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EFFECTS OF FISCAL POLICY AND RENEWABLE ENERGY USE ON CARBON EMISSIONS IN EU

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Abstract

The latest years of the current century have brought to attention increasingly acute issues regarding the climate change caused by the economic activities and its disastrous impacts all over the world and raised therefore motivated concerns regarding the measures to be taken in order to mitigate them. Since one of the most important determinants of the climate change is represented by the carbon emissions this paper proposes an analysis on the way in which there can be reduced such emissions, focusing on the case of the European Union case. The paper analyses the effects of the fiscal policy, regarding both environmental taxes and government expenditures, but also of the use of the renewable energy on the level of the carbon emissions per capita, during 2010-2020 in EU. The results prove that the extensive use of the renewable energy, especially, but also fiscal policy instruments can mitigate the problem of the carbon emissions and help reducing the climate change.

Keywords: carbon emissions; renewable energy; environmental taxes; taxes on pollution; government environmental expenses; GDP growth.

JEL Classification: C33; E62; F64; O13; Q58.

1. INTRODUCTION

The reality of the last two decades, and especially of the latest years have increasingly brought into the attention of the mankind and of governments from all over the world the major issue of the climate change that, year after year, had determined destructive phenomena which have increased both in number, but also in their amplitude. The global warming seems to rise more rapidly than expected and has already led to much higher temperatures, fires, floods and other disasters, resulting not only in economic loses, but also in human casualties.

While the cause of the climate change has been identified to reside in the excessive growth of the carbon emissions and of the greenhouse gases emissions, it obviously becomes imperative to search and apply solutions in order to protect the environment and to limit the greenhouse and carbon emissions, that are majorly determined by the economic activities.

The increase of the carbon emissions was and still is determined basically by the expansion of industrial activities producing goods or services demanded in higher quantities by the population. These enhanced industrial activities, either produce directly carbon emissions and/or, by consuming higher quantities of energy (which is still mainly generated by burning fossil fuels), lead indirectly to significant carbon emissions. At the same time, also the population determines carbon emissions, less directly, but similarly indirectly, by consuming energy.

Because the negative effects of the climate change, determined partly but importantly by carbon emissions, are affecting peoples' lives, there are needed solutions in order to match the needs for goods and services with the environment protection, including diminished carbon emissions.

Since one of the major causes of the carbon emissions is the consumption of oil, coal and other resources used to generate energy, which have as side effect large quantities of carbon emissions, a natural solution can be finding and using other green and renewable sources of energy, such as solar or wind. On the other hand, people and especially manufacturers need to be convinced to develop responsibly their activities, avoiding as possible generating carbon emissions.

Even some of manufacturers and even some citizens can employ willingly such solutions, there is needed that the entire society to adopt such solutions in order to generate a notable impact on the reduction of the carbon emissions. Therefore, it is reasonable that governments should intervene to convince or to determine the society to act for the reduction of the carbon emissions maintaining, at the same time, also the goal of economic development. Through their fiscal policy, governments can apply taxes to the polluters, in order to discourage the activities that generate high carbon emissions. On the other hand, governments may use the gathered money and other financial resources for expenditures to invest directly in own green projects or to sustain financially the private users of green and renewable energy and the manufacturers that invest in solutions that limit pollution and carbon emissions.

This paper aims to explore the influence that fiscal measures and the use of the renewable energy are exerting on the level of the carbon emissions, on the background of the economic development and develops such an analysis on the 27 member states of the European Union, during the period 2000-2020.

The remainder of the paper includes a short literature review in the second part, followed by a description of the data and methodology that were used, the results and discussion on the analysis performed and, in the end, by the conclusions and the suggestions regarding the ways in which the issue of carbon emissions can be approached.

2. LITERATURE REVIEW

While during the last decades there were registered rapid and more and more worrying changes of the climate, that determined the appearance of many disastrous phenomena impacting both the economy, but also human life, the subjects regarding climate change have become more present in literature. On this background, were developed studies, either regarding the consequences of climate change, or the determinants of it and the possible solutions to counteract this change.

Literature has identified, generally, as the major cause of the climate change the greenhouse gas emissions (Firtescu et al., 2025), residing in methane, nitrous oxide, sulfur dioxide (Halkos and Paizanos, 2013; López and Palacios, 2014), carbon dioxide and several other gas emissions. Moreover, literature has recognized as the major determinant of the climate change, the increasing carbon emissions.

In the past two decades, studies have either analyzed the effects of the carbon emissions on the society, or the causes of such emissions and the possible ways to limit them. In this regard, different authors have developed analyses regarding the carbon emissions that studied either the specific of a single country (Yang et al., 2019; Ramlogan and Nelson, 2024), or the situation of groups of countries (Zaman and Moemen, 2017; Baloch, Mahmood and Zhang, 2019; Li et al., 2023). Out of the later kind of studies, some of them were developed on data regarding European countries (Acaravci and Ozturk, 2010; Dogan and Seker, 2016; Neves, Marques and Patrício, 2020).

A number of previous papers have approached the relationship between carbon emissions and GDP (Dogan and Seker, 2016), some of which considering carbon emissions as determinant of GDP growth, and other the reverse relationship, considering GDP as determinant of carbon emissions. Most of the studies determined a positive relationship between GDP and carbon emissions (Baloch, Mahmood and Zhang, 2019; Ike, Usman and Sarkodie, 2020; Li et al., 2023). However, Acaravci and Ozturk (2010) found that beyond a threshold level of real GDP per capita, any increase in real GDP per capita likely reduce the carbon emissions per capita in Denmark and Italy.

Other studies have examined different potential determinants of carbon emissions, consisting in foreign direct investments (FDI), trade or trade openness, population (Zaman and Moemen, 2017), monetary policy (Ramlogan and Nelson, 2024) etc. Some studies on the impact of FDI on carbon emissions showed that FDI reduce the carbon emissions (Neves, Marques and Patrício, 2020). On the other hand, trade appears to reduce carbon emissions as demonstrated by Dogan and Seker (2016), but may act reversely in low-income countries (Zaman and Moemen, 2017; Balsalobre-Lorente et al., 2018). At the same time, population growth determines higher CO₂ emissions.

Several studies have evaluated the effects of renewable energy consumption on carbon emissions and found all that as the renewable energy consumption increases it results a decrease of the level of carbon emissions (Dogan and Seker,

2016; Balsalobre-Lorente et al., 2018; Baloch, Mahmood and Zhang, 2019; Neves, Marques and Patrício, 2020; Li et al., 2023). However, the impact of the renewable energy consumption was found to be more or less significantly statistic depending on the specific study and the analyzed countries.

Fiscal policy has also been considered as potential influence factor of carbon emissions in some studies (Katircioglu and Katircioglu, 2018; Ike, Usman and Sarkodie, 2020; Li et al., 2023; Ramlogan and Nelson, 2024). For instance, Chishti et al. (2021), as well as Ramlogan and Nelson (2024) found that expansionary fiscal policy raises carbon emissions, while contractionary fiscal policy reduces carbon emissions.

On the other hand, other papers have analyzed the impact on carbon emissions of only some fiscal instruments, such as taxes on pollution or government expenditures.

Some of the papers (Neves, Marques and Patrício, 2020; Li et al., 2023; Ma et al., 2023) showed that the taxing of polluting activities and the promotion of have proved to be significant barriers to an increase in CO₂ emissions. However, Leitão (2025) showed that in OECD countries environmental taxes stimulated carbon and greenhouse gas emissions.

In turn, Yang et al. (2019) showed that subsidies have a positive threshold effect on renewable energy investment of China and on this basis on low-carbon emissions. Moreover, Adewuyi (2016) found a positive effect of government investment expenditures on reducing carbon emissions, but also a negative effect of the total government expenditures. We note also that Li et al. (2023) showed that government expenditure intensify CO₂ emissions, while Halkos and Paizanos (2013) observed no evident impact.

Based on the previous observations regarding the existing literature, we observe that the issue of the carbon emissions gained more attention especially in the last years. In this regard, several studies have investigated the effects of potential determinants of the level of carbon emissions, some of them resulting to be relevant, but also some of them having ambiguous effects. Therefore, on the background of these concerns regarding the problem of carbon emissions, we develop an analysis on how, specific fiscal policy instruments, such as environmental and pollution taxes or environmental government expenditures and also the renewable energy consumption and economic growth can impact on the level of carbon emissions.

3. DATA AND METHODOLOGY

Our analysis uses annual data for all the current 27 countries, members of European Union: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain and Sweden. We developed our analysis using

data from the period between 2000 and 2020, in accordance with the availability of the data, and we created a strongly balanced data panel of data from Eurostat and World Bank databases.

In our analysis we use as proxy for the carbon emissions, the Carbon dioxide (CO₂) emissions excluding LULUCF per capita (t CO₂e/capita), symbol CO₂cp, gathered both from the World Bank database.

At the same time, we take into consideration as independent variables and as determinants of the carbon emissions, several variables presented in Table 1, based on the expected normal influence of these determinants on the dependent variable.

Table 1. The independent variables/ determinants

Independent variable/ factor	Indicator name	Indicator symbol	Expected impact (+/-)	Source
Environmental taxes	Total environmental taxes (%GDP)	TEp	-	EUROSTAT Database
Pollution taxes	Taxes on pollution(%GDP)	TPg	-	EUROSTAT Database
Government expenditures on environmental protection	Total general government expenditure on environmental protection (%GDP)	GEEp	-	EUROSTAT Database
Renewable energy consumption percentage	Renewable energy consumption (% of total final energy consumption)	RECpt	-	World Bank Database
Economic growth	GDP per capita growth (annual %)	GDPcg	+	World Bank Database

Source: Author

Table 1 contains details for the independent variables which include the original indicator and the databases from which the data were gathered. Moreover, based on the identified logical connections and previous results from the existing literature, we included also the expected impact of the independent variables on the level of the carbon emissions.

Our research is based on the use of statistical methods consisting in Pearson correlations, respectively in building and testing econometric models, using Panel Ordinary Least Squares method.

4. RESULTS AND COMMENTS

The analysis we perform begins with verifying the existence of the connections between the dependent variable, consisting in the Carbon dioxide (CO₂) emissions excluding LULUCF per capita on the one hand, and the

anticipated determinants of its evolution. Therefore, we use Pearson correlations to observe the intensity and the significance of these connections and the results are shown in Table 2.

Table 2. The correlation matrix of the variables

	CO2cp	TEp	TPg	GEEp	RECpt	GDPcg
CO2cp	1.0000					
TEp	-0.0244	1.0000				
	0.5617					
TPg	-0.0643	0.2558***	1.0000			
	0.1328	0.0000				
GEEp	0.0546	0.1281***	0.2025***	1.0000		
	0.1945	0.0023	0.0000			
RECpt	-0.3200***	0.0705*	0.1389***	-0.4998***	1.0000	
	0.0000	0.0936	0.0011	0.0000		
GDPcg	-0.0189	-0.0911***	0.0029	-0.1785***	-0.0630	1.0000
	0.6526	0.0300	0.9458	0.0000	0.1339	

***, **, * - denotes significance at 1%, 5%, respectively 10% level

Source: Author calculation using STATA 12

As Table 2 reveals, the level of the carbon emissions can be influenced both by fiscal measures, by the use of renewable energy and also by the rhythm of economic development, but also the relationship can operate vice versa. We observe the negative and statistically significant relationships between the carbon emissions and the renewable energy consumption, that suggest that using renewable energy lowers the carbon emissions. Moreover, the fiscal instruments consisting in the environmental taxes and the taxes on pollution can lead to lower carbon emissions. At the same time, we note a negative relationship between carbon emissions and GDP growth, that may suggest that problems generated by the economic activities generating carbon emissions outcome their benefits and lead not to an increase in GDP, but to a reverse effect.

On the other hand, the positive relationship between the government expenditure on environmental protection and the carbon emissions may suggest that the governments are forced to spend more money on counteracting the impacts of the carbon emissions.

While the correlations can operate both ways, it is important to find out more precisely how the considered independent variables are impacting the level of the

carbon emissions. In this regard, we deepen our analysis by using POLS (pooled ordinary least squares) method.

The test regarding the possible multicollinearity led to results that show a low-moderate multicollinearity. Moreover, the Breusch-Pagan test revealed a probability of 0.0000, below the 0.05 threshold, showing that a random effects model is more appropriate, instead of a simple one. However, beside using a normal random effects model, we will use also the robust random effect model in order to avoid the heteroscedasticity.

The results obtained applying both the normal random effects model and the robust random effects model on the specified panel of data, are shown in the following Table 3:

Table 3. Results of the random effects models

RE	Normal		Robust	
	Coef.	P>t	Coef.	P>t
TEp	.5972474***	0.000	.5972474	0.173
TPg	-1.542233***	0.004	-1.542233	0.164
GEEp	-.1216468	0.588	-.1216468	0.812
RECpt	-.1761563***	0.000	-.1761563***	0.000
GDPcg	.0108302	0.362	.0108302	0.214
cons	9.714413***	0.000	9.714413***	0.000
R-squared	0.5163		0.5163	
Wald test	548.81		50.95	
Prob.	0.0000		0.0000	

***, **, * - denotes significance at 1%, 5%, respectively 10% level

Source: Author calculation using STATA 12

According to Table 3, both the normal random effects model and the robust random effects model show similar values of all the coefficients, but the statistical significance appears to be different in some cases. We can observe that taxes on pollution impact negatively and statistically significant the level of CO₂ emissions in both models, their high impact being confirmed by the coefficient value, which suggests that the fiscal policy of punishing the polluters leads to the expected results of diminishing the CO₂ emissions. Moreover, the general government expenditures on environmental protection prove to have also an important negative impact on carbon emissions in terms of the coefficient, but less statistically significant, showing so that the government expenditures on environmental protection lead to a decrease of carbon emissions. However, the lack of statistical significance may imply that this fiscal instrument is not used at its entire capacity and can suggest that either this kind of expenditures are not enough, or their destinations are not chosen properly by the governments. On the other hand, the environmental taxes, even with a less important impact in terms of the coefficient, seem not to diminish the CO₂ emissions, but to increase them,

which leads to the conclusion that this fiscal instrument is not used properly by the authorities and needs to be adjusted to serve its purpose.

As expected, the economic growth, still based mainly on using fossil fuels, proves to lead to a slightly increase in the level of the carbon emissions, judging upon its coefficient, but not statistically significant. On the other hand, the general tendency, of promoting the use of the green or renewable energy leads to a very important negative effect, in terms of the coefficient and statistical significance impact, on the CO₂ emissions, which is also in line with the previous expectations and with the results from the previous literature.

The Hausman test for the described variables revealed a probability of 0.3610, above 0.05 threshold, which suggests that random effects model is preferable to the fixed effects one. However, in order to deepen our analysis, we will test also the POLS fixed effects models, both normal and robust, for evaluating the impact the independent variables on the CO₂ emissions level. The results of these tests are presented in Table 4, below.

Table 4. Results of the fixed effects models

FE	Normal		Robust	
	Coef.	P>t	Coef.	P>t
TEp	.593476***	0.000	.593476	0.198
TPg	-1.52264***	0.005	-1.52264	0.194
GEEp	-.0924673	0.682	-.0924673	0.858
RECpt	-.1780103***	0.000	-.1780103***	0.000
GDPcg	.0108304	0.363	.0108304	0.220
cons	9.838392***	0.000	9.838392***	0.000
R-squared	0.5163		0.5163	
Wald test	109.96		9.98	
Prob.	0.0000		0.0000	

***, **, * - denotes significance at 1%, 5%, respectively 10% level

Source: Author calculation using STATA 12

We note that the fixed effects models show the same degree of high confidence as the random effects models, reflected by the R-squared level of 0.5163. Moreover, there can be observed similar positive or negative impacts of the independent variables on the CO₂ emissions, as in the previous random effects models. We also observe that the coefficients obtained by using the fixed effects models are very little different from the ones obtained in the case of using the random effects models. These observations lead to the conclusion that the models used are catching very realistic the impacts of the considered independent variables on the level of the CO₂ emissions and sustain the conclusions drawn previously.

5. CONCLUSIONS

On the background of the increasing concerns regarding the climate change and its destructive effects reflected both in economic but also in human lives losses, the need to address the generator factors of climate change, consisting in excessive emissions of greenhouse gases and carbon has become a pressing issue for all countries and governments.

During the past years there have been proposed solutions for diminishing the carbon emissions, such as using green and renewable energy or implementing green technologies for environmental protection etc. However, such solutions cannot provide significant results in the absence of the combined efforts of all members of the society, which are not all aware of this necessity or do not all consider such an issue an important one. Therefore, beside the voluntary involvement of some members of the society in actions concurring to environmental protection, governments have to develop instruments, such fiscal policies, in order to determine the entire society to act toward such a goal.

Based on the previous assumptions, our paper has employed an analysis of the effects of fiscal policy and of the use of renewable energies on the level of the carbon emissions, in EU27 countries, during the 2000-2020 period, using statistical methods consisting in Pearson correlations, respectively in building and testing Panel Ordinary Least Squares econometric models.

Our results are showing that the use of the renewable energy represents an important and significantly statistic determinant for diminishing the level of carbon emissions and therefore the solution of replacing the use of energy generated by fossil fuels with the renewable one has to be a central goal. While the natural need of development of the society proves to contribute to the increase of the carbon emissions and implies the use of more energy, the need to switch on using renewable energy becomes more pressing.

On the other hand, considering the need of the governments to intervene for driving the society towards assessing the importance of preventing environmental degradation and acting to reduce the carbon emissions, our analysis has focused on the effects of the taxes and government expenditures regarding pollution, as instruments of fiscal policy. In this regard, our results show that governmental expenditures and the taxes on pollution have important contributions on diminishing the level of the carbon emissions. Such results show that the governments can act both for discouraging the polluters, but also for investing directly or financially sustaining private initiatives for limiting the carbon emissions.

Generally, our results show that the way towards preventing the climate change, and especially the excessive carbon emissions, depends both on developing targeted fiscal policies by the governments, but also by the understanding and the capacity of the society to shift towards using renewable energy.

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COLLABORATIVE GOVERNANCE AND URBAN ADMINISTRATIVE CAPACITY: EVIDENCE FROM EU-FUNDED URBAN DEVELOPMENT PROJECTS IN ROMANIA

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Abstract

This study examines the relationship between collaborative governance and administrative capacity in implementing EU-funded urban development projects in Romania. It compares six municipalities - Oradea, Cluj-Napoca, Timișoara, Craiova, Baia Mare, and Galați - selected because each is confirmed, by direct extraction from the European Commission's Kohesio database, to be the beneficiary of a substantial, multi-project Cohesion Policy portfolio in its own right. The analysis prioritises direct, official sources (Kohesio, Regulations on Organisation and Functioning, Council decisions and mayoral dispositions, census data) over indirect ones (press coverage, reported statements), and states explicitly, source by source, which tier each claim rests on. Two composite, exploratory indices - a Collaborative Governance Index (CGI) and an Administrative Capacity Index (ACI) - are constructed from qualitative evidence, while a Fund Absorption Rate (FAR) is calculated directly from Kohesio's EU-contribution-per-capita figures for all six cities on a single consistent basis. The findings show that richer collaborative-governance ecosystems and more developed administrative infrastructure generally coincide with stronger EU fund mobilisation, but the relationship is not linear: the city with the richest collaborative ecosystem ranks only second-lowest on per-capita fund mobilisation, while a low-ranking city on governance ranks second on FAR. Set against a literature that studies administrative capacity mainly at national or regional level, the article's main contribution is empirical and methodological rather than theoretical: a transparently sourced, city-level test of how collaborative governance and administrative capacity relate to EU fund mobilisation in a Central and Eastern European member state, illustrating a source-hierarchy approach that later, larger comparative work could extend beyond Romania.

Keywords: collaborative governance; urban development; EU funds; network governance; administrative capacity.

JEL Classification: H70, H83, O18, R58, F55.

1. INTRODUCTION

Cities are increasingly confronted with complex and interrelated challenges resulting from the pre-existing urban vulnerabilities. At the same time, they must navigate profound technological transformations associated with data-driven governance, artificial intelligence, fifth-generation (5G) communication technologies, the Internet of Things (IoT), and other digital innovations, while continuing to deliver essential municipal services such as waste management, street maintenance, and recreational and sporting activities. In response to these multifaceted pressures, many cities have established multilevel stakeholder networks to design and implement resilience and smart city policies that can address increasingly complex governance demands. These collaborative governance arrangements extend beyond the urban public administration to encompass a diverse range of actors, including private sector organisations, non-profit organisations, citizen groups, and foundations. However, despite the growing reliance on networked forms of policymaking, governance structures have not evolved at the same pace. Although urban public administrations are increasingly adopting collaborative and network-based approaches, the development of the administrative capacities required to effectively coordinate, manage, and sustain these complex stakeholder networks remains a significant challenge.

Urban governance is inherently shaped by the complexity of cities as socio-technical systems and by the political processes through which they are managed. In response to the interconnected challenges of climate change, digital transformation, and urban sustainability, public administrations across the world are increasingly adopting resilience and smart city strategies while establishing new institutional arrangements. These policy agendas are intrinsically cross-cutting, requiring collaboration across multiple sectors and stakeholders, while simultaneously challenging the traditional Weberian model of hierarchical public administration.

These institutional developments reflect an ongoing transition toward more reflexive forms of governance. The concept of reflexivity provides a useful lens for understanding governance approaches that seek to address "social-ecological vulnerabilities, flawed conceptualisations of human-nature relations, fragmented governance regimes, and the conditions necessary for sustainability transitions" (Feindt and Weiland, 2018, p. 661). Such governance arrangements are particularly relevant in addressing wicked problems, whose complexity exceeds the problem-solving capacity of conventional bureaucratic structures. Consequently, urban public administrations increasingly incorporate innovative

governance approaches, including social innovation and collaborative governance mechanisms.

Within urban contexts, innovation is predominantly procedural rather than technological, focusing on the processes through which diverse stakeholders participate in the co-design, co-creation, and co-production of public policies and services (Lodge and Wegrich, 2014). From this perspective, innovation represents an institutional problem-solving capacity that can be examined through the policy instruments embedded within governance regimes (Normandin *et al.*, 2019). However, considerably less attention has been devoted to the administrative capacities required to sustain these innovations. As Lodge and Wegrich (2014) argue, the relationship between policy instruments and administrative capacity is reciprocal: policy instruments require specific combinations of administrative capabilities, while successful innovation depends upon the existence of organisational capacities capable of supporting their implementation. Consequently, discussions of governance innovation must extend beyond the design of policy instruments to encompass the administrative capacities necessary for their effective execution.

Despite the growing emphasis on collaborative governance, urban public administrations continue to bear primary responsibility for policy implementation. Nevertheless, the co-creation of policies frequently overlooks the institutional and administrative capacities required to translate collaborative initiatives into effective practice. Municipal administrations increasingly operate under conditions characterised by expanding responsibilities, fiscal constraints, and limited organisational resources, reflecting broader processes of state hollowing at the urban scale. In this context, collaboration with external stakeholders often emerges as a pragmatic response to capacity deficits rather than solely as a normative commitment to participatory governance.

This dynamic presents an important governance challenge. In pursuing collaborative innovation, urban public administrations risk diminishing their role as the central coordinating actor within governance networks, potentially underestimating both their authority and their responsibility for ensuring coherent policy implementation. Addressing this challenge requires developing robust capacities for network governance, including the ability to coordinate heterogeneous actors, align institutional capacities with policy objectives, establish implementation mechanisms, and facilitate boundary-spanning activities that strengthen collaboration across organisational and sectoral divides. Such capacities are essential if collaborative governance is to move beyond policy design and deliver effective and sustainable implementation outcomes.

This article aims to investigate how collaborative governance, the structured coordination of public, private, academic, and civil-society actors around shared development goals, relates to the administrative capacity of Romanian municipalities to design, attract, and implement EU-funded urban development

projects. It compares six cities confirmed, through direct extraction from Kohesio, to be substantial beneficiaries of Cohesion Policy funding in their own right: Oradea, Cluj-Napoca, Timișoara, Craiova, Baia Mare, and Galați. Direct official sources are prioritised throughout over press coverage or reported statements, and each statement is labeled by level of evidence. Section 2 reviews the relevant literature and states the research gap. Section 3 sets out a governance - capacity - performance conceptual framework. Section 4 describes the research design, data sources, and index construction. Section 5 presents the profiles of the six cities analyzed in the study. For each city, the analysis is supported by two illustrative composite assessments: the Collaborative Governance Index (CGI) and the Administrative Capacity Index (ACI). The section concludes with a comparison of the cities, based on data directly extracted from the Kohesio database and the resulting FAR indicator, followed by a summary of the CGI, ACI, and FAR scores for all six cities. Section 6 discusses the results, and Section 7 concludes with theoretical and policy implications.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Collaborative Network Governance. The growing body of research on collaborative governance has consistently emphasized the value of collaboration in addressing complex public policy challenges (Chandler, 2018). Public organizations have long engaged in partnerships with a wide range of actors, albeit with varying degrees of success. Consequently, identifying the conditions that foster effective collaboration has become a central concern within the collaborative governance literature (Huxham, 2003; Ansell and Gash, 2008; Torfing, 2019). Existing scholarship suggests that successful collaboration depends on both the design and quality of the collaborative process itself and the broader institutional and governance context within which collaboration occurs, with these dimensions reinforcing one another (Emerson *et al.*, 2012). For instance, the circumstances under which stakeholders are convened influence collaborative dynamics, including participant commitment, governance structures, and leadership arrangements (Emerson and Nabatchi, 2015). Collaborative governance regimes may emerge voluntarily among stakeholders or be externally convened in response to particularly complex policy challenges requiring coordinated action (Emerson and Nabatchi, 2015). Nevertheless, empirical evidence remains limited regarding cases in which urban public administrations deliberately employ collaborative network governance as an implementation mechanism for addressing wicked policy challenges such as climate adaptation, urban resilience, or digital transformation.

