponding Organisational Benefits.

Factor Group	Corresponding Organisational Benefit(s)
Management Capacity	Improved Financial and Economic Status
Expert Capacity, Team Capacity	Enhanced Expert Capacity
Financial Capacity	Improved Financial and Economic Status
Partnership Capacity	Enhanced Organisational Image (Domestic and International)
Technological Capacity, ICT Capacity	Improved Infrastructure and Equipment

4. Results.

The results of the correlation analyses (Table 4-5) show how strongly each key motivator/ respectively, main factor, is associated with the relevant benefit.

This illustrates the links between key motivators, enablers, and benefits for implementing entities. Attaining the expected benefits is not the primary objective but rather a side effect of establishing a circular model.

Table 4. Correlation between Key Circular Economy Motivators and Organisational Benefits.

Key Motivator	Benefit	Correlation Coefficient	Interpretation
Resource Efficiency	Improved Resource Efficiency	0.741	Strong
Durability and Repairability	Improved Resource Efficiency	0.519	Moderate
Sustainability	Improved Resource Efficiency	0.476	Moderate
Leadership	Improved Expert Capacity	0.621	Strong
Project Management	Improved Expert Capacity	0.669	Strong
Financial Incentives	Improved Financial and Economic Status	0.656	Strong
Economic Indicators	Improved Financial and Economic Status	0.756	Strong
Industrial Symbiosis	Improved Resource Efficiency	0.622	Strong
Interdisciplinary Teams	Improved Organisation Image (Domestic)	0.305	Moderate
Interdisciplinary Teams	Improved Organisation Image (Abroad)	0.378	Moderate
Innovative Design	Improved Infrastructure and Equipment	0.611	Strong

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Table 5. Correlation between Groups of Circular Economy Factors and Organisational Benefits.

Factor Group	Benefit	Correlation Coefficient	Interpretation
Management Capacity	Improved Financial and Economic Status	0.473	Moderate
Expert Capacity	Improved Expert Capacity	0.689	Strong
Team Capacity		0.769	Strong
Financial Capacity	Improved Financial and Economic Status	0.599	Strong
Partnership Capacity	Organisational Image (Domestic)	0.620	Strong
Partnership Capacity	Organisational Image (Abroad)	0.479	Moderate
Technological Capacity	Improved Infrastructure and Equipment	0.515	Moderate
ICT Capacity		0.651	Strong

As shown in Table 6, resource efficiency, economic indicators, and project management factors showed the most substantial overall alignment with benefits. In contrast, the most correlated benefits were improved expert capacity, followed by improved resource efficiency, infrastructure, and equipment. Most motivators showed at least a moderate correlation with all benefits, reflecting the integrated nature of success in the circular economy.

As presented in Table 7, high correlations are concentrated in team and expert capacity (the strongest motivators), improved expert capacity, improved infrastructure and equipment, and an improved organisational image in the country (core benefits).

Moderate correlations dominated the rest, indicating meaningful but improvable relationships. Only two cases of low correlation were observed, confirming the overall consistency of the motivator-benefit model. Table 8 presents a classification of correlation strength, distinguishing between strong, moderate, and weak relationships, to facilitate the interpretation of these results.

As part of the defined hypothesis, it is expected that each couple is strongly correlated. In addition to the specific correlation analyses, Table 6 and 7 present the overall picture, illustrating the strong association between each key motivator and the primary factor, as well as the relevant benefit.

Table 6. Correlation Matrix of Key Circular Economy Motivators and Organisational Benefits.

Key Motivator / Benefit	Improved Infrastructure & Equipment	Improved Resource Efficiency	Improved Expert Capacity	Improved Financial & Economic Status	Organisational Image (Domestic)	Organisational Image (Abroad)
Resource Efficiency	0.720	0.741	0.704	0.686	0.513	0.396
Durability and Repairability	0.523	0.519	0.514	0.376	0.299	0.293
Sustainability	0.592	0.476	0.613	0.320	0.366	0.387
Industrial Symbiosis	0.717	0.622	0.778	0.446	0.476	0.382
Innovative Design	0.611	0.570	0.652	0.359	0.363	0.212
Economic Indicators	0.672	0.692	0.660	0.756	0.588	0.406
Financial Incentives	0.439	0.393	0.342	0.656	0.462	0.306
Leadership	0.594	0.492	0.621	0.489	0.511	0.480
Interdisciplinary Teams	0.464	0.458	0.476	0.309	0.305	0.378
Project Management	0.653	0.613	0.669	0.446	0.417	0.437

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Table 7. Correlation Matrix of Circular Economy Factor Groups and Organisational Benefits.