A foundational contribution to this literature is the collaborative governance model proposed by Ansell and Gash (2008), which identifies *starting conditions* as critical determinants of collaborative performance. These conditions comprise three interrelated dimensions: existing power and resource asymmetries among

stakeholders, incentives for participation, and the history of prior interactions, whether characterised by cooperation or conflict. Power imbalances may constrain meaningful participation by less-resourced actors, particularly where technical expertise or sustained engagement is required. Such disparities can reinforce distrust, facilitate strategic manipulation by dominant stakeholders, and ultimately weaken collective commitment (Ansell and Gash, 2008). Participation incentives are similarly important, as stakeholders evaluate collaboration according to their anticipated costs and benefits. One of the strongest incentives arises from perceived interdependence, whereby stakeholders recognise that collective action offers greater potential for addressing shared challenges than unilateral efforts. Although previous conflicts may complicate collaboration, evidence suggests that, in the context of highly interdependent wicked problems, historical tensions do not necessarily preclude the development of productive collaborative relationships (Ansell and Gash, 2008).

The collaborative process itself has been conceptualised both as a sequence of developmental stages (Madden, 2017) and as a cyclical process characterised by continuous interaction and adaptation (Huxham, 2003; Ansell and Gash, 2008; Emerson and Nabatchi, 2015; Chandler, 2018). Despite these conceptual differences, the literature broadly converges around five reinforcing elements that sustain successful collaboration: face-to-face dialogue, trust building, commitment to the collaborative process, the development of shared understanding, and the achievement of intermediate outcomes. Direct interaction facilitates communication and enables stakeholders to negotiate differences more effectively, thereby establishing the foundation for collaborative relationships (Ansell and Gash, 2008). Trust, in turn, emerges gradually through repeated interactions and is essential for maintaining long-term stakeholder engagement, although it remains vulnerable to organisational turnover and changes in individual representatives (Huxham, 2003). Stakeholder commitment depends not only on trust but also on procedural fairness, transparency, and equitable participation, fostering the recognition that negotiated collective action offers the most effective pathway toward shared objectives (Ansell and Gash, 2008). Shared understanding develops through agreement on both common goals and the knowledge required to address complex policy issues, while intermediate achievements or "small wins" reinforce trust and commitment throughout extended collaborative processes.

Administrative capacities. EU Cohesion Policy is the largest supranational instrument financing urban development in Europe; for many municipalities, especially in less-developed regions, non-reimbursable European funding is one of the principal sources of local capital investment (Marcu, Kandzija, and Dorotic, 2020). Cities increasingly face interconnected challenges - climate adaptation, digital transformation, and social inclusion that push Cohesion Policy towards integrated, place-based, multi-level approaches (Van der Zwet *et al.*, 2017).

A recurring puzzle in this literature is that cities facing broadly comparable rules and allocations achieve markedly different implementation outcomes. Financial availability alone is not a sufficient explanation; administrative capacity, governance quality, and inter-organisational collaboration are increasingly treated as decisive intervening variables (Bachtrögler-Unger, 2024; Bachtler *et al.*, 2024), alongside the related but distinct notion of absorptive capacity, a territory's overall ability to use the funds allocated to it (Santos, Conte, and Molica, 2025).

The relationship between Cohesion Policy implementation and local governance capacity has been approached from several angles, read here as complementary layers of one question: why implementation performance varies so much across jurisdictions facing similar rules and allocations. Administrative capacity is a central explanatory variable in this literature, though its effects are heterogeneous across regions (Bachtrögler-Unger, 2024) and the concept itself remains under-theorised relative to broader institutional-quality measures (Bachtler *et al.*, 2024). A recent critique argues the concept is measured mostly through proxies, conflated with adjacent notions, and rarely examined below the regional level (Fratesi *et al.*, 2026) - a gap this article's city-level design addresses directly. A related but distinct concept, absorptive capacity, captures how programme design and territorial characteristics jointly shape the pace of spending (Santos *et al.*, 2025); for Central and Eastern Europe specifically, administrative capacity and institutional quality have been shown to shape Structural Funds absorption at national and regional level (Țigănașu, Încălțărău, and Pascariu, 2018), a finding this article extends to individual municipalities.

Collaborative governance treats an organisation's external relationships as a resource, tracing back to Ostrom's (1990) demonstration that self-organised institutions can govern shared resources without hierarchy or markets, and to Rhodes's (1996, 1997) account of governments increasingly steering rather than directly controlling policy delivery through networks. Provan and Kenis (2008) gave this a structure of shared, lead-organisation, and network-administrative-organisation governance modes; Healey (1997) and Agranoff and McGuire (2003) applied similar logic to planning and local economic development respectively. Ansell and Gash (2008) and Emerson, Nabatchi and Balogh (2012; Emerson and Nabatchi, 2015) synthesised this into contemporary collaborative-governance-regime theory, since applied to EU-funded urban regeneration to show collaboration can itself build local capacity rather than merely presuppose it (Bradley, Mahmoud and Arlati, 2022).

What happens when capacity and governance meet a specific policy instrument? Comparing delegation models in Scotland and Veneto, Polverari, Domorenok, and Graziano (2024) identify an “administrative capacity paradox” in which narrow delegation incentivises compliance but not durable capacity-building. The Institutional Collective Action framework asks a prior question treating

collaboration as a response to transaction costs that specific governance mechanisms can lower (Kim *et al.*, 2022); relatedly, Europeanization - the reshaping of domestic administrative practice through sustained EU engagement operates unevenly across member states and levels of government (Vichi, 2025), which matters for Romania's comparatively recent engagement with place-based instruments.

Indicator-based measurement of collaborative arrangements, meanwhile, remains an open problem even in more mature fields (Chapman *et al.*, 2024; Waardenburg, Groenleer and de Jong, 2025; Mahmoud *et al.*, 2025), motivating this study's exploratory framing of its own indices. Directly modelling the governance–capacity link, Zia ud din *et al.* (2023) find capacity-building mediates the relationship between collaborative governance and service delivery, while other evidence finds administrative capacity, not collaborative governance, significantly predicts outcomes in some sectors, a reminder that the relationship is conditional, not law-like.

What remains scarce, across all these strands, is comparative evidence at municipal rather than national or regional level. Romania is a useful test case precisely because its administrative-capacity constraints are well documented in the aggregate (Marcu, Kandzija and Dorotic, 2020; Țigănașu *et al.*, 2018) but rarely disaggregated to individual, actively performing cities; this article does that for six of them, prioritising direct official sources throughout, on a design set out next.

3. CONCEPTUAL FRAMEWORK

Beyond facilitating collective decision-making, collaborative governance generates what Huxham (2003) and Doberstein (2015) describe as **collaborative advantage**: outcomes that cannot be achieved by organisations acting independently. This advantage derives from the capacity of governance networks to co-produce knowledge, mobilise complementary resources, and coordinate diverse expertise in the pursuit of shared objectives. Achieving collaborative advantage, however, depends upon several interrelated governance conditions, including the articulation of common aims, the composition of network membership, the distribution of power, the development of trust, and effective leadership (Huxham, 2003). Because stakeholders frequently enter collaborative arrangements with divergent interests and limited prior experience of cooperation, establishing consensus on substantive goals may prove difficult. Under such circumstances, developing agreement on common practices and collaborative procedures may represent a more realistic and productive foundation for long-term cooperation.

Effective collaboration also requires institutional mechanisms capable of steering, coordinating, and sustaining network interactions (Doberstein, 2015). Institutional design contributes to procedural legitimacy by establishing transparent decision-making processes, governance rules, and accountability mechanisms (Ansell and Gash, 2008). Nevertheless, collaborative governance

frequently encounters ambiguity regarding stakeholder participation, role allocation, and organizational boundaries (Huxham, 2003). Since collaborative relationships often depend upon interpersonal interactions, governance networks remain inherently fragile and require continuous maintenance as participants, organizations, and institutional contexts evolve. Moreover, power within collaborative networks should not be understood as a fixed attribute possessed by a single actor but rather as a distributed and dynamic phenomenon. Huxham (2003) conceptualizes this as multiple "points of power," reflecting the shifting influence of actors throughout the collaborative process. Similarly, trust is not a precondition of collaboration but an outcome that develops incrementally through successful interactions, shared risks, and cumulative achievements (Chandler, 2018).

This perspective suggests that successful collaborative governance requires more than effective network design; it also depends upon the administrative capabilities necessary to manage the boundaries separating organizations, sectors, and knowledge domains. Urban public administrations often devote considerable attention to collaborative policy design while providing less explicit consideration of the boundary strategies and administrative capacities required to sustain implementation. Consequently, understanding how public administrations strategically develop these capacities becomes essential for explaining why some collaborative governance arrangements successfully translate collective intentions into practical outcomes while others do not.

The analysis organises evidence around a governance-capacity-performance model: collaborative governance (stakeholder engagement, inter-organisational cooperation, knowledge sharing) is treated as an antecedent that feeds into administrative capacity (planning, project management, resource mobilisation, institutional learning), which in turn shapes urban development performance, proxied here by EU fund mobilisation. This is a directional working hypothesis, not a tested causal chain: the design (Section 4) can establish whether the expected pattern holds across six cities, but cannot rule out reverse or reciprocal relationships.

4. RESEARCH DESIGN AND METHODOLOGY

4.1. Design and case selection

The study uses a comparative qualitative multiple-case design. The six cities - Oradea, Cluj-Napoca, Timișoara, Craiova, Baia Mare, and Galați - were selected on a verifiable criterion: each is confirmed, by direct Kohesio extraction, to hold a substantial EU Cohesion Policy portfolio (44–69 projects; Table 13) in its own right, rather than selected on press visibility alone.

4.2. Data sources and source hierarchy

Evidence is drawn, in descending order of priority, from: (i) Kohesio project data, Regulations on Organization and Functioning (ROF), council decisions and mayoral dispositions, census and Eurostat data, and European Parliament/Commission reports (Tier 1); (ii) official but less granular municipal communications (Tier 2); and (iii) press coverage and reported statements (Tier 3). Each dimension was given a score per level.

The main data on which this study is based were extracted directly, manually for all six cities, this process validating and supporting the FAR component.

4.3. Measuring CGI, ACI, and FAR

The Collaborative Governance Index (CGI) and Administrative Capacity Index (ACI) are composite 0-100 scores built from five dimensions each, scored 0-4 points per dimension by a single coder without inter-rater reliability testing; both are illustrative, not validated instruments, and are not existing published metrics. FAR is calculated directly from Kohesio's EU-contribution-per-capita figures (Table 13), normalized to Oradea's figure (=100), and is materially more rigorous than CGI or ACI because it rests on a single consistent official source for all six cities; it captures municipality-beneficiary contribution specifically.

4.4. Limitations

The sample is too small for statistical inference; case selection, though Kohesio-verified, still favours active EU-fund users; scoring lacks a second coder; strategy documents (SIDUs and equivalents) are treated as a floor, not a ceiling, on each city's project portfolio; and most figures beyond FAR were only partially cross-checked against primary records such as ROFs and budget execution reports, a priority for follow-up work.

5. FINDINGS

5.1. Oradea

With 65 projects confirmed in the Kohesio database for which the municipality is listed as beneficiary - covering the period from 27 January 2015 to 30 April 2029 and involving approximately €313.5 million in EU contribution - Oradea records the highest absolute figure in the sample and, when standardized by its comparatively small population, by far the highest per-capita figure (Kohesio, 2026). Oradea is also the most extensively documented city in administrative terms among those studied. Its Directorate for Internationally Financed Projects (DMPFI), established in 2008 with 25 sector-specialised staff, operates under a Regulation on Organisation and Functioning (ROF) that assigns Human Resources and Procurement services explicit EU-funds duties and names NGOs and universities among DMPFI's own external relations (Municipiul Oradea, 2021; Transilvania Business, 2025).

Table 1. Collaborative Governance Index (CGI) - Oradea

Dimension	Sc.	Evidence and source	Tier
Stakeholder Participation	3/4	Public–private partnership emphasis; no standing citizen-platform found.	T3
Institutionalized Collaboration	4/4	ROF: DMPFI must collaborate with “all directorates”; names NGOs/universities as external relations.	T1
Inter-organizational Networks	3/4	>€2.6bn combined public+private investment since 2008, mostly in aggregate.	T3
Strategic Coordination	3/4	Continuous engagement across 3 programming cycles (2007–2027), Kohesio-corroborated dates.	T1/T3
Knowledge Sharing & Learning	3/4	17 years of continuous sector-specialized staffing.	T3

Subtotal: 16/20 → CGI = 80

Table 2. Administrative Capacity Index (ACI) - Oradea

Dimension	Sc.	Evidence and source	Tier
Human Resources	4/4	DMPFI: 25 specialists; ROF confirms HR handles EU-project-team payroll.	T1
Organizational Structures	4/4	ROF: DMPFI's formal two-deputy-director structure, 18-yr history.	T1
Financial & Resource Mgmt.	4/4	Kohesio: 65 projects, ≈€313.5m EU contribution - highest in sample.	T1
Project Management	4/4	Kohesio confirms 65 projects; press: 58 implementing + 47 in evaluation.	T1
Institutional Learning	3/4	Multi-cycle continuity; less explicit “change” narrative than Cluj-Napoca.	T3

Subtotal: 19/20 → ACI = 95

5.2. Cluj-Napoca

Since 2017, Cluj-Napoca has run a standing participatory instrument, the Centre for Innovation and Civic Imagination, and was selected for the EU's 100 Climate-Neutral Cities mission through a process involving more than twenty local actors (Municipiul Cluj-Napoca, 2026a, 2026b). Its ROF assigns EU funds reporting jointly across “all the offices, services, and directorates” of the city hall (Municipiul Cluj-Napoca, 2026c), and a 2025 budget-execution surplus separately itemises non-reimbursable-fund income (Monitorul de Cluj, 2026). Yet the richest

collaborative-governance profile in the sample, 44 Kohesio-confirmed projects, ≈€187.5 million in EU contribution, translates into only the second-lowest FAR once standardised by population (Kohesio, 2026).

Table 3. Collaborative Governance Index (CGI) - Cluj-Napoca

Dimension	Sc.	Evidence and source	Tier
Stakeholder Participation	4/4	CIIC (since 2017), city-attributed to City Hall + Local Council jointly.	T2
Institutionalized Collaboration	4/4	Net Zero Cities consortium + Climate Coalition under CIIC, named partners.	T2
Inter-organizational Networks	3/4	Climate Action Plan: 20+ actors incl. 2 universities, clusters, metro area.	T2
Strategic Coordination	3/4	Metro Area independently rated among Romania's most active (IRPPS).	T2
Knowledge Sharing & Learning	3/4	World Bank input; EU city advisors; IT-cluster ties to Oradea/Alba Iulia.	T2

Subtotal: 17/20 → CGI = 85

Table 4. Administrative Capacity Index (ACI) – Cluj-Napoca

Dimension	Sc.	Evidence and source	Tier
Human Resources	3/4	Dedicated EU-funds department; no public headcount found.	T2
Organizational Structures	4/4	ROF: cross-departmental mandate - “all offices, services, directorates.”	T1
Financial & Resource Mgmt.	3/4	Kohesio: 44 projects, ≈€187.5m; budget-execution surplus itemizes EU funds.	T1
Project Management	3/4	Sustained portfolio 2014-2027; Climate Action Plan technical planning.	T2
Institutional Learning	4/4	Documented shift from top-down (2008-10) to participatory selection.	T3

Subtotal: 17/20 → ACI = 85

5.3. Timișoara

Timișoara's two universities anchor an internationally networked collaborative ecosystem - the West University's UNITA/GLUE alliance and the Politehnica University's partnership with NXP Semiconductors - alongside the mayor's repeated public emphasis on community partnership (Universitatea de Vest din Timișoara, 2026; Universitatea Politehnica Timișoara, 2026; Primăria Municipiului Timișoara, 2025a). Administratively, the picture is less settled: an April 2026 reform merged the city's project and economic directorates while

dissolving an underperforming sport/rail directorate, a live process whose outcome cannot yet be assessed (Stiridetimisoara.ro, 2026; Ecopolitica.ro, 2026). None of that unsettledness shows up in fund mobilisation - 64 Kohesio-confirmed projects, ≈€233.8 million in EU contribution, second-highest per capita in the sample.

Table 5. Collaborative Governance Index (CGI) - Timișoara

Dimension	Sc.	Evidence and source	Tier
Stakeholder Participation	3/4	Mayor repeatedly frames community partnership as central to the model.	T2
Institutionalized Collaboration	3/4	UVT coordinates GLUE/UNITA (13 partners, 5 countries) - university-led.	T2
Inter-organizational Networks	3/4	UPT-NXP Semiconductors PNRR-funded microelectronics partnership.	T2
Strategic Coordination	3/4	SIDU updated to incorporate County Council culture/heritage projects.	T3
Knowledge Sharing & Learning	4/4	Hosted “Cities Summit” + Moldovan delegation; university networks above.	T2

Subtotal: 16/20 → CGI = 80

Table 6. Administrative Capacity Index (ACI) - Timișoara

Dimension	Sc.	Evidence and source	Tier
Human Resources	3/4	Project Incubator Directorate (pre-2026 reform); no headcount found.	T2/T3
Organizational Structures	3/4	Apr. 2026: merged into Economic/Project directorate; a sibling unit dissolved.	T3
Financial & Resource Mgmt.	4/4	Kohesio: 64 projects, ≈€233.8m; city reports ≈€300m/4yr.	T1
Project Management	4/4	Kohesio-confirmed 64 projects; large concurrent multi-modal portfolio.	T1
Institutional Learning	3/4	Mayoral reflection on lessons learned; reform outcome not yet assessable.	T2/T3

Subtotal: 17/20 → ACI = 85

5.4. Craiova

The single most formally documented collaborative mechanism in the sample belongs to Craiova: “Structura de Guvernanță Craiova,” created by a numbered Mayoral Disposition (nr. 4946/13.10.2023) to select South-West Regional Programme projects, with named members including a County Council representative (Primăria Municipiului Craiova, 2023). The city is also one of the

four implementing their urban strategy through a capacity-building project based on a public consultation platform, *citadini.ro* (Primăria Municipiului Craiova, 2026). This institutional depth sits alongside a comparatively modest fund-mobilisation record: 49 Kohesio-confirmed projects, ≈€194.3 million in EU contribution.

Table 7. Collaborative Governance Index (CGI) - Craiova

Dimension	Sc.	Evidence and source	Tier
Stakeholder Participation	3/4	SIDU 2030 update runs a dedicated public-consultation platform (<i>citadini.ro</i>).	T1
Institutionalized Collaboration	4/4	Mayoral Disposition 4946/2023 creates named governance body incl. County Council rep.	T1
Inter-organizational Networks	3/4	County Council formally represented; University of Craiova a further anchor.	T1
Strategic Coordination	3/4	1 of 4 cities in a coordinated, ministry-run SIDU-update exercise.	T1
Knowledge Sharing & Learning	3/4	SIDU update explicitly aimed at capacity-building, shared across 4 cities.	T1

Subtotal: 16/20 → CGI = 80

Table 8. Administrative Capacity Index (ACI) - Craiova

Dimension	Sc.	Evidence and source	Tier
Human Resources	2/4	No specific EU-funds staffing figures found.	-
Organizational Structures	4/4	Mayoral Disposition is a formal act defining a named body and remit.	T1
Financial & Resource Mgmt.	3/4	Kohesio: 49 projects, ≈€194.3m EU contribution.	T1
Project Management	3/4	49 Kohesio-confirmed projects plus formal prioritization structure.	T1
Institutional Learning	3/4	Ministry-run, multi-city capacity-building project is itself an episode.	T1

Subtotal: 15/20 → ACI = 75

5.5. Baia Mare

Baia Mare's collaborative-governance evidence is sub-municipal rather than city-wide: elected neighbourhood civic councils and a citizen-consultation app (“iReport Baia Mare”) operate as standing services, alongside a stated goal of partnership with residents, business, and a Cluj-affiliated university branch campus (Municipiul Baia Mare, 2022, 2026b). What stands out is how little this

comparatively modest governance profile constrains fund mobilisation: 57 Kohesio-confirmed projects and $\approx$ €137.7 million in EU contribution - the largest ESF share in the sample - over a corrected 2021 census population of 108,759 (Institutul Național de Statistică, 2022) yield the second-highest FAR in the sample, behind only Oradea.

Table 9. Collaborative Governance Index (CGI) – Baia Mare

Dimension	Sc.	Evidence and source	Tier
Stakeholder Participation	3/4	Elected neighbourhood civic councils; “iReport Baia Mare” consultation app.	T2
Institutionalized Collaboration	3/4	Activity report: standing goal of partnership with residents, business, university.	T2
Inter-organizational Networks	2/4	Cluj Technical University branch campus (since 2012); little else found.	T2
Strategic Coordination	2/4	Metropolitan Area membership confirmed; little coordination detail found.	T2
Knowledge Sharing & Learning	2/4	No structured EU-funds knowledge-exchange mechanism found.	-

Subtotal: 12/20 $\rightarrow$ CGI = 60

Table 10. Administrative Capacity Index (ACI) – Baia Mare

Dimension	Sc.	Evidence and source	Tier
Human Resources	2/4	No specific EU-funds staffing figures found.	-
Organizational Structures	3/4	ROF/organigramă confirmed to exist (HCL 136/2025); full text not obtained.	T1
Financial & Resource Mgmt.	3/4	Kohesio: 57 projects, $\approx$ €137.7m, largest ESF share in sample.	T1
Project Management	3/4	$\approx$ €11.2m “Piața Universității” flagship corroborated by Kohesio count.	T1
Institutional Learning	2/4	No documented change-in-approach narrative found.	-

Subtotal: 13/20 $\rightarrow$ ACI = 65

5.6. Galați

Galați's distinguishing feature is STRATEGAL, a Local Action Group legally required by the EU's Community-Led Local Development instrument, bringing public, private, and civil-society partners together for thirteen marginalised urban zones (STRATEGAL, 2018); formal responsibility for EU-funded project reporting otherwise sits with the General Directorate for Infrastructure Development rather than a dedicated unit (Primăria Municipiului

Galați, 2026a). With 69 Kohesio-confirmed projects - the largest count in the sample - but only ≈€101.4 million in EU contribution, the lowest absolute and per-capita figure, Galați's portfolio looks built from many smaller, dispersed interventions rather than fewer, larger ones.

Table 11. Collaborative Governance Index (CGI) - Galați

Dimension	Sc.	Evidence and source	Tier
Stakeholder Participation	3/4	STRATEGAL SDL: multi-round public consultation required by EU CLLD rules.	T1
Institutionalized Collaboration	3/4	STRATEGAL is a legally constituted public-private-civil-society association.	T1
Inter-organizational Networks	2/4	Little evidence of networks beyond the STRATEGAL partnership itself.	-
Strategic Coordination	2/4	EU-projects transparency page exists; no city-wide SIDU-equivalent found.	T2
Knowledge Sharing & Learning	2/4	No mechanism found beyond the STRATEGAL partnership.	-

Subtotal: 12/20 → CGI = 60

Table 12. Administrative Capacity Index (ACI) - Galați

Dimension	Sc.	Evidence and source	Tier
Human Resources	2/4	Formal responsibility confirmed (Infrastructure Directorate); no staffing figures.	T2
Organizational Structures	3/4	Public-document register confirms Infrastructure Directorate as formal home.	T1
Financial & Resource Mgmt.	3/4	Kohesio: 69 projects (most in sample), ≈€101.4m (least in sample).	T1
Project Management	3/4	69 Kohesio-confirmed projects - largest count, many smaller interventions.	T1
Institutional Learning	2/4	No documented change-in-approach narrative found.	-

Subtotal: 13/20 → ACI = 65

5.7. Comparative overview

The data below were obtained through direct, manual, and interactive extraction from the Kohesio platform, using the beneficiary municipality as the search criterion; this method allows for the isolation of each municipality's project portfolio from projects implemented by county councils, universities, or hospitals located in the same city.

Table 13. Direct Kohesio Extraction and FAR Construction

City	Proj.	Budget (€)	EU contrib. (€)	Pop. 2021	€/capita
Oradea	65	388,641,725	313,485,892	183,105	≈1,712
Baia Mare	57	158,815,347	137,661,316	108,759	≈1,266
Timișoara	64	263,138,217	233,819,589	250,849	≈932
Craiova	49	213,168,106	194,306,076	234,140	≈830
Cluj-Napoca	44	219,804,135	187,534,163	286,598	≈654
Galați	69	122,513,976	101,430,741	217,851	≈466

Source: Institutul Național de Statistică, RPL 2021 (city-proper); Kohesio, 2026.

Note: FAR = each city's €/capita as a percentage of Oradea's (=100).

Table 14. CGI, ACI and FAR scores

City	CGI	ACI	FAR
Oradea	80	95	100
Cluj-Napoca	85	85	38
Timișoara	80	85	54
Craiova	80	75	48
Baia Mare	60	65	74
Galați	60	65	27

Source: CGI and ACI: authors' illustrative construction (Section 4.3). FAR: calculated directly from Kohesio EU-contribution-per-capita data for all six cities (Oradea = 100 reference).