Factor Group / Benefit	Improved Infrastructure & Equipment	Improved Resource Efficiency	Improved Expert Capacity	Improved Financial & Economic Indicators	Organisational Image (Domestic)	Organisational Image (Abroad)
Management Capacity	0.339	0.445	0.430	0.473	0.274	0.282
Expert Capacity	0.612	0.673	0.689	0.609	0.501	0.523
Team Capacity	0.692	0.644	0.769	0.538	0.668	0.702
Financial Capacity	0.500	0.414	0.420	0.599	0.451	0.447
Partnership Capacity	0.558	0.588	0.630	0.522	0.620	0.479
Technological Capacity	0.515	0.484	0.512	0.689	0.602	0.476
ICT Capacity	0.651	0.468	0.669	0.556	0.448	0.355

Table 8. Interpretation of Correlation Strength

Correlation Strength	Meaning
Strong (≥ 0.6)	Strong alignment between factor and benefit
Moderate (0.30–0.59)	Partial alignment; potential for improvement
Low (< 0.29)	Weak or no observed relationship

5. Discussions.

The defined hypotheses were confirmed and verified by the survey results, with most of the expected strong correlations being confirmed. In addition, the heatmap visualisations revealed some additional strong relationships.

Two motivators (Durability and Reparability and Interdisciplinary Teams) and two benefits (Improved organisational Image in the Country and Improved Organisational Image Abroad) were not strongly correlated with their expected pairs or any other elements. This may be interpreted as a lack of confidence or insufficient understanding of the questions by the respondents.

There are several 'motivators' (industrial symbiosis, economic indicators, and project management) that exhibit strong, unforeseen correlations with improved resource efficiency, which may be explained by the more complex nature of these parameters. This renders the initial understanding more comprehensive.

Sustainability is strongly correlated with improved expert capacity rather than resource efficiency. It is also worth noting that there is a strong correlation between most motivators and the benefits of improved expert capacity. This link is a crucial input for respondents to create technical and economic models based on survey results.

Three of the defined couples showed moderate rather than the expected strong correlation:

– Management Capacity – Improved Financial and Economic Status.

– Partnership Capacity – Organisation Image Abroad.

– Technological Capacity – Improved Infrastructure and Equipment.

There is only one element that is not strongly correlated with any other, i.e., the factor "Interdisciplinary Teams". This is the main 'uncoupled' element in both analyses; therefore, it should be further studied or excluded from the planned modelling process.

Finally, two enabling factors are strongly correlated with most benefits: team capacity and expert capacity, highlighting the priority of the human factor, which is central to each change or transformation. The outcomes of the above analyses support the results of several similar studies that have identified a positive correlation between circular economy enablers and company benefits (Blackburn, 2024; Graessler et al., 2024; Popa et al., 2025).

6. Conclusions.

The results of this empirical study, conducted among business organisations in Bulgaria with experience in European-funded circular economy projects, highlight the key motivators driving the implementation of circular models and demonstrate the tangible benefits that such targeted organisational strategies can provide.

The main conclusions from the correlation analysis are as follows: organisations with substantial managerial, expert, technological, and financial capacity achieve better results, including, but not limited to, improved resource efficiency, enhanced expert and technical competence, improved financial and economic conditions, and an improved organisational image. Another significant result is that the motivators for circular are associated with real improvements. Simultaneously, the analysis revealed that the teams and experts who form them are most closely associated with the benefits of introducing circular models.

In practice, the analysis revealed that although the primary concern for protecting nature and natural resources is at the heart of the circular economy, it also yields concrete and measurable benefits to companies themselves. The results contribute to enhancing the understanding of the circular economy as a viable business model that strengthens the implementing entity's capacity. Moreover, they suggest that it is possible to plan this model in a way that will most benefit capacity-building needs.

Organisations in Bulgaria that invest in transitioning to a circular economy are also likely to develop in terms of resource efficiency, expert capacity, financial and economic indicators, infrastructure, and equipment (strong correlations). Elements that are not strongly correlated may be further analysed through in-depth interviews with selected entities. This will inform the development of technical and economic models, which are planned to continue this research in the future.

Conflict of Interest Statement.

The authors have declared no conflict of interest.

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