FAR does not track CGI closely: Cluj-Napoca leads CGI but ranks second-lowest on FAR, while Baia Mare, among the lowest an CGI/ACI, ranks second on FAR. This divergence - not a design flaw - suggests collaborative governance and per-capita fund mobilisation are related but empirically distinct achievements, shaped partly by population size and portfolio composition rather than governance quality alone.

6. DISCUSSION

This article asked how collaborative governance relates to the administrative capacity of Romanian municipalities to design, attract and implement EU-funded urban development projects. It answered the question by comparing six cities - Oradea, Cluj-Napoca, Timișoara, Craiova, Baia Mare and Galați - each confirmed by direct extraction from Kohesio to hold a substantial Cohesion Policy portfolio in its own right (44-69 municipality-beneficiary projects), and by reporting

separately a fund-mobilisation measure resting on a single consistent official source and two exploratory indices constructed from qualitative evidence. Three findings emerge. First, the cities with the most explicit administrative infrastructure are also those in which the link between documented capacity and documented collaboration is tightest: Oradea, with a directorate for internationally financed projects and a Regulation on Organisation and Functioning that assigns EU-funds duties to its human resources and procurement services, and Craiova, whose governance structure was created by a numbered mayoral disposition naming its members. Second, the expected ordering does not survive at the level of fund mobilisation: Cluj-Napoca, highest on the Collaborative Governance Index, ranks fifth of six on the Fund Absorption Rate, while Baia Mare, among the lowest on both indices, ranks second. Third, project counts and financial volumes diverge: Galați records the largest number of Kohesio-confirmed projects in the sample yet the lowest EU contribution in both absolute and per capita terms, a portfolio assembled from many small interventions rather than fewer large ones.

The second and third findings qualify the conceptual framework rather than confirm it, and part of that qualification is definitional. Because FAR is a per capita measure of municipality-beneficiary contributions, a smaller city converts a given portfolio into a higher score mechanically; Oradea's and Baia Mare's positions owe something to population size, and Cluj-Napoca's and Galați's to the reverse. What survives this qualification is narrower but firmer: within a set of six comparably active beneficiaries, differences in the density of collaborative arrangements do not order differences in per capita fund mobilisation. Collaborative governance and financial absorption are related but empirically distinct achievements, and a governance-capacity-performance model that treats the second as a proxy for the first will misread cases at both ends of the distribution.

Oradea and Craiova illustrate how explicit administrative infrastructure (a specialised directorate; a mayoral disposition creating a named governance body) coincides with strong outcomes, as Bachtröglger-Unger (2024) and Bachtler *et al.* (2024) would predict. Cluj-Napoca and Timișoara illustrate the collaborative-governance route, a standing participatory instrument and consortium in one case, university-led international partnerships in the other, consistent with Ansell and Gash (2008) and Zia ud din *et al.*'s (2023) mediation finding. Galați and Baia Mare show that EU-mandated or sub-municipal collaborative structures can exist and be well documented even where specialised administrative capacity is thinner, and that FAR can diverge sharply between similarly scored cities.

Read through Polverari *et al.*'s (2024) administrative capacity paradox and mixed evidence on the governance–performance link, this six-city comparison supports a relational reading of administrative capacity - partly internal (staff, procedures), partly a property of external relationships, and partly a matter of how far internal structures are organized to reach across departments, as Oradea's and Cluj-Napoca's ROFs and Craiova's mayoral disposition show directly. It does not

support a uniform, always-positive governance-to-performance link, and a six-city exploratory study cannot adjudicate how far that link generalises.

7. CONCLUSIONS AND POLICY IMPLICATIONS

For municipalities, the Oradea and Craiova cases suggest that investment in administrative structures should be paired with the formal instruments that connect those structures to universities, businesses and civil society, and more specifically that assigning EU-funds duties to human resources and procurement services in the Regulation on Organisation and Functioning, rather than to a project directorate alone, is a low-cost design choice worth examining elsewhere. The present design establishes that this arrangement coincides with strong mobilisation in two cities; it cannot establish that it produces it.

For managing authorities and capacity-building programmes, the Galați profile argues for attention to portfolio composition and not only to project counts or absorption percentages. A city that mobilises many small operations may be demonstrating administrative persistence while remaining unable to assemble the larger integrated projects that place-based instruments are designed to fund, and the two situations call for different support.

For evaluation practice, the divergence between the governance index and FAR cautions against using per capita absorption metrics as stand-alone performance indicators, since they are sensitive to population size and portfolio composition before they are sensitive to governance quality. Monitoring of collaborative arrangements themselves remains underdeveloped (Chapman *et al.*, 2024; Waardenburg *et al.*, 2025), and would have to improve considerably before governance quality could serve as a programming criterion.

The findings support treating administrative capacity as a relational resource rather than a purely internal attribute, connecting collaborative-governance theory with Cohesion Policy research and motivating measurement below the regional level, as Fratesi *et al.* (2026) urge. Practically, they suggest investment in administrative structures should be paired with investment in the governance networks that connect those structures to universities, businesses, and civil society, alongside better monitoring of collaborative arrangements themselves (Chapman *et al.*, 2024; Waardenburg *et al.*, 2025).

These findings are hypothesis-generating rather than confirmatory. Six cases selected on confirmed portfolio activity cannot support statistical inference, and the selection criterion excludes precisely the weakly absorbing municipalities against which the active cities would need to be compared. CGI and ACI are illustrative author constructions, scored by a single coder without inter-rater reliability testing, compressed in range and containing ties, so the ordering they yield should be read as a qualitative grouping rather than as a scale. Strategy documents were treated as a floor rather than a ceiling on each city's portfolio, and

most figures other than FAR were only partially cross-checked against Regulations on Organisation and Functioning and budget execution reports.

The research agenda follows from those limits. It involves extending the direct Kohesio extraction demonstrated here to a larger set of cities, weak absorbers included; completing the collection of Regulations on Organisation and Functioning for Timișoara, Galați and Baia Mare; reconciling fund figures against budget execution reports; validating CGI and ACI through structured multi-coder interviews with municipal staff and with the partners named in each governance instrument; and reporting FAR alongside population and portfolio composition rather than in place of them. Extending the design to comparable cities in other Central and Eastern European member states would establish whether the relational reading of administrative capacity proposed here travels beyond the Romanian case, or whether it is an artefact of a national administrative setting in which municipal capacity is unusually uneven.

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EMPLOYEE BENEFITS IN TRANSITION: GLOBAL AND NATIONAL TRENDS AND THE ROMANIAN IT SECTOR IN A POST-PANDEMIC, POST-FISCAL-INCENTIVE LABOUR MARKET (2023-2026)

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Abstract

Compensation and benefits have become a strategic lever for competitiveness in the European labour market, particularly in knowledge-intensive sectors such as information technology. Building on a previous study of how Romanian IT firms built and consolidated competitive advantage after the Covid-19 pandemic, this paper examines benefits tendencies on three levels: global, national (Romania), and within the Romanian IT industry specifically. The research is anchored in the current reality: Romania's IT sector is adjusting to the gradual withdrawal of long-standing income-tax exemptions, persistent wage pressure, the normalisation of remote and hybrid work, and a growing emphasis on non-monetary rewards and employee wellbeing. The study relies exclusively on secondary data, drawing on recurrent labour-market and reward reports published between 2023 and 2026 at global level (by Aon, Korn Ferry, Mercer, Randstad, Pacific Prime), national level in Romania (by Hays, Randstad, PwC, SD Worx), and on the annual IT Salary Map survey (by AIMS) for the Romanian IT sector. Using a qualitative, descriptive approach and emerging tendencies across these sources, the paper maps how the structure of benefits is shifting toward flexible benefits, wellbeing support and work-arrangement flexibility. Findings are intended to help employers, policymakers and HR practitioners understand benefit dynamics in a fragmented European economy, and to position the Romanian IT sector within wider national and global trends in attracting and retaining talent.

Keywords: benefits; Romanian IT industry; labour market trends; talent retention.

JEL Classification: M52; J32; M51; M54; J24.

1. BUILDING COMPENSATION AND BENEFITS AS COMPETITIVE ADVANTAGE

Building competitive advantage as an organization relies on multiple elements, such as industry type, evolution phase of the organization, role of environmental factors (PESTEL), choice of strategy, VRIN/VRIO framework for the organization just to mention a few. When we add human resources in the equation, we have extra elements such as the structure of the targeted segments

for current and future employees, the employer brand, compensation and benefits packages, attraction and retention factors, therefore complexity is even higher. Competitive advantage is relative and most of times not completely transferable across markets, therefore it is a constant concern for organizations that need to always adapt and manage factors. To explain the specificity of the IT industry in Romania, we first need to analyse the structure of the population working in Romanian IT, as well as two key concepts: ‘employee value proposition’ (EVP) and ‘diversity, equity, inclusion and belonging’ (DEIB). We will also cover the concept of ‘total rewards’, as well as dimensions that impact employee attraction and retention such as wellbeing and mental health, work flexibility and remote/hybrid work arrangements, autonomy, generational differences, development, recognition and work environment, as well as talent management practices and an integrated HR approach.

1.1. Specificity of the Romanian IT labour force

The Romanian IT sector rests on one of the larger and younger technology workforces in the European Union. According to Eurostat data reported in a 2024 industry survey, Romania employed approximately 240,800 IT&C specialists as of August 2023, placing it second in Europe by the absolute number of IT specialists (bestjobs & Orion Innovation, 2024). The workforce is notably young, with around 82% of IT&C employees are under 34 years of age, and comparatively balanced by gender for the sector: women account for close to 30% of IT specialists, and Romania ranks fifth in the EU for the share of women working in the field (bestjobs & Orion Innovation, 2024), although broader, sector-wide measures place female employment nearer 25% and caution that the gap may widen (ANIS, 2024). Work arrangements are strongly oriented toward flexibility, with the same survey reporting a distribution of roughly 38% fully remote, 28% hybrid and 36% office-based, and 89% of respondents expressing a preference for remote work at least several days per week (bestjobs & Orion Innovation, 2024). On the employer side, the industry association ANIS records around 48,405 IT&C companies, dominated by a fast-growing base of micro- and small enterprises, and documents a contraction of more than 10,000 IT jobs between 2022 and 2023, the first such decline in years, signalling the cooling that accompanied the withdrawal of tax incentives and wider economic uncertainty (ANIS, 2024; The Recursive, 2024). Put together, these sources characterise the Romanian IT workforce as large, young, still male-majority but relatively gender-balanced by regional standards, and heavily reliant on remote and hybrid work.

1.2. Building an EVP and DEIB practices

The Employee Value Proposition (EVP) is the component of the employer brand that defines what an organisation offers its people and, in turn, what it expects from them. Within the wider architecture of the employer brand (the

perception of the organisation as a place to work) the EVP functions as its strategic core: Mosley (2014, p. 123) describes its principal role as providing "a consistent platform for brand communication and experience management," increasingly used not merely to underpin a single recruitment campaign but "to play a much wider role in providing brand integrity across all forms of brand communication and people management activities." In this sense the EVP articulates the "employment deal", which includes "the key benefits that employees can expect from employment with the organization, balanced with what is expected of them in return" (Mosley, 2014, p. 124) and therefore answers why a person should choose to work for one organisation over another. Structurally, Mosley presents the EVP as a core positioning (the single quality the employer most wants to be known for) supported by three to five EVP "pillars" that define its themes and priorities and give consistency across communication and people-management practices (Mosley, 2014, pp. 124–125). The EVP covers the full spectrum of reward: rather than replacing formulations such as Total Reward, the EVP supplements them, drawing together foundational rewards (base pay, benefits, healthcare, wellness, time off), performance-based rewards, and career and environmental rewards (development, flexible working, wellbeing programmes) into a single, coherent value offer (Mosley, 2014, p. 125). A strong EVP therefore integrates the tangible (salary and benefits), the intangible (culture and career development) and the emotional (purpose and belonging), and, as the LEGO Group's HR leadership describes it, works as "a compass... woven into the fabric of how we do things" (cited in Mosley, 2014, p. 123), aligning HR policies, internal culture and marketing communication so that the promise made to the labour market matches the experience delivered inside the organisation.

DEIB (diversity, equity, inclusion and belonging) is an evolution of the established 'diversity and inclusion' agenda that adds equity and belonging as distinct, and increasingly central, dimensions. *Diversity* refers to the presence of human differences within a group or organisation, including demographic characteristics such as gender, age, ethnicity and ability as well as differences in experience and thought. *Inclusion* builds on the practices and climate through which those diverse individuals are valued and enabled to participate fully. In the influential conceptualisation of Shore et al. (2011), inclusion is achieved when employees experience both belongingness and uniqueness, that is when they feel accepted as insiders while their distinctive contributions are respected. *Equity*, unlike simple equality, implies fairness in access, treatment and opportunity that accounts for various needs and starting points, so that outcomes are not systematically shaped by group membership (Workhuman, 2024). *Belonging*, the most recent addition, draws on the long-established psychological premise that the need to form and maintain strong interpersonal attachments is a fundamental human motivation (Baumeister & Leary, 1995). In the workplace it describes employees' subjective sense of being accepted, connected and able to bring their

authentic selves to work. Practitioner frameworks therefore position belonging as the felt outcome that diversity, equity and inclusion efforts are ultimately intended to produce: diversity is "who is present", inclusion and equity are "how people are treated and enabled", and belonging is "how people experience the result" (Workhuman, 2024; Oyster, 2024). Framed this way, DEIB is not merely a compliance or representation exercise but a strategic component of organisational culture and the employee value proposition, linked in the human-resource literature to engagement, wellbeing and retention.

1.3. What it takes to build attraction and retention of workforce

When considering attraction and retention drivers for the workforce, one may be inclined to consider that *level of pay* may be the main driver. Still, theoretical and research studies have proved that pay attracts, but is not enough to retain. "Pay only plays a role in attracting workers and is not sufficient, in itself, to retain them" (Gelencsér et al., 2023), "88% of highly skilled employees leave... for reasons that are not based on money" (Sarkar, Jena & Sahoo, 2023), and "well-being, not proximity, is a key factor in employee retention" (Lezcano et al., 2026). When salary growth cools, the structure of reward is moving toward flexible benefits, wellbeing and work-arrangement flexibility (Ciulu, 2025), the levers that now may decide attraction and retention in Romanian IT.

Reward is conceived as a hybrid of financial and non-financial components, with non-monetary elements carrying growing weight (Sarkar, Jena & Sahoo, 2023; Elrayah & Semlali, 2023), extending to benefits as "expressions of an organization's values" (Peemanee et al., 2025) and, in IT, to combinations of recognition, pay and flexible working (Murugan & Philimis, 2025). '*Total rewards*' is a concept that combines monetary and non-monetary elements and it has gained importance as a full package. From a strategic angle, as the cost/tax advantage erodes, Romanian IT firms must shift the client and employee conversation "toward value added" rather than price, i.e. toward the non-monetary side of the reward mix. (Ciulu, 2025).

Benefits and rewards can be a source of competitive advantage and retention. A well-designed reward system is a strategic asset, not a cost: employees are "the biggest differentiators for attaining sustainable competitive advantage" (Sarkar, Jena & Sahoo, 2023), and total-reward and benefit programmes build competitive edge (Elrayah & Semlali, 2023; Peemanee et al., 2025), with retention treated as a strategic issue (Almashyakh, 2024; Gelencsér et al., 2023). Compensation and benefits in Romanian IT have shifted from an administrative cost centre to a driver of competitive advantage and talent retention, especially in knowledge-intensive sectors such as IT and provides sector evidence that retention/loyalty became a central competitive challenge especially in times when recruitment costs were on the rise (Ciulu, 2025).

Younger cohorts, such as Gen Z employees, prioritise *flexibility, growth and balance* over long-term loyalty (Peemanee et al., 2025; Lee, Chong & Ojo, 2024), show high telework satisfaction (Ivasciuc et al., 2022) and value recognition and development (Holban & Bedrule-Grigoriu, 2025). It is worth mentioning that, similar to academic and high school data, the IT industry has recorded declining average technical preparation and weaker work engagement among Generation Z entrants as an effect of the Covid-19 pandemic. This is a tension that, combined with the literature, implies retention of this cohort depends on flexibility, development and recognition rather than tenure-based loyalty (Ciulu, 2025). Since most of the IT workforce in Romania is very young (82% below 34 years of age in 2023), it proves that Gen Z consists of the vast majority. Therefore, *wellbeing and mental health drive engagement, productivity and retention* as a generational specificity. Wellbeing raises engagement and productivity (Catană et al., 2022), is shaped most by intrinsic job aspects (Dumitriu et al., 2025), is decisive for retention (Gelencsér et al., 2023), is under strain in hybrid settings (Nagori & Rocha Lawton, 2026) and negatively predicts turnover (Lezcano et al., 2026). Wellbeing and mental-health support was a pandemic necessity and stayed as a continuing post-pandemic imperative (Ciulu, 2025).

It has also been proven that *work flexibility and remote/hybrid arrangements improve satisfaction and work-life balance* in Gen Z employees in particular. Flexibility raises satisfaction, work-life balance and performance (Davidescu et al., 2020, 2021; Ivasciuc et al., 2022; Catană et al., 2022; Maity & Lee, 2025), and boosts engagement among younger workers (Lee, Chong & Ojo, 2024; Nagori & Rocha Lawton, 2026; Lezcano et al., 2026). Hybrid/remote work also recorded downsides and limitations. Remote work carries health and social costs (Ivasciuc et al., 2022) and also generates hybrid "technostress" and declining engagement (Nagori & Rocha Lawton, 2026). Over-reliance on fully-remote work, weak or absent return-to-office plans, eroded productivity and quality once Covid-19 crisis pressure eased. The industry has also recorded cases of employees/collaborators holding multiple full-time jobs, which strengthens the case that flexibility must be designed, not assumed (Ciulu, 2025).

Autonomy is the psychological need underlying flexibility. Retention rests on need satisfaction (Sarkar, Jena & Sahoo, 2023), while autonomy is "one of the most important determinants of quality of work life" (Lee, Chong & Ojo, 2024), a "basic and universal human need" (Lezcano et al., 2026) and an intrinsic driver of engagement (Dumitriu et al., 2025). Romanian IT firms are currently learning to grant autonomy while rebuilding accountability, showing autonomy as both a valued reward and a management challenge (Ciulu, 2025).

Development, recognition and work environment act as retention levers. Work environment is "the most discriminating factor" in IT retention (Murugan & Philimis, 2025), while development, leadership and culture matter (Almashyakh, 2024; Dumitriu et al., 2025), and Gen Z values ongoing

development (Holban & Bedrule-Grigoruță, 2025). Investment in people in terms of training, reskilling, GenAI upskilling, the move to full-stack/T-shaped profiles and a motivating environment recurs across all periods studied as a source of competitive advantage (Ciulu, 2025), sharpening the literature's development theme with an explicit AI-skilling imperative.

Talent-management practices work best together with an integrated HR approach. Retention is best pursued through coordinated practice: an "integrated talent management approach is essential" (Almashyakhi, 2024) and "unified HR practices" counter turnover (Murugan & Philimis, 2025), tailored to firm size/ownership (Kömüves et al., 2024) and generational needs (Holban & Bedrule-Grigoruță, 2025). Leadership and management adaptation, clearer operating models and healthier employer–employee dialogue work as post-pandemic success factors (Ciulu, 2025) and as the strategic/managerial counterpart to the literature's integrated-HR argument.

Romania is placed in the CEE context, which includes *structural change and equity*. The literature grounds the themes in the national/regional setting: the Romanian IT tax-exemption withdrawal (Popescu-Predulescu, 2024), national evidence on flexibility, telework and wellbeing (Davidescu et al., 2020, 2021; Catană et al., 2022; Dumitriu et al., 2025), Gen Z in Romanian organisations (Holban & Bedrule-Grigoruță, 2025) and CEE labour-shortage dynamics (Kömüves et al., 2024). Romanian IT has been a sector under structural change while adjusting to the withdrawal of long-standing income-tax exemptions, persistent wage pressure and the normalisation of hybrid work, all reshaping total-reward design and questioning its traditional competitive base (STEM pipeline, world-class internet infrastructure, language skills, geographic/cultural proximity) (Ciulu, 2025). We can also add the equity dimension, where the discussion centres on workforce composition (Romanian IT being roughly 70% men / 30% women, more balanced than many Western European tech sectors) rather than on an evidenced gender pay gap, consistent with Romania's strong EU standing on female STEM participation (Ciulu, 2025).

2. RESEARCH METHODOLOGY

2.1. Scope of the paper

The paper is a secondary-data study that maps benefits tendencies across three nested levels for the period 2023–2026: the global labour market, the Romanian national labour market, and the Romanian IT industry as a specific case. It does not collect primary data (no surveys, interviews or payroll datasets of its own), instead it systematically reviews and compares recurrent reward and labour-market reports – Aon, Korn Ferry, Mercer, Pacific Prime and Randstadt for the global level; Hays, Randstad, PwC and SD Worx for the national level, and the annual AIMS survey for IT-specific trends in Romania. The analytical lens is inherited from the author's prior chapter: compensation and benefits (C&B)

are treated as a driver of competitive advantage and talent retention, especially relevant as Romania's IT sector adjusts to the withdrawal of income-tax exemptions and to post-pandemic work models.

The emphasis is on the direction and pace of change in reward structures over 2023-2026 rather than on a static snapshot. A specific focus is the Romanian IT sector's adjustment to the gradual withdrawal of income-tax exemptions, treated as a structural shift reshaping total-reward design. The scope is deliberately descriptive and comparative rather than explanatory or predictive, while the aim is to identify what is changing in reward structures and in which direction, not to model causes or forecast values.

The paper is based on four research objectives, which are connected to four research questions.

2.2. Research objectives

1. To identify the main benefits trends at global level reported between 2023 and 2026.
2. To identify benefits trends in the Romanian labour market over the same period and compare them with global tendencies.
3. To characterise benefits trends specific to the Romanian IT industry, focusing on the effect of non-monetary rewards.
4. To position the Romanian IT sector relative to national and global reward tendencies, and to draw implications for employers, HR practitioners and policymakers.

2.3. Research questions

RQ1. What are the dominant benefits trends at global level in 2023–2026 according to the analysed reports?

RQ2. How do benefit trends in the Romanian labour market converge with or diverge from global tendencies?

RQ3. What distinguishes benefits in the Romanian IT industry, and how are these patterns shaped by the phase-out of tax incentives, wage pressure and remote/hybrid work?

RQ4. What does the comparison across the three levels imply for talent attraction and retention in Romanian IT?

Method

The study employs a qualitative, descriptive comparative analysis of secondary data, combining two simple and well-established techniques that require no advanced statistics.

a) Qualitative document/content analysis. Each report is read against a common coding grid built around recurring benefit themes, for example: flexible/cafeteria benefits, health and wellbeing programmes, remote/hybrid arrangements, and

talent attraction/retention concerns. Mentions are coded by theme, level (global / national / IT), and year, allowing trends to be tracked over the 2023-2026 window.

b) Descriptive frequency and tendency analysis. The study reports simple descriptives drawn directly from the sources, such as frequencies and percentages already published in the reports (e.g. most-offered benefits, ranking of retention drivers), and summarises their direction of change over time (rising, stable, declining). Where the same indicator appears in several reports or years, results are placed side by side to show convergence or divergence. 73 coded findings are synthesised in comparison tables and trend summaries.

This design is appropriate because the inputs are heterogeneous published reports rather than a single raw dataset, so the contribution lies in structured synthesis and triangulation across sources, not in statistical testing. Triangulating four general-labour reports plus the IT-specific AIMS survey strengthens reliability and reduces dependence on any single provider's methodology.

2.4. Instrument

The core instrument is a structured thematic coding/analysis grid (a synthesis matrix), applied uniformly to all reports. Its columns capture: source and year; level of analysis (global / Romania / Romanian IT); C&B theme/category; the key indicator or statement reported; the value or qualitative finding; and the observed direction of the trend. The grid is populated by reading each report, transferring relevant data points, and then aggregating across rows to answer the research questions. The reading and data structuring efforts were supported by Anthropic's Claude Opus 4.8 model, on my personal licensed version. The completed matrix doubles as the evidence base for the comparison tables and figures presented in the results section.

3. RESEARCH FINDINGS

For the 2023-2026 period at global, national (Romania) and IT industry levels eight recurring benefit themes were identified (see Table 1). Overall, they include 28 elements grouped based on the 73 coded findings. This structure sets the base for the entire analysis at the three levels (global, Romania, IT in Romania), as well as comparisons between two or all three of them.

Table 1. Recurring benefit themes

	Category	Elements
1.	Flexible/cafeteria benefits	Choice, personalization, voluntary benefits, flexible allowances
2.	Health & wellbeing	Medical cover, mental health, preventive & wellness programs
3.	Remote/hybrid flexibility	Work-arrangement flexibility, return-to-office, work-life balance

	Category	Elements
4.	Talent attraction & retention	EVP drivers, non-monetary rewards, recognition, development
5.	Cost management & financing	Cost containment, alternative financing, benefit budgets
6.	Pay transparency & equity	EU Directive, fairness, equal opportunity, DEIB overlap
7.	Communication, tech & AI	Benefit communication, total-reward statements, AI adoption
8.	Inclusive benefits / DEIB	Family-friendly, caregiving, equity provision, CSR

Source: Author's elaboration based on database interpretation

3.1. The global perspective

Understanding trends required starting with the global perspective, as we needed a reference base and a good understanding of trends across international areas and industries. The synthesized trends are summarized in Table 2.

Table 2. Global trends (all industries)

Category	Evolution
Flexible / cafeteria benefits	▲ Rising
Health & wellbeing	▲ Rising
Remote / hybrid flexibility	▲ Rising
Talent attraction & retention	▲ Rising
Cost management & financing	▲ Rising
Pay transparency & equity	▲ Rising
Communication, tech & AI	▲ Rising
Inclusive benefits / DEIB	▼ Declining

Source: Author's elaboration based on database interpretation

The global trend for *flexible/cafeteria benefits* makes a decisive move towards choice and personalization. While approx. 69% of employers plan to enhance flexibility (Pacific Prime, 2026), 65% of employees in multinational companies would trade some benefits for better choice (Aon, 2025). This theme has been increasingly used as a cost-sustainability lever, even though only 14% of organizations have global personalization guidelines (Aon, 2025).

(*Mental*) *Health and wellbeing* have now become mainstream and we can witness a shift from return-on- to value-on-investment, as well as toward preventive care and condition pathways (Mercer, 2024). Investment on this theme is still growing (Mercer, 2026: 21% increasing vs 2% decreasing), but wellbeing takes a step down as a stand-alone strategic priority, falling from no 6 to no 7 (Aon, 2025).

In terms of *remote / hybrid flexibility*, we note that hybrid/remote work is firmly normalized in 2026, with five-days-in-office requirement falling from 89% pre-pandemic to 43% (Korn Ferry, 2024a). Most employers no longer differentiate

pay by location, work-life balance is a top retention lever across all providers, while it remains a low-cost investment.

Talent attraction and retention focus shifts from attraction to retention. Most employers (55%) are upgrading their EVP to include total rewards (Korn Ferry, 2024a). Salary, benefits and work-life balance are the dominant drivers, while non-monetary rewards and wellbeing increasingly may become as important as pay, especially for Gen Z employees (Randstad, 2025a).

Cost management and financing. Cost containment is clearly the number 1 strategic priority, as 70% of multinational companies rank it first, up from number 3 in 2024 (Aon, 2025) and it was driven by approx. 10% global medical inflation (Aon, 2025). Around 1 in 3 organizations are turning to alternative financing (captive/in-company insurance, multinational pooling) and value/ROI-led design (choosing and funding benefits based on demonstrable value, e.g. what actually improves health, productivity, engagement or retention rather than simply adding perks or matching what competitors offer) (Aon, 2025).

Pay transparency and equity. Regulation is the single biggest disruptor of reward strategy. Currently, pay transparency ranked no 1 external force for the next two years (65%, Korn Ferry, 2025), led by the EU Pay Transparency Directive (benefits count as 'pay') and North American rules.

When it comes to *communication, tech and AI*, communication remains weak (only approx. 27% of employees understand their benefits, still up from 18%), but effort is rising via total-reward statements (up to 35%) (Aon, 2025). AI adoption is accelerating fast, from approx. 1 in 6 multinational companies today toward and estimated 48% by 2027 (Aon, 2025).

Inclusive benefits/DEIB are embedded in benefit design and integrated with total rewards/ESG, but declining as a clear multinational company priority in 2025 especially based on US rollbacks. Therefore, 'supporting diverse needs' fell from number 5 (60%) to number 8 (18%) in Aon's ranking (Aon, 2025).

To conclude, across the five global providers analysed (Aon, Korn Ferry, Mercer/Mercer Marsh Benefits, Pacific Prime and Randstad), the dominant direction of evolution in 2023-2026 is one of near-uniform intensification: seven of the eight benefit themes examined are rising, and only inclusive benefits/DEIB is in decline. Taken together, the reports describe a reward agenda being reshaped simultaneously by cost pressure, personalisation, wellbeing, regulation and technology, with employers doing more on almost every front at once, rather than trading one priority off against another. Four cross-cutting forces organise these trends: containing cost, individualising value, complying with new regulation, and modernising delivery through technology.

The main and most powerful trend is *cost management and financing*, which has moved to the top of the strategic agenda. Cost containment is now the single most important priority, ranked first by 70% of multinational companies, up from third place in 2024 (Aon, 2025), driven by global medical inflation of roughly

10%. Rather than simply cutting provision, employers are managing this pressure structurally: around one in three are turning to alternative financing arrangements, such as captive (in-house) insurance and multinational pooling, and to value- or ROI-led design, funding benefits according to demonstrable impact on health, productivity, engagement and retention rather than adding perks or matching competitors (Aon, 2025).

The second trend is the *personalisation of benefits* through flexible and cafeteria schemes, which make a decisive move toward choice. About 69% of employers plan to enhance flexibility (Pacific Prime, 2026) and 65% of employees in multinationals would trade some existing benefits for greater choice (Aon, 2025). Flexibility is increasingly framed as a cost-sustainability lever as well as an engagement tool, even though only 14% of organisations have global personalisation guidelines at the moment (Aon, 2025). Closely linked is the mainstreaming of *health and wellbeing*, especially mental health, where the reports record a shift from return-on-investment to value-on-investment thinking and toward preventive care and dedicated condition pathways (Mercer Marsh Benefits, 2024). Investment continues to grow (Mercer, 2025: 21% increasing versus 2% decreasing), even as wellbeing slips marginally as a stand-alone strategic priority in Aon's ranking (from sixth to seventh) (Aon, 2025). This is a nuance that reflects consolidation into total-reward strategy rather than genuine retreat.

The third cluster refers to the changing shape of the value proposition. *Remote and hybrid flexibility* is now firmly normalised: the five-days-in-office requirement has fallen from 89% pre-pandemic to 43% (Korn Ferry, 2024a), most employers no longer differentiate pay by location, and flexibility functions as a low-cost but highly valued retention lever across all providers. This feeds directly into *talent attraction and retention*, where the emphasis has shifted from attracting to retaining talent (55% of employers are upgrading their employee value proposition to encompass total rewards, according to Korn Ferry, 2024a) and where non-monetary rewards and wellbeing increasingly rival pay in importance, particularly for Generation Z (Randstad, 2025a).

The fourth force is regulatory and technological. *Pay transparency and equity* has become the single biggest external disruptor of reward strategy, ranked first over the next two years by 65% of organisations (Korn Ferry, 2025), propelled by the EU Pay Transparency Directive, under which benefits count as "pay", and by North American disclosure rules. In parallel, *communication, technology and AI* is rising as employers try to close a persistent understanding gap: only about 27% of employees understand their benefits (up from 18%), and effort is being channelled into total-reward statements (now around 35%) and, increasingly, artificial intelligence, whose use in benefits is projected to grow from roughly one in six multinationals today to an estimated 48% by 2027 (Aon, 2025).

The sole counter-trend is *inclusive benefits/DEIB*. While inclusion remains embedded in benefit design and integrated with total-reward and ESG frameworks, it has declined as an explicitly stated multinational priority in 2025, largely on the back of US rollbacks: Aon records "supporting the diverse needs of employees" falling from fifth place (60%) to eighth (18%) (Aon, 2025). This makes DEIB the one dimension where visible strategic emphasis is contracting even as the underlying design practices persist.

In sum, the analysed reports converge on a clear *answer to RQ1*: at global level in 2023–2026, benefit strategy is defined by a rising, mutually reinforcing set of priorities (cost discipline, personalisation, wellbeing, work-arrangement flexibility, retention-focused total rewards, pay-transparency compliance, and AI-enabled communication) against which the retreat of DEIB as a headline priority stands out as the notable exception.

3.2. The national perspective for Romania

When it comes to the situation for Romania, we need to consider that Romania is an EU member state and it also has some degree of peculiarities (former communist country in Eastern Europe, latin culture influenced by other populations and other). Therefore, we wanted to analyze and understand how benefits are considered by organizations in Romania as a whole, regardless of industry. See summary in Table 3.

Flexible/cafeteria benefits are present but uneven. They are offered by 32% of companies overall, far higher in Technology (43%) and BPO/SSC (49%) than Banking (21%) or Retail (6%) (PwC, 2025). Flexible schedules reach 51% (PwC, 2025) or even 52% (Hays, 2026), while time off and flexible working are among the most-valued benefits (Hays, 2026). Romania is moving in the same direction as the rest of the world, allowing employees to personalize their benefits, but far fewer Romanian employers have actually put a formal choose-your-own scheme in place. The idea is present in Romania, while the structured mechanism is still comparatively rare, and it's concentrated in IT and BPO organizations.

Health and wellbeing is the most urgent HR challenge in 2026, cited by 26.8% of organisations (down slightly from 27.6% a year earlier) (SD Worx, 2026). Employee confidence nonetheless remains fragile: 29.9% of employees say working in their organisation negatively affects their mental health, above the 21.7% EU average (SD Worx, 2026). Medical cover is near-universal (subscription 64%, according to PwC, 2025) and mental-health support is emerging (education 45%), but a clear employer–employee credibility gap persists.

Table 3. Romania trends (all industries)

Category	Evolution
Flexible / cafeteria benefits	► Uneven
Health & wellbeing	▲ Rising
Remote / hybrid flexibility	► Stable
Talent attraction & retention	▲ Rising
Cost management & financing	▼ Declining
Pay transparency & equity	▲ Rising
Communication, tech & AI	▲ Rising
Inclusive benefits / DEIB	▲ Rising

Source: Author's elaboration based on database interpretation

Remote / hybrid flexibility. Hybrid is the dominant model but access is role-driven rather than universal, and remote ranks low (number 10) in the ideal-employer profile (Randstad, 2025b). Return-to-office pressure is building as 19% of firms plan more on-site presence, while 28% of professionals are dissatisfied with work-life balance (Hays, 2026).

Talent attraction & retention. Attractive salary & benefits are clearly the number 1 EVP driver (67%, Randstad and Kantar, 2026), with the largest pay-delivery gap as only about half of employees feel paid competitively (Randstad and Kantar, 2026). Recognition is the top motivator and reskilling matters to 78% of employees (Randstad, 2025b). Core retention package is based on meal tickets, extra leave and medical cover (PwC, 2025). IT is particularly the most attractive sector on this category.

Cost management & financing. Salary increases have been cooling, as salary rises went down from 8.4% (2024) to 6.5% (2025) and to 6.0% (2026), with lowest in Technology (5.29%, PwC, 2025) and above-10% raises fading (Hays, 2026). Employers increasingly use benefits/EVP to offset limitations for pay, while cost-of-living remains the number 1 reason employees leave (Randstad, 2024b). Correlated with inflation rates in Romania of 10.4% (2023), 5.6% (2024), 7.3% (2025) and an estimated 5.5% for 2026, most salary raises only manage to cover inflation rates, if even that, therefore employees tend to look for better options.

Pay transparency & equity. Romania recorded fast-rising awareness of the topic ahead of the EU Pay Transparency Directive, with 66% of Romanian employers saying they were ready, doubled by high employee awareness about the directive (41.7%) and considering it as 'very important' (43.7%) - the highest in Europe according to SD Worx (2026). Actual practice is still thin (only approx. 4% of organizations publish salary bands, according to Hays, 2024), which leaves a large perception gap (only 30% consider pay practices as being transparent).

Communication, tech & AI. In Romania AI adoption is reported as advancing with comparatively high trust. 53.7% of Romanian firms are exploring AI and

58% of employees trust their organisation to use it fairly (above EU average), although 30% fear that they may be fired based on AI-related redundancy (SD Worx, 2026). Regular use is still modest (approx. 17 to 19%), led by Gen Z (26%) (Randstad, 2025b).

Inclusive benefits / DEIB. Equity/equal opportunities in Romania rose into the top EVP drivers (new from 2024) and stays top-4 (Randstad, 2024b), diverging from the global declining trend. About 18% of employees identify as a minority (in Gen Z even 28%) and roughly half of employees report identity-linked career obstacles (Randstad, 2025b). So, awareness is rising, especially among younger workers.

Therefore, the picture for Romania diverges from global in the following:

Flexible/cafeeteria benefits → ► *Uneven.* This category registers a rising in direction but only 32% penetration (PwC, 2025), being concentrated in IT/BPO fields, which would allow us to conclude that in this respect Romania lags behind the global trends.

Remote/hybrid → ► *Stable.* Access to remote/hybrid work options is moreover role-driven and we record a real return-to-office tension. This is not aligned with the global standard nowadays, which favours remote/hybrid work for various positions, as five-days-in-office requirements fell from 89% pre-pandemic to 43% (Korn Ferry, 2024a).

Cost management → ▼ *Declining.* Cost pressure in Romania is wage-led, which distinguishes it from the global picture. Salary increases are cooling from a high base and above-10% raises are fading, so employers increasingly use benefits and EVP to offset pay they can no longer fully deliver (Hays, 2026), while cost-of-living remains the top reason employees leave (Randstad, 2024b). This contrasts with the global level, where the rising cost is based on benefit and medical-cost inflation (around a 10% medical trend) rather than pay, and where that pressure drives cost containment and alternative financing such as captives and pooling (techniques largely absent in Romania) (Aon, 2025). The divergence is therefore in the cost driver, not the direction: benefits globally versus wages in Romania. Notably, even after cooling, Romania's 6% salary rise is almost double the 3.5% typical of major Western markets and broadly in line with CEE peers (Poland 5.5%, Hungary 6.3%), so wage pressure stays high in relative terms, even as compensation and benefits decline as a stated HR challenge (SD Worx, 2026: 21.7%→19.2%).

Inclusive/DEIB → ▲ *Rising:* In Romania, equity and equal opportunities have risen into the top employer-value-proposition drivers, meaning candidates increasingly weigh fair, equal treatment when choosing where to work. This matters because roughly 18% of the workforce identifies as belonging to a minority (rising to about 28% among Gen Z), and around half of those workers report career obstacles tied to their identity, so the demand for equity is grounded in real experience rather than rhetoric (Randstad, 2025b). At the same time, Romanian employers rate reasonably well on equity but acknowledge room to

improve, so it appears as a rising, followed-up priority. This runs opposite to the global level, where "supporting the diverse needs of employees" fell sharply as a stated multinational priority in 2025 (from no 5 (60%) to no 8 (18%) in Aon's ranking) largely based on US DEIB rollbacks (Aon, 2025). The result is a genuine divergence: DEIB is declining on the global agenda while gaining awareness in Romania, especially among younger workers. More conclusions can be observed in Table 4.

Table 4. Where Romania converges and diverges

Theme	Global	Romania	Conclusion
Flexible benefits	▲ Rising (~69%)	► Uneven (32%); IT/BPO lead	Converge on direction; RO lags on penetration
Health & wellbeing	▲ Mainstream	▲ Mental health emerging; no 1 HR challenge	Converge; RO earlier on preventive/mental health
Remote / hybrid	▲ Normalised	► Role-driven; return-to-office pressure	RO shows more return-to-office tension
Attraction & retention	▲ Retention > attraction	▲ Pay no 1 + large gap	Converge; pay primacy sharper in RO
Cost & financing	▲ Medical inflation	▼ Wages cooling / cost-of-living	Diverge on mechanism
Pay transparency	▲ no 1 disruptor	▲ Highest-in-Europe awareness	Converge; RO ahead on salience
Inclusive DEIB	▼ Recedes (2025)	▲ Equity rising (Gen Z)	Diverge in direction

Source: Author's elaboration based on database interpretation

Overall, for Romania at national level we can outline the following situation conclusion per categories. *Converge - 4 categories*: health & wellbeing, talent attraction & retention, pay transparency, communication/AI. Also, Romania is actually ahead on pay-transparency awareness. *Partial - 2 categories*: flexible/cafeteria benefits (same logic, thinner penetration) and remote/hybrid (Romania has stronger return-to-office tension). *Diverge - 2 categories and these can be considered the interesting ones*. *Cost management* diverges in mechanism (at global it relies mainly on medical-cost inflation, while in Romania it is based on wage/cost-of-living, with pay growth cooling). *Inclusive/DEIB* diverges in direction, receding globally but rising in Romania.

Romania must be interpreted as a hybrid case: an EU member state bound by the same regulatory and reward pressures as the wider European market, yet marked by post-communist and Central-and-Eastern-European (CEE) particularities that shape how those pressures play out. Analysing the national picture across all industries (Hays, 2026; PwC, 2025; Randstad, 2025b; and SD

Worx, 2026) shows that Romania largely moves in the *same direction* as the global market, but at a different pace and, in two important cases, for different reasons. The clearest convergence is in *health and wellbeing*, which has become the number-one HR challenge for 2026 (SD Worx, 2026) just as it has been mainstreamed globally. Yet Romania sits earlier on the maturity curve: medical cover is near-universal (medical subscription 64%, PwC, 2025) and mental-health support is only emerging (education 45%, PwC, 2025), while an employer-employee credibility gap persists, with only 28% of employees now see wellbeing as pressing (down from 37%), and 29.9% say work harms their mental health, above the 21.7% EU average (SD Works, 2026). *Talent attraction and retention* converges strongly too, with the same retention-over-attraction logic, but pay primacy is sharper: attractive salary and benefits is the dominant EVP driver (67%, Randstad and Kantar, 2026) and carries the largest delivery gap, as only about half of employees feel competitively paid, recognition is the top motivator and reskilling matters to 78% (Randstad, 2025b). *Pay transparency and equity* likewise converges. Indeed Romania is *ahead* of Europe on awareness, with 66% of employers claiming readiness for the EU Pay Transparency Directive and the highest employee awareness (41.7%) and "very important" ratings (43.7%) in Europe (SD Worx, 2026), although actual practice remains thin, with only about 4% of firms publishing salary bands (Hays, 2024) and just 30% of employees regarding pay practices as transparent. *Communication, technology and AI* completes the convergent group: AI adoption is advancing with comparatively high trust (53.7% of firms exploring AI; 58% of employees trusting fair use), even if regular use is still modest (17 to 19%, led by Gen Z at 26%) (SD Works, 2026; Randstad, 2025b).

Two themes converge only partially. *Flexible and cafeteria benefits* point in the same personalisation direction but are far shallower in penetration: formal schemes reach just 32% of firms overall, concentrated in Technology (43%) and BPO/SSC (49%) and rare in Banking (21%) or Retail (6%) (PwC, 2025). The *idea* of letting employees personalise their reward has arrived, but the structured mechanism has not yet spread beyond IT and BPO, so Romania lags the global surge on breadth. *Remote and hybrid flexibility* is the second partial case: hybrid is the dominant model, but access is role-driven rather than universal, remote ranks only tenth in the ideal-employer profile (Randstad, 2025b), and return-to-office pressure is building, with 19% of firms planning more on-site presence and 28% of professionals dissatisfied with work-life balance (Hays, 2026). This contrasts with the global norm, where hybrid is treated as settled and the five-day-office requirement has fallen from 89% pre-pandemic to 43% (Korn Ferry, 2024a), where Romania simply shows more return-to-office tension.

The two genuine divergences are the most analytically interesting. *Cost management and financing* diverges in mechanism rather than direction. Globally the rising cost pressure is benefit- and medical-cost inflation (a roughly 10%

medical trend), which pushes cost containment and alternative financing such as captives and pooling, techniques that are largely absent in Romania (Aon, 2025). In Romania the binding pressure is connected to wages: salary increases are cooling from a high base (8.4% in 2024 to 6.5% in 2025 and 6.0% in 2026, lowest in Technology at 5.29%, PwC, 2025), above-10% raises are fading (Hays, 2026), and cost-of-living remains the top reason employees leave (Randstad, 2024b). Set against Romanian inflation of 10.4% (2023), 5.6% (2024), 7.3% (2025) and an estimated 5.5% (2026), most raises barely cover price rises, prompting employees to seek better options while employers lean on benefits and EVP to offset pay they can no longer fully deliver. Even after cooling, Romania's approx 6% is almost double the 3.5% typical of major Western markets and broadly in line with CEE peers (Poland 5.5%, Hungary 6.3%), so wage pressure stays high in relative terms, even as compensation and benefits recede as a stated HR challenge (SD Worx, 2026: 21.7% to 19.2%). *Inclusive benefits/DEIB* diverges in direction. Whereas the global agenda saw DEIB recede as a stated multinational priority in 2025, Aon records "supporting the diverse needs of employees" falling from fifth (60%) to eighth (18%), largely on the back of US rollbacks (Aon, 2025), in Romania equity and equal opportunities rose into the top EVP drivers (new from 2024) and remain in the top four (Randstad, 2024b). The demand is grounded in experience rather than rhetoric: about 18% of the workforce identifies as a minority (28% among Gen Z), and roughly half of these workers report identity-linked career obstacles (Randstad, 2025b). Romanian employers rate reasonably on equity but acknowledge room to improve, so the theme reads as a rising, actively followed priority, which is the mirror image of the global retreat.

To answer RQ2 (*How do benefit trends in the Romanian labour market converge with or diverge from global tendencies?*), Romania converges with global tendencies on four themes (health and wellbeing, talent attraction and retention, pay transparency - where it is actually ahead on awareness - and communication/AI), converges only partially on two (flexible/cafeteria benefits, thinner in penetration and remote/hybrid, with stronger return-to-office tension), and diverges on two: cost management, where the cost driver is wages rather than medical inflation, and DEIB, which is rising in Romania while receding globally.

3.3. The IT industry perspective in Romania

Moving on with our analysis, we were interested to find out how the IT industry in Romania positions against the global and national trends in terms of employee benefits. Historically, the IT industry in Romania was a pioneer in terms of importing ideas and implementing new and creative benefits. That was driven both by the IT industry standards as a global industry, as well as by the high competition in attracting and retaining employees. It was particularly difficult to attract and retain employees before 2024, when the industry has started cooling off due to global economic factors, the emergence of AI technologies as well as

due to the increased salary costs, after tax facilities were removed in Romania. The summary for the IT industry in Romania can be observed in Table 5.

Table 5. Romanian IT trends

Category	Evolution
Flexible / cafeteria benefits	► Stable
Health & wellbeing	▲ Rising
Remote / hybrid flexibility	► Normalised
Talent attraction & retention	▲ Rising
Cost management & financing	▼ Retrenching
Pay transparency & equity	► Emerging
Communication, tech & AI	▲ Rising
Inclusive benefits / DEIB	► Limited

Source: Author's elaboration based on database interpretation

Flexible / cafeteria benefits. Flexible-benefit adoption stays low and volatile, as only 27% of IT firms offered a flexible package in 2025 (17% in 2022, 32% in 2023, 26% in 2024). 73% of IT companies keep a standard package, yet the average flexible budget keeps rising (from 6,443 to 7,740 lei per year). Flexible benefits are delivered mostly via online platforms (65%), where top choices are holiday vouchers (71%), meal vouchers (65%) and gift cards (53%) (AIMS, 2025).

Health & wellbeing. This category confirms the deepest health provision in Romania, with 98% of IT firms offering health benefits (medical subscription 64%, insurance 41%) and mental/emotional-health services (51% of subscriptions, up from 42%). Romanian IT firms are broadly adding low-cost, visible wellness perks (stand-up desks 57%, mindfulness workshops 38%), but the deeper, more resource-intensive elements of wellbeing, such as professional mental-health support via employee assistance programs (12%) and proactive preventive healthcare spending (3%, increasing) remain underdeveloped (AIMS, 2025).

Remote / hybrid flexibility. Remote work is the most flexibility-rich segment has become near-universal for eligible staff (99%), flexible schedules reach 88%, and 48% of firms impose no return-to-office rule. Flexible working hours is the single most-valued benefit (76%) and autonomy over the work model is valued by 55%. Only a handful of firms have requested that employees return fully on-site (AIMS, 2025).

Talent attraction & retention. Retention is based predominantly on non-monetary levers as the cash advantage erodes. The most-valued benefits are flexible hours (76%), healthcare (70%), autonomy (55%), meal vouchers (54%) and training (41%). Learning provision is strong (certifications 73%, technical skills 72%, conferences 71%, mentoring 54%) and severance packages for layoffs appear in 51% of firms (AIMS, 2025).

Cost management & financing. Cost pressures have generated the sharpest decline of the three levels (global, Romania, IT in Romania) and was doubled by

the phase-out of the IT income-tax incentive to hit new benefits. Firms adding a new benefit for the first time fell from 37% to 18% and then to 10%, while 12% are removing benefits (sabbaticals, the flexible-benefits package, telework bonus, mental-health days cut from 12 to 4). Meal-voucher provided by employer decreased from 90% to 86% in its first fall in years. Only 3% of companies plan more preventive healthcare spend while 22% will renegotiate with providers. Protection benefits remain thin by Western standards, with optional Pillar 3 private pension in approx 28% of firms, while 40% offer no voluntary life/accident insurance, which indicates limited benefit depth beyond core health and flexibility (AIMS, 2025).

Pay transparency & equity. AIMS notes the EU Pay Transparency Directive entering the sector's agenda, but formal transparency practice (published salary bands, pay-equity reporting) is not yet embedded (AIMS, 2025).

Communication, tech & AI. GenAI is reshaping the learning agenda. AIMS cites surging GenAI course enrolments, with Romania rising to 52nd of 109 on skill proficiency (from 70th) and 40th on AI maturity (Coursera Global Skills Report 2025, as cited in AIMS, 2025). Online learning is mainstream (66% of events) and flexible benefits are administered via online platforms (65%). L&D budgets are largely maintained (51% at a similar level) (AIMS, 2025).

Inclusive benefits / DEIB. Family-friendly provision is modest (29% of IT firms offer none), while some companies offer some, such as children's parties (46%), adoptive-parent benefits (6%), fertility benefits (3%), on-site kindergarten (1%). Inclusion works mainly through CSR, which is widespread and explicitly tied to engagement/retention by 92% of firms and this is the sector's principal purpose or inclusion lever (family-friendly figures AIMS, 2025; CSR-engagement link AIMS, 2024).

Two categories stand out in the conclusions for the IT industry in Romania, per categories:

Cost management → ▼ *Retrenching*: this is the sharpest of all three levels, and it connected with the economic downturn at global level, with the uncertainty for many PESTEL factors, as well as with the tax-incentive story in numbers. It was the first-time benefit additions collapsed from 37% to 10%, with 12% of firms actively removing benefits, and meal vouchers falling for the first time in years (AIMS, 2025).

Talent attraction & retention → ▲ *Rising*: as the cash/tax advantage erodes, IT leans hardest on flexibility (flexible hours are the most valued benefit at 76%), health, autonomy and development (AIMS, 2025).

A comparison between global, national (Romania) and IT (in Romania) trends can be observed in Table 6.

Table 6. Direction of change across three levels

Theme	Global	Romania	Romanian IT
Flexible / cafeteria benefits	▲ Rising - choice & personalization. Approx 69% of employers want more flexibility (Pacific Prime, 2026).	► Uneven - flexible schemes at 32% of firms; time off & flexible working most valued (PwC, 2025/Hays, 2026).	► Stable adoption, rising budgets - only 27% offer a flexible package, but avg budget 6.4k→7.7k lei/year (AIMS, 2024-2025).
Health & wellbeing	▲ Rising - mental health mainstream; shift to preventive & value-on-investment (Mercer Marsh Benefits, 2024 / Mercer, 2025 / Aon, 2025).	▲ Rising – no 1 HR challenge; medical cover near-universal, but employee trust eroding (SD Worx, 2026 / PwC, 2025).	▲ Rising - 98% offer health cover; mental health in 51% of subscriptions (AIMS, 2025).
Remote / hybrid flexibility	▲ Rising - hybrid normalised (89%→43% five-day office); pay decoupled from location (Korn Ferry, 2024a).	► Stable - embedded but role-driven; return-to-office pressure rising (Hays, 2026 / Randstad, 2025b).	► Normalised - 99% remote-eligible, 48% no return to office rule; flexible hours the no 1 valued benefit (76%) (AIMS, 2025).
Talent attraction & retention	▲ Rising - retention > attraction; 55% upgrading EVP; wellbeing rivals pay for Gen Z (Korn Ferry, 2024a / Randstad, 2025a).	▲ Rising - salary & benefits the no 1 driver (67%) with a large delivery gap (Randstad and Kantar, 2026).	▲ Rising - flexible hours, health & development lead as the cash advantage erodes (AIMS, 2025).
Cost management & financing	▲ Rising - cost containment no 1 priority (70%); app 10% medical inflation the driver (Aon, 2025).	▼ Declining - salary increases cooling (8.4%→6.0%); cost-of-living the top reason to leave (PwC, 2025 / Hays, 2026 / Randstad, 2024b).	▼ Retrenching - post-tax-incentive: first-time benefit additions 37%→10%; 12% removing benefits (AIMS, 2025).
Pay transparency & equity	▲ Rising - the no 1 external disruptor of reward strategy	▲ Rising - highest-in-Europe awareness (66%	► Emerging - Directive flagged & gender gap

Theme	Global	Romania	Romanian IT
	(65%, Korn Ferry, 2025).	ready), yet only ~4% publish salary bands (SD Worx, 2026 / Hays, 2024).	noted, but protection benefits still rare (AIMS, 2025).
Communication, technology & AI	▲ Rising - AI in benefits from ~1 in 6 MNCs toward ~48% by 2027 (Aon, 2025).	▲ Rising - AI exploration with high trust (58%); regular use ~17–19%, Gen Z leads (SD Worx, 2026 / Randstad, 2025b).	▲ Rising - GenAI reshapes L&D; Romania climbing global AI-skill & maturity rankings (AIMS, 2025).
Inclusive benefits / DEIB	▼ Declining - slips as a stated companies' priority in 2025 amid US rollbacks (Aon, 2025).	▲ Rising - equity a new top-4 EVP driver (Randstad), esp. Gen Z (Randstad, 2024b).	► Limited - family-friendly modest; inclusion runs mainly through CSR (92% tie it to retention) (family-friendly AIMS, 2025; CSR link AIMS, 2024).

Source: Author's elaboration based on database interpretation

Flexible / cafeteria benefits. The global push toward choice and personalization is only partially present in Romania, and Romanian IT sits between the two. Globally 69% of employers plan to expand flexibility (Pacific Prime, 2026), while in Romania formal cafeteria schemes reach just 32% of firms (PwC, 2025) and in IT only 27% (AIMS, 2025). Still, IT leads the country on penetration and keeps raising the average flexible budget (from 6,443 to 7,740 lei per year) (AIMS, 2024–2025) even as adoption stays flat. The pattern is depth over breadth, as IT firms put more money into existing flexible-benefit schemes instead of making them more widely available. This stays closer to Romania's slower national pace than to the global surge in personalization.

Health & wellbeing. The strongest convergence across all three levels. Wellbeing and mental health are rising everywhere - globally mainstream with a preventive, value-on-investment shift (Mercer Marsh Benefits, 2024; Mercer, 2025); nationally the no 1 HR challenge (SD Worx, 2026); and in IT provision is deepest of all (98% offer health cover, mental-health services in 51% of subscriptions) (AIMS, 2025). The divergence is in maturity and credibility, where Romania is delayed in the preventive journey and shows an employer–employee trust gap the global reports don't emphasise.

Remote / hybrid flexibility. All three perspectives treat hybrid work as established, but intensity differs. Globally it's a normalised, low-cost retention lever with pay decoupled from location (Korn Ferry, 2024a). Nationally it is

embedded but role-driven with real return-to-office pressure (Hays, 2026; Randstad, 2025b). IT is the richest of all, with remote near-universal (99% of eligible staff), 48% of firms impose no return rule, and flexible hours being the single most-valued benefit (76%) (AIMS, 2025). IT is the most flexibility-rich segment and feels the weakest return-to-office pull.

Talent attraction & retention. Convergent everywhere, tilting toward non-monetary retention. Globally the focus moved from attraction to retention (Korn Ferry, 2024a; Randstad, 2025a). Nationally salary and benefits dominate but with a large pay-delivery gap (Randstad and Kantar, 2026). In IT, where the salary and tax edge is eroding, employers lean hardest on flexibility, health and development (AIMS, 2025). One story across levels: as pay competitiveness tightens, the value proposition shifts to intangible rewards, and Romanian IT is furthest along that shift.

Cost management & financing. The clearest divergence, which supports the main idea of this paper. Globally the pressure is medical-cost inflation (cost containment the no 1 priority) (Aon, 2025). Nationally it's wage inflation and cost-of-living with salary growth cooling (8.4%→6.0%) (PwC, 2025; Hays, 2026). In IT it becomes retrenchment from a Romania-specific shock (the tax-incentive phase-out). First-time benefit additions collapsed 37%→10%, 12% of firms are cutting benefits, and meal vouchers fell for the first time in years (AIMS, 2025). The same macro theme produces opposite motions: expansion-via-financing globally, contraction in Romanian IT.

Pay transparency & equity. Direction converges but implementation maturity falls as the lens narrows. Globally regulation is the no 1 disruptor (Korn Ferry, 2025). Nationally Romania shows the highest-in-Europe awareness and readiness (66%) (SD Worx, 2026) yet only approx 4% of organizations publish salary bands. In IT the Directive and gender gaps are flagged but protection benefits stay thin, so it's still emerging in practice (AIMS, 2025). High awareness with limited delivery, especially in IT.

Communication, technology & AI. Convergent AI momentum is noticed, but with different expressions. Globally AI is entering benefits administration and communication (toward 48% of MNCs by 2027) (Aon, 2025). In Romania we identified mid-stage adoption with comparatively high trust (58%). In IT is present a GenAI-driven learning agenda, with Romania climbing the global AI-skill and maturity rankings (AIMS, 2025). IT experiences AI less as a benefits-admin tool and more as a reskilling imperative.

Inclusive benefits / DEIB. The most mixed picture can be found in this category. Globally DEIB is receding as a stated company priority after US rollbacks (Aon, 2025). Nationally equity has risen into the top EVP drivers (new from 2024), especially for Gen Z (Randstad, 2024b). In IT formal family-friendly provision is modest and inclusion runs mainly through CSR, which 92% of firms tie to retention (family-friendly AIMS, 2025; CSR link AIMS, 2024). The levels

move in different directions: global down, Romania up, IT channelling inclusion through purpose.

Based on all of the above, we may conclude as following: we found convergence on wellbeing, retention-through-non-monetary-rewards, transparency and AI. The decisive divergence is on cost, where Romanian IT's was impacted by post-tax-incentive retrenchment and that was the sharp, sector-specific finding our study was built to surface.

To answer RQ3 (*What distinguishes benefits in the Romanian IT industry, and how are these patterns shaped by the phase-out of tax incentives, wage pressure and remote/hybrid work?*), the Romanian IT sector has historically been the country's benefits pioneer, importing and implementing new and creative rewards ahead of other industries. That was driven both by global IT norms and by intense competition for scarce talent. The analysed AIMS IT SalaryMap data (2023 to 2025) shows that this leadership persists in depth of provision, but that the sector entered a distinct phase from 2024 onward, as a global economic cooling, the rise of AI, and, most decisively, the removal of the IT income-tax exemption converged to raise salary costs and squeeze benefit budgets (AIMS, 2023; 2024; 2025). What distinguishes Romanian IT, then, is a paradox: it remains the richest benefit environment in the country (particularly on health and flexibility), yet it is simultaneously the segment retrenching hardest, because the three shaping forces named in research question RQ3: the tax phase-out, wage pressure and entrenched remote/hybrid work act on it more directly than on any other part of the labour market.

The *phase-out of the tax incentive* is the single most distinctive force, and it registers most sharply in cost management, which is retrenching. This is the steepest contraction across all three levels of the study. First-time benefit additions collapsed from 37% to 18% and then to 10%, while 12% of firms are actively removing benefits such as sabbaticals, the flexible-benefits package, the telework bonus, and mental-health days cut from twelve to four. Employer-paid meal vouchers fell from 90% to 86%, their first decline in years. Only 3% of firms plan to increase preventive-healthcare spending while 22% intend to renegotiate with providers to hold costs down. Protection benefits remain thin by Western standards (optional Pillar 3 private pension in about 28% of firms, with 40% offering no voluntary life/accident insurance), confirming that depth beyond core health and flexibility is limited and now under pressure (AIMS, 2025). Crucially, this is a Romania-specific shock: at global level the same macro theme of cost produces the *opposite* motion, which is the expansion via alternative financing (captives, pooling) against medical inflation (Aon, 2025), whereas in Romanian IT the withdrawal of a fiscal advantage produces outright benefit contraction.

Wage pressure works alongside the tax change to reshape the value proposition. As the combined salary-and-tax advantage that once defined IT compensation erodes, the sector leans hardest of all three levels on non-monetary

levers, which is why talent attraction and retention is rising even as cash competitiveness weakens. The most-valued benefits are now flexible hours (76%), healthcare (70%), autonomy (55%), meal vouchers (54%) and training (41%), and learning provision is unusually strong (certifications 73%, technical skills 72%, conferences 71%, mentoring 54%). The appearance of severance packages in 51% of firms is itself a marker of the downturn (AIMS, 2025). This substitution of intangible rewards for a shrinking cash edge is precisely the dynamic the study set out to surface: Romanian IT is furthest along the shift from monetary to non-monetary reward because it has the most to replace.

Remote and hybrid work is the third distinguishing force, and here IT diverges upward rather than downward. It is the most flexibility-rich segment in the country: remote work is near-universal for eligible staff (99%), flexible schedules reach 88%, and 48% of firms impose no return-to-office rule, with only a handful requiring full on-site presence. Flexible hours are the single most-valued benefit (76%) and autonomy over the work model is valued by 55% (AIMS, 2025). This normalisation matters strategically because, as the sector's cash advantage narrows, work-arrangement flexibility becomes one of the cheapest and most valued retention instruments it still controls. And, as Popescu-Predulescu (2024) notes, the very portability of remote IT work heightens the mobility risk when other benefits are withdrawn.

The remaining themes reinforce this profile. *Health and wellbeing* is rising and represents the deepest provision in Romania (98% of firms offer health benefits and mental/emotional-health services are included in 51% of medical subscriptions, up from 42%), though it tilts toward low-cost, visible perks (stand-up desks 57%, mindfulness workshops 38%) while the resource-intensive elements, such as professional support via EAPs (12%) and proactive preventive spending (3%), remain underdeveloped, a limitation the cost squeeze reinforces (AIMS, 2025). *Flexible/cafeteria benefits* are stable but shallow: adoption is low and volatile (27% in 2025, having moved from 17% since 2022), with 73% of firms keeping a standard package, yet the average flexible budget keeps rising (6,443 to 7,740 lei/year) (AIMS, 2024-2025). The pattern is depth over breadth and firms channel more money into the schemes they already run rather than extending them, which keeps IT closer to Romania's slower national pace than to the global personalisation surge. *Communication, technology and AI* is rising, but expressed distinctively as a GenAI-driven learning agenda rather than benefits administration: AIMS reports surging GenAI course enrolments, with Romania climbing to 52nd of 109 on skill proficiency (from 70th) and to 40th on AI maturity, and online learning now mainstream (66% of events) (AIMS, 2025). *Pay transparency and equity* is only emerging as the EU Directive is on the agenda but formal practice (published bands, pay-equity reporting) is not yet embedded (AIMS 2025). *Inclusive benefits/DEIB* is limited, with modest family-friendly provision (29% of firms offer none) and inclusion channelled mainly through

CSR, which 92% of firms tie explicitly to engagement and retention (family-friendly AIMS, 2025; CSR link AIMS, 2024).

Analyzed across the three levels (see Table 6), Romanian IT converges with the global and national pictures on wellbeing, on retention-through-non-monetary-rewards, on transparency (in direction, if not maturity) and on AI momentum. Its distinguishing feature is the decisive divergence on cost: where the global level expands benefit financing against medical inflation (Aon, 2025) and the national level sees wage growth merely cooling (PwC, 2025; Hays, 2026), Romanian IT experiences outright retrenchment driven by the tax-incentive phase-out. This post-incentive contraction (first-time additions falling from 37% to 10%, one in eight firms cutting benefits, meal vouchers declining for the first time in years) is the sharp, sector-specific finding the study was built to surface (AIMS, 2025), and it is precisely because IT was the most benefit-rich segment, most exposed to wage pressure, and most reliant on the fiscal advantage that its adjustment is the most pronounced.

3.4. Implications for talent attraction and retention in Romanian IT

Our last research objective and research question are meant to identify implications for talent attraction and retention in Romanian IT based on global, national and industry trends. IT industry leaders in Romania could use the conclusions to reevaluate and develop their benefits lists in order to consolidate and build competitive advantage in terms of employer brand (through the EVP) and position the organization as an attractive place to work. Therefore, we aimed at answering RQ4 (*What does the comparison across the three levels imply for talent attraction and retention in Romanian IT?*).

Put together, the global, national and IT-level findings point to a single strategic implication: as the combined cash-and-tax advantage that once defined Romanian IT compensation erodes, competitive edge in attracting and retaining talent now rests on non-monetary rewards such as flexibility, wellbeing, development and transparent, fair pay, to be delivered efficiently and communicated well. The three levels converge: the global environment sets the direction (cost discipline, personalisation, AI and transparency), the national environment sharpens it (pay primacy with a large delivery gap, cost-of-living strain, and return-to-office tension), and the IT-specific shock of the tax-incentive withdrawal makes the adjustment most acute. The comparison therefore implies that Romanian IT employers must respond simultaneously on all three fronts, and that the winning posture is to re-focus reward rather than simply cut it.

At the *global level*, the implication is that Romanian IT should follow the same four moves the international reports prescribe, but adapt them to a tightening budget. Spend should shift from broad perks toward what employees demonstrably value (choice, wellbeing and development) with success measured as value-on-investment rather than cost alone. Flexible, digital cafeteria platforms

allow personalisation at scale while containing cost by funding only the benefits employees actually use, which matters in a sector where flexible-benefit budgets are rising even as adoption stays flat. Employers should get ahead of pay transparency by building job families, pay ranges and equity audits now, so that disclosure under the EU Directive builds trust rather than eroding it. And AI should be put to work in reward itself for benefits navigation, total-reward statements and benchmarking, not least because communication remains the weakest link, with only around a quarter of employees understanding their benefits.

At the *national level*, the comparison implies that Romanian IT must close the pay say-do gap that defines the whole labour market. Pay is the number-one driver yet the weakest point of delivery, therefore fair, transparent pay structures have to be paired with clear communication of total-reward value. Because employees who receive no inflation compensation are far more likely to leave, cost-of-living support and benefits that cut everyday costs should be targeted at inflation-exposed talent. Return-to-office decisions must be handled with care, since office mandates erode work-life balance (a top retention lever), therefore role-based, predictable hybrid rules are needed. And equity, a rising EVP driver especially for Gen Z, should be made visible and measurable, turning a national strength into a retention asset.

At the *IT-market level*, the implication is to defend depth while pruning breadth deliberately. Faced with the tax-incentive withdrawal, firms should protect the few benefits employees value most (flexibility, health, mental health and development) and retire low-uptake perks intentionally rather than reactively, so that the retrenchment already under way (first-time benefit additions falling 37%→10%, one in eight firms cutting benefits) becomes a strategic re-concentration rather than an across-the-board erosion. Flexibility should be made the signature offer: IT's comparatively mild return-to-office pressure is a genuine advantage, and autonomy over the work model should be kept as a core, branded element of the EVP. Wellbeing and mental health, already present in 51% of medical subscriptions, should be deepened to close the credibility gap between employer-perceived and employee-experienced support. And GenAI skills and L&D should be framed explicitly as retention and competitiveness levers, with learning budgets sustained even as other benefits tighten, which is consistent with Romania's climb up the global AI-skill and maturity rankings.

The strategic synthesis across the three levels is that Romanian IT wins as the cash advantage narrows by competing on non-monetary reward. Flexibility, wellbeing and learning, which are delivered efficiently through flexible, digital platforms, become the durable edge once tax and cash premiums fade. Re-focusing spend on what employees value (and retiring what they do not) preserves that edge under budget pressure. And, because Romanian awareness of pay transparency is already the highest in Europe, structured, fair and well-

communicated pay can convert the EU Directive from a compliance burden into a trust-based retention advantage. In short, the comparison implies that the future of attraction and retention in Romanian IT is decided less by pay levels than by the intelligent design, targeting and communication of the total-reward package. This is precisely the shift toward non-monetary rewards that this study set out to demonstrate: *as the cash-and-tax advantage erodes, competitive edge in attracting and retaining IT talent rests on non-monetary rewards.*

4. CONCLUSIONS

The current study aimed at identifying trends in use of benefits at global, national (in Romania) and industry (IT in Romania) levels to provide a base for IT companies to establish and consolidate competitive advantage by attracting and retaining the most important resource in the service sector: people. All four research objectives were reached and answers were provided to the four research questions. Conclusions should help IT companies in Romania have a clearer understanding of benefits from strategic and competitive advantage points of view. Since IT is a global industry, with global common trends, the study may be useful to IT companies from other countries. Also, it may be useful to companies operating in Romania in other fields, as IT has always been a source of inspiration for others and an industry from where best practices have been imported.

Because the study relies entirely on secondary data, findings are bounded by the methodologies, period of time considered (2023-2026), sample size (15 studies at global level, 10 for Romania, 3 for IT in Romania) and definitions of the original reports, which are not fully harmonised across providers. This is acknowledged as a limitation and partly mitigated through triangulation across the five sources. We must also acknowledge the potential limitations that Anthropic's Claude Opus 4.8 model (personal license) may have had when structuring the database to extract the 73 factors, later grouped into 8 categories.

Further research may be expanded to include exploratory studies on certain IT companies in Romania or a longitudinal study for a longer period of time (e.g. 10 years) to better capture industry trends, national/regional trends or to study the willingness of companies to adapt to trends external to the IT industry.

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BUILDING ADMINISTRATIVE RESILIENCE THROUGH INSTITUTIONAL INTEGRITY AND HUMAN RESOURCE DEVELOPMENT: EVIDENCE FROM ROMANIAN LOCAL PUBLIC ADMINISTRATION

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Abstract

This study examines the gap between the formal institutionalisation of integrity mechanisms and their effective functioning in Romanian local public administration, together with human resource management and development practices and perceived administrative capacity constraints. Using a quantitative, observational and cross-sectional survey of 973 administrative-territorial units from 41 counties, the analysis distinguishes between the formal presence of integrity mechanisms and their implementation in organisational practice. The findings show that formal institutionalisation is widespread, while effective implementation is less consistent, particularly in the case of the ethics adviser. In the multivariate analysis, the effective application of internal procedures and the consideration of integrity in professional promotion are positively associated with perceived institutional integrity, whereas staff and administrative resource constraints are negatively associated with it. These associations remain broadly stable after controlling for institutional size. The study contributes by showing that formal integrity arrangements and their actual functioning should be analysed separately and in relation to HRM practices and implementation capacity. Administrative resilience is used as a theoretical lens for interpreting these relationships, rather than as an outcome measured directly.

Keywords: institutional integrity; human resource management; local public administration; administrative capacity; administrative resilience.

JEL Classification: H83; D73; J24; O15.

1. INTRODUCTION

Institutional integrity in public administration extends beyond corruption prevention and legal compliance to include professional values, impartiality, responsibility and the organisational processes that sustain them (Huberts, 2018; Anechiarico & Segal, 2020). The OECD (2020) similarly approaches public integrity as a system supported by institutional responsibilities, leadership, organisational culture, staff development and merit-based management. Integrity

therefore concerns not only the formal existence of rules and mechanisms, but also the conditions under which they function in practice.

This distinction is central to the present study. Demmke *et al.* (2023) separate the expansion of integrity policies from their implementation, while Demmke (2025) notes that evidence on effectiveness remains more limited than evidence on formal presence. At local level, implementation may also depend on resources, staff competences, training and internal processes (Transparency International Nederland, 2021). The formal presence of integrity mechanisms should therefore not be treated as equivalent to their effective organisational functioning.

Human resource management is directly relevant to this transition because integrity standards are also embedded in personnel practices such as training, performance evaluation, promotion and professional development (Boselie *et al.*, 2021; Codreanu, 2019). In Romanian public administration, these relationships are linked to broader questions of professionalisation and administrative capacity (Profiroiu & Negoită, 2022), while the role of the ethics adviser illustrates the importance of translating formal responsibilities into institutional practice (Cazan & Simion, 2023). Similar legal and organisational obligations may thus operate under different staffing and resource conditions.

Against this background, the study examines the formal institutionalisation and effective implementation of integrity mechanisms, their integration into HRM and development practices, and perceived administrative capacity constraints in Romanian local public administration. Using data from 973 unique TAUs across 41 counties, it analyses how these dimensions are associated with perceived institutional integrity. The study contributes by separating formal institutionalisation from actual functioning and by examining both within the same empirical framework alongside HR practices and implementation capacity. Administrative resilience is used as a theoretical lens for interpreting these relationships in terms of organisational capacity, rather than as an empirical outcome measured directly. Given the quantitative, observational and cross-sectional design, the results are interpreted as statistical associations rather than causal effects.

2. THEORETICAL FRAMEWORK

2.1. Institutional integrity

Integrity in public administration extends beyond corruption prevention and compliance with legal norms to include professional values, impartiality, responsibility and the organizational dimension of public conduct. Huberts (2018) defines integrity in relation to the moral values, norms and rules relevant to the exercise of public functions, distinguishing it from both corruption and legal compliance. Corruption is therefore one form of integrity violation, alongside conflicts of interest, favouritism, misuse of authority and breaches of professional impartiality.

The OECD broadens this perspective from individual conduct to institutional functioning. Public integrity involves adherence to values, principles and ethical

norms oriented towards the public interest, supported by institutional responsibilities, leadership, organizational culture, competence development and accountability (OECD, 2017; OECD, 2020). Within this framework, compliance-based approaches, centred on rules and control, and values-based approaches, centred on professional responsibility, leadership and organizational culture, are better understood as complementary rather than competing dimensions of integrity management.

A broad system of rules, however, does not necessarily translate into effective implementation. Demmke *et al.* (2023) capture this distinction through policy coverage density: covering a wider range of risks through rules and policies reflects the formal expansion of an integrity system, but does not in itself demonstrate implementation or effectiveness. At the organizational level, Bhagat & Jha (2024) approach the integrity climate through organizational mechanisms, managerial behaviour and members' perceptions, while Anechiarico & Segal (2020) examine Ethics Management Strategies as ways of sustaining ethical standards within organizations. These perspectives shift attention from the presence of formal arrangements to how they operate in organizational practice.

This distinction guides the empirical approach adopted in the present study. Designated structures, procedures and responsibilities are treated as indicators of formal institutionalization, while their actual functioning is examined separately. This allows the analysis to distinguish between the existence of integrity mechanisms and their implementation in Romanian local public administration.

2.2. Human resource development

Human resource management and development contribute to the capacity of public organizations to perform their functions and adapt to organizational change. In the public sector, HRM extends beyond the administration of employment relationships to recruitment, training, performance evaluation, promotion and career development. Boselie *et al.* (2021) argue that HR practices need to be understood in relation to the specific characteristics and objectives of public organizations. In Romanian public administration, research on integrated HRM activities and strategic workforce planning points in the same direction (Ciobanu & Androniceanu, 2018; Bercu & Buliga, 2019).

Human resource development is broader than participation in formal training. It also concerns how skills, performance and professional development are managed in relation to organizational needs. Dachner *et al.* (2021) place employee development within a wider framework of formal and informal learning opportunities and adaptation to organizational change. Applied to public administration, this perspective connects the development of staff competences with their use in institutional practice.

Integrity becomes relevant to HRM when values and standards of conduct enter personnel processes. Ethics and integrity training, the assessment of

professional conduct, promotion and professional development planning are practical points of intersection. The OECD (2020) places merit-based management, competence development and standards of conduct within the public integrity system, while the OECD (2023) emphasizes skills development and an adaptable public service in a changing administrative environment. Their presence, however, should not be taken as evidence of higher institutional integrity without examining how these practices actually operate.

Accordingly, the empirical analysis considers ethics and integrity training, the inclusion of integrity in professional development planning, performance evaluation and promotion as separate HR practices. They are examined individually rather than combined into a composite index, allowing their relationships with perceived institutional integrity to be assessed without assuming that they operate in the same way.

2.3. Administrative resilience

Administrative resilience refers to the ability of public institutions to maintain their functions and adapt under conditions of disruption, uncertainty and change. Rather than simply returning to a previous state after a crisis, resilience also involves organizational adaptation and learning (Duit, 2016). In public administration, this perspective is relevant beyond exceptional events, as legislative and technological change, resource constraints and shifting institutional responsibilities can place continuing pressure on organizations.

Resilience therefore depends, among other factors, on the ability to adapt internal practices and mobilize available resources while maintaining administrative functions. Boin & Lodge (2016) relate resilience to institutional design and to the capacities required to manage pressures and disruptions. From this perspective, human resources and administrative capacity matter because translating formal responsibilities into practice requires staff, competences, procedures and organizational resources.

The connection between integrity and resilience is less direct and requires a cautious interpretation. Integrity mechanisms may contribute to predictable processes, clear responsibilities and the maintenance of standards of conduct under pressure, but their formal existence alone does not make an organization resilient. What matters for the present study is whether formal mechanisms operate in practice and whether organizations have the human and administrative resources needed to sustain them.

Administrative resilience is therefore used here as a theoretical lens rather than a distinct empirical outcome. It provides a way to interpret the relationships between functioning integrity mechanisms, human resource practices and administrative capacity constraints in terms of organizational capacity. The study does not measure resilience directly, nor does its cross-sectional design allow the identified associations to be interpreted as effects on resilience.

2.4. Integrating integrity, HR capacity and resilience

Institutional integrity, human resource management and administrative capacity can be brought together through the distinction between the formal institutionalisation of integrity mechanisms and their actual functioning. Rules, structures and procedures provide the formal framework, but implementation also relies on managerial processes, staff competences and organizational resources. This reflects the distinction identified by Demmke *et al.* (2023) between the expansion of integrity policies and their implementation.

HRM connects this formal framework with organizational practice through staff development and conduct. Training, performance evaluation, promotion and professional development planning can embed integrity standards in personnel practices (Codreanu, 2019; OECD, 2020). Their implementation, however, also depends on the resources available to the organization. Staff and resource constraints may limit the functioning of formally established mechanisms, which is why administrative capacity cannot be inferred simply from institutional size or staff numbers.

The framework used in this study does not assume that integrity and human resource development directly produce administrative resilience. Instead, it separates formal institutionalisation, effective implementation, HRM and development practices, and perceived capacity constraints, and examines their associations with perceived institutional integrity. Administrative resilience provides a theoretical lens for interpreting the capacity to sustain functional mechanisms and mobilize resources under pressure and change (Duit, 2016; Boin & Lodge, 2016), rather than an empirical outcome measured by the study.

3. INSTITUTIONAL AND POLICY CONTEXT IN ROMANIA

3.1. The legal and strategic framework for public integrity

Romania's public integrity framework combines rules on the conduct of public officials, conflicts of interest and incompatibilities, declarations of assets and interests, whistleblower protection and corruption prevention. A central legal reference for public administration is Government Emergency Ordinance no. 57/2019 on the Administrative Code, which regulates the status of civil servants and covers professional conduct, ethics counselling, performance evaluation, promotion and training. Government Decision no. 931/2021 further regulates the designation and responsibilities of ethics advisers, as well as the organization, evaluation and reporting of their activity. Together, these provisions establish the legal basis for one of the integrity mechanisms examined in this study.

Other legislation addresses specific components of the integrity framework. Law no. 176/2010, as subsequently amended and supplemented, regulates integrity in the exercise of public functions and dignities, including declarations of assets and interests and the related evaluation mechanisms of the National Integrity Agency. Law no. 361/2022 on the protection of whistleblowers in the

public interest regulates the reporting of legal violations and requires public authorities and institutions to establish internal reporting channels and related procedures. These instruments complement the broader framework through which integrity risks are addressed within public institutions.

The strategic framework relevant to the period preceding the survey was provided by the National Anticorruption Strategy 2021-2025, approved by Government Decision no. 1269/2021. For central and local public authorities and institutions, the strategy included organizational integrity measures, integrity plans and the designation of coordinators responsible for their implementation. Since its formal implementation period ended in 2025, the strategy is used here as a reference for mechanisms established before the 2026 survey rather than as an ongoing strategic framework.

Taken together, these legal and strategic instruments show that integrity mechanisms are extensively formalized in Romanian public administration. Their legal existence, however, is analytically distinct from their organizational functioning. This distinction connects the Romanian institutional context with the theoretical framework and informs the selection of mechanisms examined empirically.

3.2. Organizational integrity mechanisms in local public administration

At the local level, implementing the integrity framework requires legal obligations to be translated into organizational responsibilities, procedures and practices. The study focuses on three such mechanisms: the designation and functioning of the ethics adviser, the coordinator responsible for implementing the integrity plan under the National Anticorruption Strategy (NAS) 2021-2025, and the existence and application of internal ethics and integrity procedures.

The ethics adviser has a primarily preventive role, including counselling civil servants, monitoring compliance with principles and rules of conduct, and fulfilling related reporting responsibilities. Government Decision no. 931/2021 regulates the designation, responsibilities and organization of this activity. Institutional monitoring also continues through the National Agency of Civil Servants (ANFP), which collected data on compliance with conduct rules for 2025 and published its report in 2026 (ANFP, 2026). For the purposes of this study, the designation of an ethics adviser and the actual functioning of this mechanism are treated separately.

A second mechanism derives from the implementation of the NAS 2021-2025. Government Decision no. 1269/2021 provided for the designation of a coordinator responsible for implementing the integrity plan, supported by contact persons at executive level. In the analysis, the presence of this coordinator is treated as an indicator of formal institutionalization rather than evidence that the mechanism functions effectively.

Internal procedures complete this organizational framework in areas such as conflicts of interest, incompatibilities, ethics counselling and whistleblowing. Their existence and actual application are also measured separately. Taken

together, these measures allow the analysis to compare the formal presence of integrity mechanisms with their functioning in local administrative practice.

3.3. Integrity within human resource management

The Romanian civil service framework connects integrity with several areas of human resource management. Government Emergency Ordinance no. 57/2019 on the Administrative Code regulates professional conduct alongside training and professional development, performance evaluation and career development. Integrity can therefore be examined not only through dedicated ethics mechanisms, but also through its integration into personnel management and development practices.

Research on HRM in Romanian public administration provides further context for this connection. Ciobanu & Androniceanu (2018) examine the integration of human resource activities in relation to organizational performance, while Bercu & Buliga (2019) focus on strategic workforce planning and competence development. From the broader perspective of administrative reform, Profiroiu & Negoită (2022) discuss professionalization, integrity and administrative capacity as interconnected dimensions of public administration reform.

At organizational level, these connections can be observed through ethics and integrity training and its inclusion in professional development planning, as well as through integrity-related criteria in performance evaluation and promotion. The existence of a regulatory framework does not, however, ensure that these practices are applied uniformly across local administrations. The study therefore examines them separately to assess how integrity is reflected in HRM practices among the participating local authorities.

3.4. Implementation capacity and the local administrative setting

The implementation of integrity mechanisms also depends on the organizational capacity of local administrations. Local authorities differ in the size of their administrative apparatus, staff structure and specialization, and available resources. Common legal obligations therefore operate under different implementation conditions. These differences are part of the broader context of Romanian public administration reform, where human resource professionalization, integrity and administrative capacity are closely connected (Profiroiu & Negoită, 2022). Recent institutional reporting on civil service management also reflects continuing attention to human resource development and administrative capacity (ANFP, 2026).

Staff and resource constraints may shape the conditions under which ethics counselling, internal procedures, reporting, training and monitoring are carried out. Administrative capacity, however, is not measured comprehensively in this study, nor is it equated with institutional size or staff numbers. The analysis captures a narrower dimension through respondents' perceptions of whether

insufficient staff or administrative resources constrain the implementation of integrity measures.

The local administrative setting therefore provides the context for examining whether formally established integrity mechanisms also function in practice under different capacity conditions. The following empirical analysis separates formal institutionalization, effective implementation, HRM and development practices, and perceived capacity constraints.

4. METHODOLOGY

4.1. Research design and research questions

The study uses a quantitative, observational and cross-sectional design, with the administrative-territorial unit (TAU) as the unit of analysis. Data were collected through an electronic questionnaire designed to examine integrity mechanisms in Romanian local public administration, their integration into human resource management and development practices, and perceived administrative capacity constraints.

The research design distinguishes between formal institutionalization, reflected in the presence of integrity mechanisms and procedures, and effective implementation, reflected in the functioning of the ethics adviser and the application of internal procedures. HRM and development are examined through integrity-related training, performance evaluation, promotion and professional development planning, while perceived staff and administrative resource constraints are treated separately as a dimension of implementation capacity.

For the relational analysis, perceived institutional integrity is the dependent variable, measured on a five-point ordinal scale from 1 (very low) to 5 (very high). The independent variables cover effective implementation, HRM and development practices, and perceived capacity constraints. Institutional size is introduced separately as a control variable in the robustness analysis.

The study addresses three research questions:

RQ1: To what extent are institutional integrity mechanisms formally established and effectively applied in Romanian local public administration?

RQ2: How is integrity integrated into human resource management and development practices in local public administration?

RQ3: How are the effective implementation of integrity mechanisms, human resource practices and administrative capacity constraints associated with perceived institutional integrity in Romanian local public administration?

RQ1 and RQ2 guide the descriptive analysis, while RQ3 provides the basis for the bivariate and multivariate analyses. Administrative resilience is not measured as a separate outcome and is used only as a theoretical lens for interpreting the findings in relation to organizational capacity, functioning integrity mechanisms and resource constraints.

4.2. Sample and data cleaning

Data were collected through an electronic questionnaire administered via Google Forms between 27 April and 17 June 2026 and distributed through institutional and professional channels in local public administration. Participation was voluntary, and respondents were representatives of the participating institutions, mainly involved in human resources, integrity, administrative management or leadership activities. The initial dataset contained 1,002 responses.

Because the TAU is the unit of analysis, duplicate records were identified using the county-TAU combination. Twenty-eight TAUs had multiple responses, resulting in 29 excess observations. These were removed by retaining the most complete response or, in case of equal completeness, the most recent one. The final analytical sample comprises 973 unique TAUs from 41 counties, excluding Bucharest. Coverage varies across counties, from one TAU in Dolj to 62 in Dâmbovița. Given the voluntary and non-probabilistic participation, the sample is not statistically representative at national level, despite its broad territorial coverage.

Data quality checks identified 45 TAUs with inconsistencies between staff structure variables and the reported numbers of approved and occupied posts. These values were neither modified nor imputed. The affected observations were excluded only from the robustness analysis involving institutional size, leaving a subsample of 928 TAUs. The categorical variables included in the main multivariate model contain no missing values, while non-responses to other items were handled at the level of the respective variables. Descriptive and bivariate analyses and the main multivariate model therefore use $N = 973$, while the robustness analysis uses $N = 928$.

4.3. Variables and measurement

Variables were selected in line with the research questions and grouped into four analytical dimensions: formal institutionalization, effective implementation of integrity mechanisms, human resource management and development, and administrative capacity constraints. Perceived institutional integrity is the dependent variable in the relational analysis.

Formal institutionalization is captured by the designation of an ethics adviser and an NAS 2021-2025 coordinator and by the existence of internal ethics and integrity procedures. Effective implementation is measured separately through the functioning of the ethics adviser and the application of internal procedures. HRM and development practices cover ethics and integrity training, its inclusion in annual professional development planning, integrity-related criteria in performance evaluation, and the consideration of integrity in promotion.

Administrative capacity constraints are measured through respondents' perceptions of whether insufficient staff or administrative resources affect the implementation of integrity measures, using three categories: "No", "Partial" and "Yes". This indicator captures a specific dimension of administrative capacity

rather than the concept as a whole. Institutional size is measured by the total number of occupied positions and, after an $\ln(n + 1)$ transformation, is used only as a control variable in the robustness analysis.

Perceived institutional integrity is measured on a five-point ordinal scale ranging from 1 (very low) to 5 (very high). In the inferential analysis, it is treated as an ordinal outcome without assuming equal distances between adjacent categories.

Table 1. Operationalization of the main variables used in the analysis

Size	Variable	Measurement/ Categories	Role in analysis
Formal institutionalization	Designated Ethics Advisor	No / Yes	Descriptive variable
Formal institutionalization	Designated NAS Coordinator	No / Yes	Descriptive variable
Formal institutionalization	Internal ethics and integrity procedures	No / Yes	Descriptive variable
Effective implementation	Effective functioning of the ethics advisor	No / Partial / Yes	Independent variable
Effective implementation	Effective application of procedures	No / Partial / Yes	Independent variable
Administrative capacity	Implementation affected by insufficient staff/resources	No / Partial / Yes	Independent variable
HR Development	Organization of integrity trainings	Not organized / Occasional / Periodic, planned annually	Independent variable
HR Management	Conduct criteria/integrity in performance evaluation	No / Yes	Independent variable
HR Management	Integrity taken into account when promoting	No / Partial / Yes	Independent variable
HR Development	Ethics/integrity included in the annual training plan	No / Yes	Independent variable
Institutional dimension	Total number of positions occupied	$\ln(n + 1)$	Control variable - robustness model
Result	Perceived institutional integrity	Ordinal scale 1-5	Dependent variable

Source: author's elaboration based on the questionnaire and the operationalization of the research variables.

Three-category independent variables were dummy-coded. “No” is the reference category for the functioning of the ethics adviser, application of procedures, administrative capacity constraints and promotion, while “Not organized” is the reference for integrity training. Binary variables also use “No” as the reference category. No composite integrity index was constructed, as the mechanisms and practices are examined separately rather than assumed to represent interchangeable manifestations of a single latent dimension.

Data on ethics counselling, reporting, training programmes and participation, internal training sessions, disciplinary sanctions and confirmed corruption cases are used only descriptively. Sanctions and confirmed corruption cases are not treated as inverse measures of integrity because the absence of reported cases cannot distinguish between the absence of incidents and differences in their detection, reporting or formal confirmation.

4.4. Statistical analysis

The statistical analysis proceeded in four stages: descriptive analysis, bivariate analysis, multivariate modelling and robustness checks. Statistical significance was assessed at $\alpha = 0.05$, while interpretation also considered effect sizes and the stability of associations across model specifications.

Descriptive statistics were used to summarize the main variables. Categorical variables are reported as absolute and relative frequencies, while numerical variables are described using the mean, median, standard deviation and range, as appropriate. For count variables with skewed distributions and a high concentration of zeros, medians and the proportions of zero and positive values were also considered.

Given the ordinal nature of the dependent variable, bivariate associations were examined using nonparametric tests. The Mann-Whitney U test was used for two-category independent variables and the Kruskal-Wallis test for variables with three categories. Significant Kruskal-Wallis results were followed by pairwise Mann-Whitney U comparisons with Holm-adjusted p-values. Effect sizes were assessed using epsilon-squared (ϵ^2) for Kruskal-Wallis tests and Cliff's delta (δ) for two-group comparisons (Cliff, 1993; Holm, 1979).

Multivariate associations were examined using ordinal logistic regression with a logit link, reflecting the ordered five-category structure of perceived institutional integrity (Agresti, 2010). Model A ($N = 973$) was specified under the proportional odds assumption and included the effective functioning of the ethics adviser, effective application of integrity procedures, perceived staff and administrative resource constraints, integrity training, integrity-related criteria in performance evaluation and promotion, and the inclusion of ethics and integrity in the annual training plan. Coefficients were exponentiated as odds ratios (ORs), with $OR > 1$ indicating higher proportional odds of being in a higher outcome

category relative to the reference category, conditional on the other variables in the model. The model can be expressed as:

$$\log \left[\frac{P(Y \leq j)}{P(Y > j)} \right] = \alpha_j - \sum_{k=1}^K \beta_k X_k, \quad j = 1, \dots, 4$$

where Y denotes perceived institutional integrity, α_j the cumulative thresholds, X_k the independent variables and β_k their estimated coefficients.

Model fit was assessed using log-likelihood (LL), Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), the likelihood-ratio (LR) test against the null model and McFadden's pseudo- R^2 (McFadden, 1974). For multi-category independent variables, LR tests comparing the full model with reduced models were also used to assess their overall contribution.

The proportional odds assumption was examined globally and by variable blocks across the four cumulative splits of the dependent variable. Robustness was further assessed using cumulative binary logistic models and an unconstrained multinomial logistic model, comparing the direction and stability of associations across specifications and model fit. Adjusted probabilities were calculated for the main associations to facilitate substantive interpretation beyond ORs.

Model B was estimated on the subsample with internally consistent staffing data ($N = 928$). It retained the independent variables from Model A and added institutional size, measured as $\ln(\text{total occupied positions} + 1)$, as a control variable. This specification was used to assess whether the main associations remained stable after accounting for differences in institutional size.

All inferential results are interpreted as statistical associations. Given the observational and cross-sectional design, the estimated coefficients are not interpreted as causal effects.

4.5. Limitations

Several limitations should be considered when interpreting the findings. Participation was voluntary and non-probabilistic; therefore, despite the inclusion of 973 TAUs from 41 counties, the sample cannot be considered statistically representative at national level. The data are self-reported and were not systematically validated against independent administrative sources, while the dependent variable captures perceived institutional integrity rather than an external measure of integrity. The cross-sectional and observational design further limits the analysis to statistical associations and does not support causal inference.

Administrative capacity is captured only through perceived staff and resource constraints, rather than through a comprehensive measure of the concept. Similarly, administrative resilience is used as a theoretical lens and is not measured directly. In addition, inconsistencies in staffing data required the

robustness analysis controlling for institutional size to be conducted on a subsample of 928 TAUs.

Finally, disciplinary sanctions and confirmed corruption cases are used only descriptively. The absence of reported cases cannot be interpreted as evidence of higher institutional integrity, since it may reflect differences in detection, reporting or formal confirmation. The findings should therefore be understood as associations observed within the analysed sample and within the scope of the measures used.

5. RESULTS

5.1. Institutional profile and formal integrity mechanisms

Among the 973 TAUs included in the analysis, formal integrity mechanisms are widely reported. An ethics adviser was designated in 894 TAUs (91.9%), an NAS 2021-2025 coordinator in 866 (89.0%), and internal ethics and integrity procedures were reported in 904 TAUs (92.9%).

Table 2. Formal institutionalisation of integrity mechanisms

Indicator	Yes, n (%)	No, n (%)
Designated Ethics Advisor	894 (91,9)	79 (8,1)
Designated NAS Coordinator	866 (89,0)	107 (11,0)
Internal ethics and integrity procedures	904 (92,9)	69 (7,1)

Source: author's elaboration based on the data obtained through the questionnaire.

Regarding the content of internal procedures, the most frequently reported areas are ethics counselling (829 TAUs) and conflicts of interest (828), followed by incompatibilities (788) and whistleblowing (673). Multiple responses were allowed for this item, and 73 TAUs did not provide an answer; these non-responses were treated separately for this variable.

Overall, each of the three mechanisms is reported as formally established in approximately nine out of ten participating administrations. These findings refer to their reported formal presence rather than their actual functioning, which is examined separately in the following section.

5.2. From formal institutionalization to effective implementation

The widespread formal institutionalisation of integrity mechanisms is not matched to the same extent by their reported functioning in practice. The difference is particularly visible for the ethics adviser: while 91.9% of TAUs report having designated one, only 47.4% report that the mechanism functions effectively, 41.2% indicate partial functioning, and 11.4% report that it does not function effectively.

The difference is smaller for internal ethics and integrity procedures. While 92.9% of TAUs report their formal existence, 65.1% indicate that they are effectively applied, 30.5% report partial application, and 4.4% report that they are not effectively applied.

Table 3. Effective implementation of integrity mechanisms

Indicator	No, n (%)	Partial, n (%)	Yes, n (%)
Effective functioning of the ethics advisor	111 (11,4)	401 (41,2)	461 (47,4)
Effective application of internal procedures	43 (4,4)	297 (30,5)	633 (65,1)

Source: author's elaboration based on the data obtained through the questionnaire.

Other implementation-related indicators show a similarly differentiated pattern. Information or training activities on ethics and integrity during the previous 12 months were reported by 56.5% of TAUs. Regarding the ethics adviser's reporting activity, 65.9% reported annual reporting, 20.6% occasional reporting, and 13.6% no reporting.

Overall, the findings for RQ1 show that formal institutionalisation is widespread, while reported implementation is less uniform. The difference is more pronounced for the functioning of the ethics adviser than for the application of internal procedures. These descriptive results identify the formal-implementation gap but do not establish its causes.

5.3. Human resource practices and administrative capacity

The integration of integrity into human resource management and development practices varies across the dimensions examined. Regarding professional training, 33.5% of TAUs report periodic, annually planned ethics and integrity training, 43.1% report occasional training, and 23.4% report no such activities. Ethics and integrity are explicitly included in the annual training plan in 51.7% of the participating administrations.

Integration is more frequently reported in performance evaluation and professional promotion. Conduct and integrity criteria are included in performance evaluation in 75.1% of TAUs. Regarding promotion, 75.7% report that integrity is taken into account, 14.3% indicate partial consideration, and 10.0% report that it is not considered.

Table 4. Integrating integrity into human resource management and development practices

Indicator	Distribution of responses, n (%)
Organizing ethics and integrity trainings	No: 228 (23.4); Occasional: 419 (43.1); Periodic: 326 (33.5)
Integrity included in the annual training plan	No: 470 (48.3); Yes: 503 (51.7)
Conduct criteria/integrity in performance evaluation	No: 242 (24.9); Yes: 731 (75.1)
Integrity taken into account when promoting	No: 97 (10.0); Partial: 139 (14.3); Yes: 737 (75.7)

Source: author's elaboration based on the data obtained through the questionnaire.

Administrative capacity constraints are also widely reported. Overall, 67.5% of TAUs indicate that insufficient staff or administrative resources at least partially affect the implementation of integrity measures: 39.1% report a partial effect and 28.5% report that implementation is affected, while 32.5% report no such constraints.

The findings for RQ2 therefore show that integrity is integrated unevenly across HRM and development practices, with higher reported levels in performance evaluation and promotion than in regular training and annual training planning. At the same time, more than two-thirds of the participating TAUs report staff or resource constraints that at least partially affect the implementation of integrity measures.

5.4. Associations with perceived institutional integrity

Perceived institutional integrity is concentrated in the upper part of the ordinal scale. Of the 973 TAUs analyzed, 38.6% rate institutional integrity at level 5 and 37.7% at level 4, placing 76.4% of responses in the two highest categories. Level 3 accounts for 18.3%, while levels 1 and 2 together account for 5.3%. The median is 4.

Bivariate analyses show statistically significant differences in perceived institutional integrity across all independent variables examined. The largest difference is associated with the effective application of internal procedures ($H = 126.25$; $p < 0.001$; $\varepsilon^2 = 0.128$). Smaller differences are observed for integrity training ($H = 55.16$; $p < 0.001$; $\varepsilon^2 = 0.055$), staff and resource constraints ($H = 49.72$; $p < 0.001$; $\varepsilon^2 = 0.049$), the effective functioning of the ethics adviser ($H = 49.29$; $p < 0.001$; $\varepsilon^2 = 0.049$), and the consideration of integrity in promotion ($H = 44.15$; $p < 0.001$; $\varepsilon^2 = 0.043$). Significant differences are also found for the inclusion of integrity in the annual training plan ($p < 0.001$; $\delta = 0.169$) and the use of conduct and integrity criteria in performance evaluation ($p = 0.002$; $\delta = 0.124$).

The main ordinal logistic model (Model A; $N = 973$) is statistically significant relative to the null model ($LR \chi^2 (12) = 183.37$; $p < 0.001$), with $AIC = 2249.20$, $BIC = 2327.29$ and McFadden's pseudo- $R^2 = 0.076$. After adjustment for the other independent variables, the effective application of procedures shows a strong positive association with perceived institutional integrity. TAUs reporting effective application have 3.67 times the proportional odds of being in a higher category of perceived institutional integrity compared with the reference category “No” ($OR = 3.667$; 95% CI: 1.832-7.341; $p < 0.001$). The consideration of integrity in promotion is also positively associated with the outcome ($OR = 2.005$; 95% CI: 1.267-3.173; $p = 0.003$).

Staff and administrative resource constraints show an inverse association. Compared with TAUs reporting no such constraints, both “Partial” ($OR = 0.662$; 95% CI: 0.493-0.890; $p = 0.006$) and “Yes” ($OR = 0.669$; 95% CI: 0.474-0.945; $p = 0.022$) are associated with lower proportional odds of being in a higher

category of perceived institutional integrity. Integrity training is significant as a categorical variable overall ($p = 0.009$), although the coefficient for periodic training does not individually reach the conventional significance threshold ($OR = 1.436$; $p = 0.057$). The effective functioning of the ethics adviser, integrity criteria in performance evaluation, and the inclusion of integrity in the annual training plan do not show statistically significant independent associations after multivariate adjustment.

Table 5. Ordinal logistic regression of perceived institutional integrity - Model A

Independent variable	OR	p
Ethics Advisor - Partial vs. No	1,141	0,556
Ethics Advisor - Yes vs. No	1,266	0,314
Procedures Applied - Partial vs. No	1,232	0,554
Procedures applied - Yes vs. No	3,667	< 0.001
Constraints - Partial vs. No	0,662	0,006
Constraints - Yes vs. No	0,669	0,022
Trainings - Occasional vs. No	0,916	0,602
Trainings - Periodic vs. No	1,436	0,057
Evaluation Integrity Criteria - Yes vs. No	0,939	0,699
Promotion - Partial vs. No	1,173	0,541
Promotion - Yes vs. No	2,005	0,003
Integrity in the annual training plan - Yes vs. No	1,159	0,258

Note: Model A, N = 973. The reference category is "No", except for integrity training, for which the reference category is "Not organized". OR = odds ratio. Bold values indicate $p < 0.05$.

Source: author's elaboration based on the data obtained through the questionnaire.

Based on Model A, the adjusted probability of being in categories 4-5 of perceived institutional integrity is 59.2% for TAUs reporting no effective application of procedures and 83.5% for those reporting effective application. For the consideration of integrity in promotion, the corresponding probabilities are 66.1% and 78.4%. For staff and resource constraints, the estimated probability of being in categories 4-5 decreases from 80.2% when no constraints are reported to 73.9% when constraints are reported.

The diagnostic assessment rejects the strict proportional odds assumption globally ($\chi^2(36) = 69.11$; $p < 0.001$). However, tests conducted separately by variable blocks do not show statistically significant deviations at $\alpha = 0.05$ ($p = 0.097$ - 0.788). Additional cumulative binary logistic models and the unconstrained multinomial logistic model generally preserve the direction of the main associations. The ordinal specification also has lower information criteria ($AIC = 2249.20$; $BIC = 2327.29$) than the multinomial model ($AIC = 2265.23$; $BIC = 2519.01$). The ordinal model is therefore retained as the main specification, with ORs interpreted conservatively as common proportional estimates.

The robustness analysis (Model B; N = 928) shows that the main associations remain broadly stable after institutional size is introduced as a control variable. Effective application of procedures remains positively associated with perceived institutional integrity (OR = 3.226; $p = 0.001$), while staff and administrative resource constraints remain negatively associated for both “Partial” (OR = 0.675; $p = 0.011$) and “Yes” (OR = 0.691; $p = 0.042$). The consideration of integrity in promotion also remains positively associated (OR = 1.916; $p = 0.007$). Periodic training retains a positive direction but does not reach the conventional significance threshold (OR = 1.426; $p = 0.066$), while institutional size shows no statistically significant independent association (OR = 1.102; $p = 0.268$).

Overall, the findings for RQ3 identify the effective application of integrity procedures, the consideration of integrity in professional promotion, and staff and administrative resource constraints as the most stable multivariate associations with perceived institutional integrity. Integrity training contributes significantly as a categorical variable overall, although the individual estimate for periodic training does not reach the conventional significance threshold. The main associations remain broadly stable after controlling for institutional size. Consistent with the observational and cross-sectional design, these findings are interpreted as statistical associations rather than causal effects.

6. DISCUSSION

6.1. Formal institutionalization versus effective implementation

The findings reveal a clear difference between the formal institutionalisation of integrity mechanisms and their reported functioning in practice. While the ethics adviser, the NAS coordinator and internal procedures are formally reported in around nine out of ten TAUs, effective functioning is less consistent, particularly for the ethics adviser. This pattern supports the analytical distinction between the formal presence of integrity mechanisms and their organisational implementation.

The finding is consistent with research distinguishing the expansion of integrity policies from their implementation and effectiveness (Demmke *et al.*, 2023; Demmke, 2025). For the ethics adviser, whose role in Romanian public administration has also been examined by Cazan & Simion (2023), formal designation alone provides limited information about how the mechanism operates in institutional practice. The difference is smaller for internal procedures, whose effective application also shows a positive and stable association with perceived institutional integrity in the multivariate analysis.

For RQ1, the results therefore suggest that the main issue within the analysed sample is not the formal absence of integrity mechanisms, but the uneven extent to which they function in organisational practice. This interpretation is consistent with systemic approaches that place rules and procedures alongside institutional responsibilities, competences, management and organisational processes

(Anechiarico & Segal, 2020; OECD, 2020). The study cannot establish why these differences occur, but the findings support treating effective implementation as analytically distinct from formal institutionalisation.

6.2. Human resource management as an integrity infrastructure

The findings show that integrity is unevenly integrated into human resource management and development practices, with higher reported levels in performance evaluation and promotion than in regular training and annual training planning. This pattern is consistent with the view that HRM can translate organisational values and objectives into personnel practices (Boselie *et al.*, 2021). In the field of public integrity, the OECD (2020) similarly connects merit-based management, competence development, evaluation and promotion with the broader integrity system. These relationships are also relevant to research on integrated HRM and strategic workforce planning in Romanian public administration (Ciobanu & Androniceanu, 2018; Bercu & Buliga, 2019).

The multivariate results, however, show that these practices are not associated with perceived institutional integrity in the same way. The consideration of integrity in promotion has a positive and stable association, including after controlling for institutional size. By contrast, integrity criteria in performance evaluation and the inclusion of integrity in the annual training plan do not retain statistically significant independent associations after adjustment for the other variables. Integrity training is significant as a categorical variable overall, although the individual estimate for periodic training does not reach the conventional significance threshold. These differences support examining HRM practices separately rather than assuming that their formal presence or reported use is similarly associated with perceived institutional integrity.

Taken together, the findings for RQ2 and RQ3 support the relevance of HRM as an organisational dimension of integrity, while also showing that personnel practices should not be treated as equivalent mechanisms. The stable association observed for promotion draws attention to the integration of integrity standards into decisions affecting professional development, whereas the results for training and performance evaluation are less consistent after multivariate adjustment. These associations should not be interpreted causally given the cross-sectional and observational design.

6.3. Administrative capacity and resource constraints

Around two-thirds of the analysed TAUs report that insufficient staff or administrative resources at least partially affect the implementation of integrity measures. These constraints also show a negative and stable association with perceived institutional integrity in the multivariate analysis, including after institutional size is introduced as a control variable.

This finding draws attention to the organisational conditions under which integrity mechanisms are implemented. In the Romanian public administration, Profiroiu & Negoită (2022) discuss administrative capacity, human resource professionalisation and integrity as interconnected dimensions of reform. Staff and resource constraints may affect the conditions under which ethics counselling, monitoring, training and internal procedures are carried out. Institutional size, however, does not show a statistically significant independent association in the robustness model. This suggests that perceived implementation constraints cannot be reduced simply to the size of the administrative apparatus.

Administrative capacity also concerns the ability to mobilise available staff, competences and resources in carrying out institutional responsibilities, a perspective consistent with the OECD (2020) approach to the functioning of public integrity systems. The findings therefore support considering organisational conditions when examining the difference between formal institutionalisation and effective implementation. The negative association observed for staff and resource constraints points to the relevance of this dimension, without establishing that these constraints determine perceived institutional integrity.

6.4. Implications for administrative resilience

The findings can also be interpreted through the lens of administrative resilience, although resilience itself was not directly measured. The distinction between formal institutionalisation and effective implementation, together with HRM practices and capacity constraints, provides insight into the organisational conditions under which integrity mechanisms operate. This interpretation is consistent with Duit's (2016) emphasis on adaptation and learning in public administration and with Boin & Lodge's (2016) focus on institutional design and capacities.

From this perspective, the formal existence of integrity mechanisms represents only one part of the organisational infrastructure; their functioning also depends on the capacity to sustain them in practice. The findings are consistent with this interpretation: the effective application of procedures and the consideration of integrity in professional promotion show positive and stable associations with perceived institutional integrity, while staff and resource constraints show a negative association. Taken together, these relationships draw attention to organisational processes, human resource practices and available resources as conditions relevant to the functioning of integrity mechanisms.

The broader implication is that institutional integrity in local public administration should not be examined solely through the formal institutionalisation of mechanisms, but also through the organisational conditions under which they are implemented. Administrative resilience offers a theoretical lens for interpreting this relationship between integrity mechanisms and the capacity to sustain organisational functioning under pressure and change. Since resilience was not directly measured and the study is cross-sectional, the findings

should not be interpreted as evidence that the identified factors produce or strengthen administrative resilience.

7. CONCLUSIONS

This study examined the formal institutionalisation and implementation of integrity mechanisms, their integration into human resource management and development practices, and administrative capacity constraints across 973 Romanian local administrative-territorial units. The findings show that integrity mechanisms are widely institutionalised, but their reported functioning is less consistent. Formal rules, procedures and responsibilities should therefore not be treated as equivalent to their functioning in organisational practice.

Three findings stand out. First, the difference between formal institutionalisation and effective implementation is more pronounced for the ethics adviser than for internal procedures. Second, integrity is unevenly integrated across HRM practices, with its consideration in professional promotion showing a positive and stable association with perceived institutional integrity. Third, staff and administrative resource constraints show a negative association that remains after controlling for institutional size. Alongside these relationships, the effective application of internal procedures shows the strongest positive association with perceived institutional integrity in the multivariate analysis.

The study contributes by examining formal institutionalisation, effective implementation, HRM and development practices, and capacity constraints within the same empirical framework. Separating these dimensions moves the analysis beyond the formal presence of integrity mechanisms and towards the organisational conditions under which they function. In this respect, the findings draw attention to human resource practices and implementation capacity as relevant dimensions in the analysis of institutional integrity.

Administrative resilience provides a theoretical lens for interpreting these findings rather than an outcome measured directly by the study. The results draw attention to the capacity of public organisations to sustain institutional mechanisms in practice through organisational processes, human resources and available administrative capacity. They should not, however, be interpreted as evidence that the identified factors produce or strengthen administrative resilience.

These conclusions remain subject to the limitations of an observational and cross-sectional design based on self-reported data and a non-probabilistic sample that cannot be considered statistically representative at national level. Future research could combine longitudinal designs with external indicators of integrity and broader measures of administrative capacity and resilience, while also comparing different categories of local government. Such approaches could provide a more detailed understanding of the conditions under which formally established integrity mechanisms become sustained organisational practices.

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TODAY'S JUDGE IN TOMORROW'S DEMOCRACY: CHALLENGES TO JUDICIAL INDEPENDENCE IN THE CONTEXT OF JUSTICE REFORM IN THE REPUBLIC OF MOLDOVA

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Abstract

This article examines the tension between judicial independence and accountability mechanisms in the context of justice reform in the Republic of Moldova. Starting from the judge's essential role in safeguarding the rule of law, the study analyses how institutional restructuring, external evaluation, disciplinary liability, public scrutiny and material guarantees may either strengthen or weaken effective judicial independence. Particular attention is paid to pre-vetting and vetting procedures, the reform of the Supreme Court of Justice and the reconfiguration of judicial self-government bodies. Using doctrinal, comparative and document-based methods, the article assesses national legislation against United Nations, Council of Europe and European Court of Human Rights standards, while drawing lessons from the Albanian vetting experience. The central argument is that justice reform cannot be reduced to control, verification or sanctioning. Its democratic legitimacy depends on a sustainable balance between integrity, professional competence, accountability, institutional stability and protection against improper influence. External evaluation may be justified in exceptional circumstances, but it must remain predictable, proportionate, evidence-based and subject to effective review. The article concludes that tomorrow's democracy depends not only on the quality of legal rules and institutional design, but also on the ability of today's judge to decide independently, responsibly and in accordance with the values of the rule of law.

Keywords: judicial independence; justice reform; rule of law; democracy; Republic of Moldova; judge.

JEL Classification: K40; K38.

1. INTRODUCTION

Judicial independence is a fundamental condition of the rule of law and of a functioning democracy. Courts can protect rights, control the legality of public action and resolve disputes impartially only when judges are able to decide without direct or indirect pressure. In the Republic of Moldova, this principle has acquired particular urgency during the justice reform guided by the Strategy for Ensuring the Independence and Integrity of the Justice Sector for 2022–2025. The reform was designed to respond to persistent public distrust, perceived integrity

vulnerabilities and the requirements generated by the country's European integration process (Republic of Moldova, 2021; European Commission, 2025).

The legitimate objectives of reform do not eliminate the need to examine its methods. Pre-vetting, vetting, the restructuring of the Supreme Court of Justice and the reconfiguration of judicial self-government bodies affect not only institutions in the abstract, but also the appointment, promotion, evaluation, security of tenure and professional future of individual judges. Consequently, the central research problem concerns the boundary between legitimate accountability and mechanisms that may create institutional uncertainty, professional insecurity or opportunities for improper influence.

This article argues that integrity and independence are complementary rather than competing values. A judiciary that is formally independent but affected by corruption cannot fulfil its constitutional role; equally, a judiciary subjected to unpredictable or politically vulnerable forms of control cannot be genuinely independent. The democratic legitimacy of reform therefore depends on the state's ability to combine integrity, competence and accountability with stability, procedural fairness and effective safeguards against external and internal pressure.

The research uses doctrinal legal analysis, comparative analysis and the examination of policy documents, institutional reports and relevant case law. International and European standards are first identified and then used as criteria for assessing the constitutional and legislative framework of the Republic of Moldova. The article subsequently examines the institutional effects of the reform and compares selected aspects of Moldovan external evaluation with the Albanian experience, particularly as interpreted by the European Court of Human Rights.

The study is organised into four substantive sections. The first explains the meaning and dimensions of judicial independence under international and European standards. The second examines the constitutional, statutory and institutional safeguards applicable in the Republic of Moldova. The third evaluates the main drivers, instruments and results of justice reform, including the external evaluation process and its effects on the Supreme Court of Justice. The fourth discusses recent criticisms and identifies the conditions under which exceptional reform instruments can remain compatible with the rule of law.

2. JUDICIAL INDEPENDENCE UNDER INTERNATIONAL AND EUROPEAN STANDARDS

2.1. Judicial independence as a multidimensional guarantee

Judicial independence must not be understood as a personal privilege granted to judges. It is an institutional guarantee established for persons who seek justice and for society as a whole. Its purpose is to ensure that disputes are determined honestly, impartially and exclusively on the basis of facts and law. The independence of the judiciary and the independence of the individual judge are therefore related but distinct: the first concerns the position of the judicial branch

within the constitutional system, while the second concerns the judge's ability to decide each case without inappropriate influence.

The United Nations Basic Principles on the Independence of the Judiciary require states to guarantee judicial independence in their constitutions or laws and to respect it in practice. Courts must decide matters impartially, without restrictions, improper influences, inducements, pressures, threats or interference, whether direct or indirect (United Nations, 1985). The Bangalore Principles of Judicial Conduct complement this institutional approach by treating independence as a fundamental ethical value. A judge must both maintain independence in individual decision-making and uphold the institutional conditions that make impartial adjudication possible (United Nations Office on Drugs and Crime, 2002).

These instruments reveal several interconnected dimensions of independence. Decisional independence protects the judicial assessment of law and facts. External independence protects the judiciary from the legislature, the executive, political actors, economic interests and public campaigns designed to determine the outcome of proceedings. Internal independence protects a judge from inappropriate pressure by court presidents, senior judges or judicial administration bodies. Personal and professional independence concerns appointment, security of tenure, promotion, evaluation, remuneration and removal. Ethical independence requires judges to avoid relationships or conduct that create actual dependence or a reasonable appearance of dependence.

The European Charter on the Statute for Judges extends the protection of independence across the entire judicial career. The rules governing recruitment, appointment, promotion, training, disciplinary liability, remuneration and termination of office must be capable of ensuring the competence, independence and impartiality that every person is entitled to expect from the courts (Council of Europe, 1998). The Magna Carta of Judges similarly describes independence as statutory, functional and financial, emphasising that it must be protected in relation to the other state powers, litigants, other judges and society (Consultative Council of European Judges, 2010).

Recommendation CM/Rec(2010)12 confirms that independence concerns both the judicial system and each judge. It requires security of tenure, objective career rules, adequate resources and remuneration, and protection against improper external or internal influence (Council of Europe, 2010). The Consultative Council of European Judges has stressed that these guarantees are not established for the private benefit of judges, but for everyone whose rights depend on a fair and independent tribunal (Consultative Council of European Judges, 2001). This distinction is essential because it separates judicial independence from professional corporatism: protection from pressure does not mean immunity from lawful, proportionate and procedurally fair accountability.

2.2. Fair trial standards and the relationship between independence and accountability

Article 6(1) of the European Convention on Human Rights requires civil rights and obligations and criminal charges to be determined by an independent and impartial tribunal established by law (Council of Europe, 1950). Article 14 of the International Covenant on Civil and Political Rights establishes the same guarantee at universal level (United Nations, 1966). In both instruments, independence is viewed from the perspective of the person appearing before the court. The relevant question is not merely whether judges consider themselves free, but whether the legal framework and institutional circumstances objectively protect adjudication from influence and inspire public confidence.

The requirement that a tribunal be established by law adds an important structural dimension. Judicial composition, appointment procedures, allocation of cases and the jurisdiction of courts must be regulated by accessible and foreseeable rules. Frequent or ad hoc changes affecting the status of judges can therefore raise independence concerns even when no direct instruction concerning a particular case is proven. Institutional instability may itself weaken the appearance and reality of judicial autonomy.

Accountability remains necessary. Judges exercise public authority, must comply with ethical and professional duties and may be held disciplinarily liable for conduct incompatible with judicial office. However, accountability mechanisms must not be used to review the legal correctness of judgments outside ordinary appeal procedures or to punish judges for interpretations adopted in good faith. Disciplinary rules must define misconduct with sufficient clarity, distinguish professional error from culpable conduct and provide independent decision-making, the right to be heard and effective judicial review.

The proper relationship between independence and accountability may therefore be expressed through four requirements. First, the grounds for evaluation or liability must be established by law and foreseeable. Second, the deciding bodies must be sufficiently independent and impartial. Third, the procedure must permit access to relevant evidence, a meaningful opportunity to respond and a reasoned decision. Fourth, the consequences must be proportionate to the established conduct. These requirements are particularly important when a reform introduces extraordinary evaluation mechanisms that can terminate a judicial career.

3. CONSTITUTIONAL AND LEGISLATIVE SAFEGUARDS IN THE REPUBLIC OF MOLDOVA

3.1. The constitutional architecture of judicial independence

The Constitution of the Republic of Moldova places judicial independence within the broader architecture of a democratic state governed by the rule of law. Article 6 establishes the separation and cooperation of the legislative, executive and

judicial powers. Article 114 provides that justice is administered in the name of the law only by the courts, while Article 115 identifies the structure of the judicial system. Most directly, Article 116(1) states that judges are independent, impartial and irremovable in accordance with the law (Republic of Moldova, 1994).

The three constitutional guarantees are mutually reinforcing. Independence protects decision-making from interference. Impartiality requires neutrality towards the parties and the subject matter of the dispute. Irremovability protects judges against arbitrary dismissal, transfer or termination of office. If security of tenure is weak, decisional independence may become illusory because a judge can anticipate professional consequences for an unpopular decision. Conversely, irremovability cannot protect misconduct and must coexist with lawful and fair disciplinary procedures.

The constitutional provision must be interpreted together with the principle that justice is exercised only by courts. Judicial independence is not confined to the text of individual judgments; it is a condition for the legitimate exercise of the state's adjudicative power. The Constitution therefore requires legislation governing the judicial career to create real safeguards, not merely repeat the language of independence. Appointment, promotion, evaluation, disciplinary liability, remuneration and termination must be regulated in a manner consistent with the constitutional function of judges.

3.2. Statutory guarantees and judicial self-government

Law No. 514/1995 on Judicial Organisation provides that the judicial power is independent and separate from the legislative and executive powers and is exercised through the courts (Republic of Moldova, 1995a). Law No. 544/1995 on the Status of Judges regulates appointment, rights and duties, incompatibilities, guarantees, liability and termination of office (Republic of Moldova, 1995b). Together, these laws translate the constitutional principle into institutional and professional rules.

Law No. 947/1996 on the Superior Council of Magistracy is equally important because judicial self-government is one of the principal institutional safeguards of independence (Republic of Moldova, 1996). The Superior Council of Magistracy participates in appointments, promotions, transfers, evaluations and disciplinary matters. Its composition, appointment procedures and decision-making rules directly affect the extent to which judicial careers are protected from political or administrative control. A formally autonomous council cannot function as an effective guarantee if it lacks stable membership, adequate resources or transparent procedures.

Law No. 178/2014 on the Disciplinary Liability of Judges establishes disciplinary offences, the examination of complaints, the role of the Judicial Inspection, proceedings before the Disciplinary Board and applicable sanctions (Republic of Moldova, 2014). Disciplinary liability is indispensable for

maintaining integrity and professional responsibility, but it must remain foreseeable and proportionate. It must not become an indirect avenue for challenging judicial reasoning or exerting pressure over the outcome of cases.

The Code of Ethics and Professional Conduct of Judges adds an ethical dimension. It requires judges to preserve independence, avoid inappropriate relationships and protect public confidence in the judiciary (General Assembly of Judges, 2015). The Code demonstrates that independence also imposes obligations: a judge must resist influence, act with dignity and avoid conduct that creates a reasonable appearance of partiality. Yet ethical standards must be applied consistently and cannot replace precise legal rules where disciplinary sanctions are at stake.

At the formal level, the Republic of Moldova therefore possesses a framework that reflects major international requirements. The decisive issue is implementation. The presence of constitutional provisions and organic laws does not itself establish effective independence. The practical operation of appointment, evaluation, disciplinary, budgetary and self-government mechanisms determines whether the judge is genuinely protected or merely declared independent.

4. JUSTICE REFORM IN THE REPUBLIC OF MOLDOVA: DEMOCRATIC NECESSITY AND INSTITUTIONAL RISK

4.1. Drivers, objectives and institutional redesign

The current reform cycle was organised around the Strategy for Ensuring the Independence and Integrity of the Justice Sector for 2022–2025. Its principal directions were the independence, accountability and integrity of justice-sector actors; access to justice and the quality of judicial services; and the efficient administration of the justice sector (Republic of Moldova, 2021). The reform responded to three interconnected pressures: a crisis of public confidence, perceived corruption and integrity vulnerabilities, and the requirements of European integration.

Public confidence was particularly weak at the beginning of the reform period. The Public Opinion Barometer of November 2022 recorded only 16.4% of respondents with some confidence in justice and 1.3% with a great deal of confidence, while the proportion expressing little or no confidence was substantially higher (Institute for Public Policy, 2022). Such data do not prove that every institution or judge lacked integrity, but they demonstrate a serious legitimacy problem. When judicial decisions are widely perceived as products of influence rather than law, the authority of justice is weakened even where individual decisions are legally sound.

Integrity concerns were also reflected in GRECO assessments addressing ethics, conflicts of interest, asset and interest declarations and the effectiveness of preventive mechanisms applicable to judges, prosecutors and members of Parliament (Group of States against Corruption, 2016). The 2024 compliance

report acknowledged gradual progress while identifying recommendations that remained partly implemented or outstanding (Group of States against Corruption, 2024). These assessments supported the need for reform but also pointed towards sustainable institutional solutions rather than reliance exclusively on exceptional mechanisms.

European integration added a strategic dimension. Moldova applied for European Union membership on 3 March 2022, and justice reform became central to the political criteria and Chapter 23 concerning the judiciary and fundamental rights. The European Commission's 2025 report found that Moldova had made good progress in reforming the justice sector, while noting that appointments to specialised judicial bodies and to the Supreme Court of Justice were still ongoing and that adequate resources remained necessary (European Commission, 2025).

The reform modified the legal and institutional architecture through the renewal of the Superior Council of Magistracy, changes to its specialised bodies, the merger of selection and performance-evaluation functions into a single Board for the Selection and Evaluation of Judges, the adoption of a new Law on the Supreme Court of Justice and the introduction of external integrity evaluation. The relevant legal instruments include Law No. 26/2022 on pre-vetting, Law No. 64/2023 on the Supreme Court of Justice, Law No. 65/2023 on the external evaluation of Supreme Court judges and candidates, and Law No. 252/2023 extending external evaluation to additional categories of judges and prosecutors (Republic of Moldova, 2022; Republic of Moldova, 2023a; Republic of Moldova, 2023b; Republic of Moldova, 2023c).

These changes placed the judge at the centre of reform. Access to office, promotion, performance evaluation, ethical and financial integrity, participation in self-government bodies and continuity in office were reconsidered within a new architecture. This creates an unavoidable tension. The reform seeks to strengthen judicial independence and integrity yet simultaneously multiplies the procedures through which a judge's conduct and career are assessed. Whether that tension is democratically productive depends on the clarity, independence and proportionality of those procedures.

4.2. External evaluation: results and effects on judicial governance

Pre-vetting was designed to assess the ethical and financial integrity of candidates for membership in the self-government bodies of judges and prosecutors. The final report of the Pre-Vetting Commission shows that 69 candidates were evaluated: 26 passed and 43 did not pass. For candidates to the Superior Council of Magistracy, 17 of 49 passed; for candidates to the Superior Council of Prosecutors, 9 of 20 passed (Pre-Vetting Commission, 2026). The process therefore operated as a highly selective filter with direct consequences for the pace at which new self-government bodies could be constituted.

The figures require nuanced interpretation. A low pass rate may indicate that the procedure identified genuine integrity concerns, but it may also produce institutional delays and a limited pool of eligible candidates. Statistical outcomes cannot establish the fairness of individual decisions. Each case must be assessed through the quality of evidence, the opportunity to respond, the reasoning of the commission and the effectiveness of judicial review.

The reform of the Supreme Court of Justice illustrates the difference between normative redesign and operational capacity. According to the Vetting Commission, 22 of the 25 judges in the previous composition resigned rather than undergo external evaluation. Three judges proceeded with evaluation, two failed and one remained from the previous composition. The appointment of vetted candidates then progressed gradually, leaving the Court to function for a period with a significantly reduced complement (Vetting Commission, 2025). This outcome may be understood as a necessary transition, but it also demonstrates that integrity reform can produce immediate risks for workload, continuity and the timely adjudication of cases.

The European Commission similarly observed that appointments to the Supreme Court were still ongoing and that this delayed the full implementation of the new regulatory framework (European Commission, 2025). The central question is therefore not simply whether vetting has removed or confirmed judges, but whether the resulting institutions can perform their constitutional functions. A reform that improves integrity indicators but leaves courts unable to decide cases within a reasonable time may undermine the very rule-of-law objectives it seeks to advance.

The final evaluation of the 2022–2025 Strategy, presented by the Ministry of Justice on 25 May 2026, reported that 71% of planned actions had been completed, 19% were ongoing or partly completed and 9% had not been implemented (Ministry of Justice, 2026). These figures indicate significant legislative and institutional activity. Nevertheless, implementation percentages do not measure judicial independence directly. The quality of reform must also be evaluated through institutional stability, case-processing capacity, consistency of procedures, public confidence and the professional security of judges who comply with legal and ethical standards.

Table 1. Main reform mechanisms and independence-related safeguards

Mechanism	Legitimate objective	Required safeguard
Pre-vetting	Integrity of candidates for judicial self-government	Clear criteria, access to evidence, reasoned decisions and effective review

Mechanism	Legitimate objective	Required safeguard
Vetting	Ethical and financial integrity of judges and candidates	Individualised assessment, reasonable burden of proof and proportional consequences
Supreme Court reform	A credible and professionally strong final court	Continuity of adjudication, sufficient staffing and predictable appointments
Disciplinary liability	Professional accountability and public confidence	Precisely defined offences and protection of judicial decision-making

Source: Author's synthesis based on Republic of Moldova (2014; 2022; 2023a; 2023b; 2023c), OSCE/ODIHR (2022) and Venice Commission (2023).

As summarised in table 1, the legitimacy of each reform instrument depends on safeguards that correspond to its intensity. The more severe the possible consequence, the stronger the requirements of foreseeability, evidence, procedural equality, independent decision-making and proportionality. Dismissal or permanent exclusion from judicial office requires a particularly rigorous assessment because it affects private life, professional reputation and the institutional composition of the judiciary.

4.3. Material guarantees, remuneration and professional stability

Judicial independence also has a material dimension. Judges are subject to strict incompatibilities and may not supplement their income through many activities available to other professionals. Stable and adequate remuneration therefore protects both the dignity of office and resistance to economic pressure. It also supports the recruitment and retention of qualified judges during periods of institutional change.

In Judgment No. 21 of 6 December 2022, the Constitutional Court examined the mechanism used to calculate judicial salaries under the unitary public-sector remuneration system. It observed that the statutory framework left the competent authorities a broad margin of discretion in adjusting the reference value, despite the effect of inflation on purchasing power. The Court also noted inconsistencies between adjustments granted to different categories of public officials and the stagnation of judicial remuneration (Constitutional Court of the Republic of Moldova, 2022).

The significance of this judgment extends beyond salary policy. A system that imposes increasingly demanding integrity obligations, external evaluations and restrictions on judges must provide correspondingly stable institutional and

material guarantees. Otherwise, reform may increase responsibility without strengthening the conditions needed to exercise judicial office independently. Adequate remuneration cannot guarantee integrity by itself, but unpredictable or inadequate remuneration can create vulnerability, demotivation and difficulties in retaining experienced judges.

Professional stability has a similar role. Judges who act lawfully and ethically should be able to foresee the rules affecting their appointment, evaluation and tenure. Constant changes to evaluation criteria or institutional structures may generate a perception that judicial careers depend on shifting political priorities. Legal certainty is thus not only a private interest of judges; it is a condition of institutional independence and public confidence.

4.4. Comparative lessons from Albania and the case law of the European Court of Human Rights

The Moldovan model of external evaluation drew conceptual lessons from Albania, where transitional vetting was introduced in response to systemic corruption and profound public distrust. The comparison must be used carefully because the constitutional design, scale of the process and institutional context differ. Nevertheless, the Albanian experience is relevant because it has generated European Court of Human Rights case law on the permissible limits of extraordinary integrity evaluation.

In *Xhoxhaj v. Albania*, the Court accepted that a comprehensive vetting mechanism may pursue legitimate aims in an exceptional context marked by systemic integrity problems. The assessment of assets, background and professional competence was not considered incompatible with the Convention as such. The Court also accepted that the particular nature of vetting could justify procedural features different from ordinary disciplinary proceedings, provided that the overall system offered sufficient guarantees (European Court of Human Rights, 2021).

This acceptance must not be interpreted as blanket approval of every individual dismissal. In *Sevdari v. Albania*, the Court found a violation of Article 8 because the applicant's dismissal was disproportionate. The financial issues concerned to a significant extent the income of her spouse and periods not demonstrating bad faith, unjustified enrichment or a genuine lack of integrity. The judgment underlined the need to assess the seriousness of irregularities and the consequences of permanent exclusion from the profession (European Court of Human Rights, 2022).

The Court developed the proportionality requirement further in *Metalla v. Albania*. It examined the dismissal of a judge following asset and integrity findings and concluded that the domestic assessment had not sufficiently justified the severe consequences. The judgment stressed the need for strong evidence, a comprehensive analysis and careful treatment of financial matters relating to

associated persons, especially where the judge is expected to explain historical transactions or income outside his direct control (European Court of Human Rights, 2026).

Together, these cases establish a balanced principle. States may introduce extraordinary evaluation where ordinary mechanisms are demonstrably inadequate, and the institutional crisis is serious. However, the process cannot become a mechanical method of exclusion. The burden placed on the judge must remain reasonable; the evidence must be assessed in context; distinctions must be drawn between unexplained wealth, administrative irregularities and conduct demonstrating actual dishonesty; and dismissal must be proportionate to the established facts.

For the Republic of Moldova, the lesson is both supportive and cautionary. The Albanian experience confirms that vetting may be compatible with European standards but also demonstrates that legality of the system does not immunise individual decisions from Convention review. The success of Moldovan reform cannot therefore be measured by the number of judges who resign, fail or pass. It must be measured by the quality, independence and credibility of the judiciary that emerges after the exceptional process.

5. RECENT CRITICISMS AND THE LIMITS OF JUSTICE REFORM

5.1. International assessments of exceptional evaluation mechanisms

International organisations have consistently recognised the right of the Republic of Moldova to adopt strong measures to address integrity problems while warning that exceptional mechanisms must not weaken ordinary constitutional institutions. In its 2022 opinion on Law No. 26/2022, OSCE/ODIHR acknowledged the legitimate reform objective but emphasised that the rules should be clear, objective and foreseeable and should not produce a punitive campaign or a ‘witch hunt’ against the judiciary (OSCE/ODIHR, 2022).

The Venice Commission accepted the exceptional character of external evaluation in principle, while insisting that the Superior Council of Magistracy and the Superior Council of Prosecutors retain their constitutionally appropriate role in decisions affecting judicial and prosecutorial careers. It also emphasised procedural safeguards, clear evaluation criteria, the limited and temporary character of extraordinary mechanisms and the need for effective review (Venice Commission, 2023).

In relation to the reform of the Supreme Court of Justice, the Venice Commission advocated a gradual approach capable of preserving institutional continuity. Reorganisation, reduction of posts and external evaluation may be justified, but they must not cause a breakdown in the operation of the highest court or impair the right to have cases determined within a reasonable time (Venice Commission, 2022). This perspective shifts evaluation from the declared purpose of a reform to its real institutional effects.

GRECO's approach also demonstrates that integrity is not achieved solely through exceptional exclusion. Sustainable prevention requires clear ethical rules, effective management of conflicts of interest, accurate asset declarations, credible disciplinary processes and institutions capable of applying ordinary rules consistently (Group of States against Corruption, 2024). Exceptional vetting may address a legacy problem, but it cannot replace the long-term operation of internal accountability systems.

5.2. Political legitimacy, procedural stability and institutional sustainability

A further concern relates to the appointment and perceived independence of evaluation commissions. Hoppe criticised legislative changes that reduced the voting threshold for appointing certain members of a vetting commission after a candidate supported by the parliamentary majority had failed to obtain the previously required qualified majority. In his view, altering the appointment rule in this manner weakened the appearance of political neutrality and reduced the need for parliamentary consensus (Hoppe, 2026).

The broader principle is that rules should not be changed opportunistically during an ongoing process. An evaluation mechanism may apply strict standards to judges only if its own composition and operation meet high standards of independence, transparency and stability. Otherwise, a process intended to restore confidence may generate a new form of distrust concerning the evaluators themselves.

The Institute for European Policies and Reforms has similarly argued that the current challenge is not limited to removing persons who fail integrity standards, but extends to rebuilding institutions after the reset. Vacant posts must be filled, courts must retain operational capacity, self-government bodies must function effectively and professional confidence within the judiciary must be restored (Institute for European Policies and Reforms, 2026). Reform must therefore be both corrective and constructive.

This distinction is central to the idea of 'today's judge in tomorrow's democracy'. The judge is not merely an object of reform. Judges who meet standards of integrity and competence are indispensable participants in democratic consolidation. Treating the entire judiciary as presumptively compromised may weaken morale and public respect, whereas ignoring genuine integrity failures would preserve impunity. A credible reform must distinguish carefully between these extremes.

The limits of reform can be formulated through five principles. First, extraordinary evaluation must respond to a documented institutional necessity and remain temporary. Second, the criteria and evidentiary standards must be sufficiently precise. Third, evaluators and reviewing bodies must be independent and perceived as such. Fourth, the consequences must be individualised and proportionate. Fifth, the state must plan for continuity, recruitment, resources and the transition to ordinary accountability mechanisms after vetting ends.

When these principles are respected, external evaluation may contribute to restoring integrity and confidence. When they are disregarded, the same mechanism may create insecurity, discourage qualified professionals, generate mass vacancies and increase dependence on political choices. The rule of law requires not only a legitimate objective but also lawful, predictable and proportionate means.

6. CONCLUSIONS

Judicial independence must be understood as an effective guarantee supported by real institutional, professional and material conditions. International and European standards demonstrate that independence includes decisional autonomy, security of tenure, objective career rules, adequate remuneration, ethical responsibility and protection against both external and internal pressure. It exists for the benefit of litigants and society, not as a personal privilege of judges.

The justice reform undertaken in the Republic of Moldova was a necessary response to low public confidence, integrity vulnerabilities and the demands of European integration. Pre-vetting, vetting, the reform of the Supreme Court of Justice and the restructuring of judicial self-government have substantially changed the legal and institutional environment in which judges exercise their functions. The final evaluation of the 2022–2025 Strategy confirms considerable implementation activity, but formal completion rates cannot, by themselves, establish that judicial independence has been strengthened.

External evaluation can be legitimate in exceptional circumstances, yet its compatibility with democratic standards depends on clear criteria, independent evaluators, access to evidence, reasoned decisions, effective review and proportionate consequences. The case law of the European Court of Human Rights concerning Albania shows that the existence of a legitimate vetting system does not automatically validate each dismissal. Individual circumstances, the seriousness of irregularities and the permanent consequences for a judicial career must be examined carefully.

The real value of reform will be measured by the quality and functionality of the judiciary that remains after the exceptional phase. A successful reform must produce judges who are competent, ethical and courageous, but also sufficiently secure and protected to decide unpopular cases according to law. It must restore ordinary institutions rather than keep the judiciary in a permanent state of extraordinary evaluation.

Tomorrow's democracy therefore depends on how the state treats today's judge: neither as an untouchable officeholder nor as a presumed obstacle to reform, but as a constitutionally responsible actor whose integrity must be verified through lawful procedures and whose independence must be protected with equal seriousness. Justice reform is democratically legitimate only when accountability and independence are strengthened together.

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POLICIES FOR IMPROVING DIGITAL GOVERNANCE, SECURITY AND INDEPENDENCE IN GREECE

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Abstract

Despite Greece's important progress in digital governance significant challenges remain in the fields of digital governance, cybersecurity, and digital sovereignty. Institutional adaptation often lags behind technological change, while digital transformation progresses more slowly at peripheral areas. Public administration still suffers from fragmented procedures, incompatible data formats, and limited interoperability. In addition, Greece is currently considered a "beginner" in the EU's open data maturity rankings, as public sector data are not always accessible, machine-readable, or openly licensed. At the same time, the growing influence of multinational Big Tech companies raises concerns regarding state data sovereignty and dependency on external digital infrastructures. Public distrust related to privacy violations, the absence of regulatory and ethical frameworks for Artificial Intelligence, and fears of algorithmic bias further complicate the digital transition. Limited citizen participation in the design of automated decision-making systems, insufficient cybersecurity legislation, weak digital literacy, and the low adoption of open-source technologies also undermine resilience and transparency. The proposed solutions emphasise an integrated institutional, technological, and organisational strategy. Key measures include adopting a "digital by default" legislative approach and implementing the concept of "Law as Code." Stronger European and international cooperation is recommended to regulate digital monopolies and enhance digital independence through investments in infrastructure, software, Artificial Intelligence, and data governance. Further priorities include expanding open-data policies, strengthening interoperability, improving cybersecurity standards and personal data protection, enhancing public sector training, and promoting participatory governance through co-design processes involving citizens, experts, and businesses.

Keywords: digital governance; artificial intelligence; data policy; security; technological sovereignty.

JEL Classification: O33; O38; F52; L17; L86.

1. INTRODUCTION

Greece stands at a pivotal point in its digital transition, the successful outcome of which requires a holistic approach. Despite the progress achieved in recent years, the country continues to face a series of structural issues, such as low levels of government effectiveness, low regulatory quality, and lack of productive investment (KEPE, 2025). These issues undermine the effectiveness of digital governance, jeopardise data security, and severely limit the country's technological independence. Understanding these issues is a prerequisite for any meaningful intervention and the evaluation of relevant policies.

Despite the challenges, the current circumstances offer significant opportunities for digital acceleration and qualitative improvement, most notably through the financial support of the Greek Recovery and Resilience Plan (RRP) (Ladi, Tsarouhas and Copeland, 2025). Specifically, the RRP allocates approximately 23% of its budget towards the digital transition, creating a window of opportunity for systematic investment (European Commission, 2024). Provided that these resources are not utilised in a piecemeal manner (e.g., for purchasing technology), but to achieve specific digitisation milestones within the framework of a National Digital Transformation Plan, this will serve as a powerful incentive for administrative reform.

In the context of these challenges and prospects, this article first presents the current situation and problems associated with the digital governance, digital security and digital sovereignty in Greece (Section 2). Next, several opportunities to be exploited and prospects to reinforce digital governance are discussed (Section 3). Section 4 presents a comprehensive set of policy options, which can potentially foster democratic digital governance, digital security and transparency, and the national digital independence. Section 5 summarises and concludes with some policy recommendations.

2. CURRENT SITUATION AND CHALLENGES

One of the most fundamental problems observed in the digital transformation of public administration is the significant time lag in institutional adaptation relative to rapid technological advancements. A characteristic example is the absence of ethical frameworks for the use of Artificial Intelligence (AI) in the public sector, resulting in an increased risk of inconsistent implementation, lack of transparency and reduced accountability. This lack of transparency is accompanied by inadequate or ex-post risk assessments during the implementation of digital solutions — a fact that leaves critical infrastructure exposed to cyberthreats, undermines digital security, and increases vulnerability, highlighting gaps in prevention and operational readiness. The lack of a relevant security framework and systematic training for specialised personnel, limited resources, and the absence of a related culture within the public sector also contribute to this situation (Demertzis *et al.*, 2025).

At the same time, the use of AI systems based on historical data carries the risk of algorithmic bias, which can reproduce or even intensify social inequalities and exclusions, particularly in sensitive fields such as legal or administrative decisions. Addressing such phenomena becomes even more challenging, as AI regulation cannot be effectively managed at a national level but requires international cooperation (Deligiannis *et al.*, 2025). The cross-border nature of these technologies, largely offered by the foreign providers and global-scale platforms, and the speed of innovation diffusion pose the risk to the country finding itself in a position of technological—and beyond—dependency, limiting its sovereignty over data, critical digital infrastructure, and privacy protection.

The fragmentation of procedures, data formats, and information systems within public administration remains a primary obstacle. Many agencies operate in isolation – within 'silos' – with different and often incompatible technological infrastructures, resulting in limited interoperability and delays. In the data domain, serious deficiencies persist; although data are collected and made available through the National Open Data Portal, most of it remains inaccessible, lacks open licensing, documentation access and communication mechanisms with its administrators. Furthermore, the percentage of data available in machine-readable format is extremely low (European Commission, 2025). Additionally, there are no mechanisms for publishing dynamic data in real-time, nor are there sufficient procedures for monitoring the impact and reuse of data across different agencies.

Bureaucracy is often simply digitalised instead of being simplified before going digital. Furthermore, the lack of interoperability between agencies hinders the easy and secure exchange of information, while the exclusion of citizens from the design of automated decision-making systems leads to a deficit in democratic legitimacy. Ultimately, the digital transformation risks becoming a tool of exclusion if it does not take into account the digital divide caused by low educational and income levels in certain regions, or even by unequal internet access. Rather than mitigating these disparities, technology may exacerbate them, creating new forms of digital social and territorial exclusion.

3. OPPORTUNITIES AND PROSPECTS

Effective digital governance can help to achieve increased citizen participation in decision-making, simplify processes, and modernise services. Moreover, effective digital governance enhances transparency, accountability, meritocracy, democracy, economic growth, and social inclusion. Although the integration of AI in the Greek public sector is still in its early stages, it bears great potential (Mantas, Karapetsas and Malik, 2025), through placing citizens at the core of services delivered, providing faster access to public documents and upgraded connectivity (digital issuance of certificates, licenses, and permits; electronic case processing; debt payments etc.). The country's highly skilled IT workforce can contribute decisively to this direction so as to reverse the brain

drain. The success of open government and administrative oversight initiatives, such as the 'DIAVGEIA' portal, demonstrates the positive impact of open data on decision-making and the strengthening of citizen trust when such measures are strictly adhered to (Kapantai, Mitropoulou and Deligiannis, 2025).

The European Union has placed technological sovereignty and autonomy at the top of its agenda, including policy initiatives such as the EU Strategic Autonomy plan, the European Chips Act and the European Critical Raw Materials Act (European Parliament, 2022; European Union, 2023; European Commission, 2023). Leveraging the European regulatory framework, such as the Data Act and the Data Governance Act, shifting towards open-source software, and protecting data as public goods, strengthen interoperability and data sovereignty, aiming to achieve digital independence and counter the dominance of big-tech companies. Cutting-edge technologies, such as blockchain, IoT, and big data analytics, act as accelerators for improved planning and policy-making, while increasing transparency, inclusiveness, and the efficiency of public administration. At the same time, AI can automate time-consuming administrative processes and extract valuable insights from public sector data, contributing to the development of targeted policies and legislation. Furthermore, the advancement of digital platforms allows for broader participation in decision-making through collaborative tools and virtual meetings. The establishment of Communities of Practice (CoPs) and the adoption of models of co-creation, co-production, and co-evaluation of policies with citizen participation strengthen innovation and the democratic design of digital policies.

At the international level, Greece's participation in initiatives such as the Open Government Partnership (OGP) contributes to the improvement of legislation and digital governance. The development of 'AI Giga-Factories' within the EU framework offers a significant opportunity for Greece to act as an accelerator for startups and to spread AI capabilities throughout the domestic business ecosystem. Finally, strengthening the cooperation between public and private sectors can provide further boost for the implementation of innovative digital projects.

4. PROPOSED POLICY OPTIONS

4.1. Policies for Democratic Digital Governance

The transition towards secure and socially just digital governance requires a coherent framework of change that extends beyond technological shifts, necessitating coordination between ethical principles, technical requirements, and legal compliance (Stasinopoulos, 2025). This framework comprises three pillars: institutional modernisation, technological upgrading, and strengthening of human capital to empower governance, safeguard security, and foster independence. It is essential to develop transparent and inclusive digital governance that incorporates local and regional strategies to address real needs, while, at the same time,

providing incentives for small and medium-sized enterprises to adopt new technologies that will act as a lever for productivity and competitiveness.

Democratic procedures must reside at the core of policy design, avoiding horizontal planning and prioritizing public consultation through existing platforms, such as OpenGov. Furthermore, the focus must remain on the social dimension and the human factor, ensuring that technology is integrated into policies that reduce inequalities and expand rights, rather than transposing existing exclusions into the digital environment (Demertzis *et al.*, 2025). To this end, for instance, access to high-speed digital connectivity should be universal, even in remote areas.

The organisation of co-creation and co-evaluation workshops on relevant public policies is proposed, involving diverse population groups from the design phase so as to ensure that digital policies are inclusive and gain broader social acceptance. This can be achieved within the framework of CoPs—collaborative networks acting as 'idea incubators'—facilitating cooperation between competent bodies, transforming scattered knowledge into applicable, fair digital policies, and formulating evidence-based policy proposals for the State (Deligiannis *et al.*, 2025). Within the public sector, the formation of multidisciplinary policy-design teams is recommended, focusing on the user and aligning with current digital policies. Regarding policymaking and legislation, it is essential to integrate the digital dimension so that new legislation is digitally compatible and 'digitally ready' by design. For this purpose, the 'Law as Code' approach may be utilised where appropriate, guided by the 'digital by design' principle (Spiliopoulou, Mitropoulou and Deligiannis, 2025).

The use of emerging technologies, such as the Internet of Things (IoT) and AI, by public administration is recommended to focus on critical sectors such as the environment, transportation, health, education, and civil protection. Their regulation is imperative to ensure the protection of privacy and the avoidance of discrimination and inequalities, as well as to mitigate the risks of disinformation, manipulation, the undermining of democratic processes, data breaches, and decision-making without the possibility of human intervention. Specifically regarding AI, a comprehensive set of measures is required, such as specialised trainers, the enhancement of digital literacy, lifelong learning, transparency in its use, and the validation of its outputs.

4.2. Policies for Digital Security and Transparency

At the heart of these reforms must be a coherent data policy that ensures quality, security, and ease of access through the national portal, while encouraging the development of digital services. The implementation of interoperability standards will eliminate 'silos' and facilitate the smooth exchange of data and the compatibility between agency systems. Furthermore, the adoption of the 'Once-Only' principle will allow citizens to submit information just once, enabling the state to circulate these data internally with security and respect for personal data

(General Data Protection Regulation-GDPR). The adoption of the European Data Catalogue vocabulary Application Profile (DCAT-AP) standard and the creation of a metadata guide are essential steps towards system interoperability, the upgrading of public services, and the reduction of bureaucracy.

The publication of data by public bodies should be made mandatory, accompanied by clear timelines. Public entities holding high-value datasets must implement the relevant regulation, while it is imperative that all government acts and decisions be posted on the DIAVGEIA portal to be legally binding, fostering transparency and public oversight. The protection of personal data must be ensured through Data Protection Impact Assessments (DPIAs), in accordance with GDPR requirements, so that risks are prevented rather than addressed ex-post.

The utilisation of big data should be conducted with careful attention to representativeness, in order to mitigate bias during the training of AI models and to optimise policy decisions. The development of Open API applications and the use of cloud technologies with open interconnection protocols will facilitate the secure exchange of information between agencies. At the same time, the upgrading of unified digital registries will contribute to data transparency and reliability, simplification of procedures, and improved coordination across the public sector.

Training public servants on open data, metadata, and the culture of openness and security is deemed imperative. Adherence to the FAIR (Findability, Accessibility, Interoperability, Reusability) principles and the principles of Open Government Data, such as machine readability, timely availability, licensing, and ease of access constitutes the guarantee for a digital transformation that serves the public interest.

4.3. Policies for National Digital Independence

In addition, a multi-level approach that combines national policies with international cooperation to regulate the concentration of power among multinational digital technology corporations—using European and international tools and creating open and accessible digital infrastructures—will contribute to achieving digital independence. This independence must extend from software and data to data centers, infrastructure, and energy, thereby protecting the country from the 'techno-feudalism' of major multinationals, and preventing political decision-making from being influenced by digital oligopolistic lobbies (Papaevangelou and Siapera, 2025). Public-private partnerships can play a key role in reaching this goal.

Security and resilience are the core pillars of these changes, serving as a horizontal priority that permeates all the aforementioned actions. The integrity of documents can be ensured through the implementation of blockchain technology, while protection against threats can be strengthened by unified security standards. Cybersecurity policies must be robust, given the management of large data volumes and increased digitisation. They should not be addressed in a fragmented manner, but as an inviolable prerequisite for every digital application, with risk

assessment provisions at all stages—from the design phase to the conduct of regular audits and with immediate response to serious incidents. In conclusion, through this holistic and participatory approach, Greece can build a digital future that will be at the same time advanced, secure and democratic.

5. CONCLUSIONS

Effective and secure digital governance is a critical pillar for strengthening technological independence and resilience. Despite Greece's positive strides in digital governance, through platforms such as gov.gr and the Mitos registry, multiple challenges have been identified in the field of digital governance and cybersecurity, related to both the institutional maturity and the operational readiness of state mechanisms. The identified problems—institutional gaps, fragmented security mechanisms, dependence on external technology providers, and limited adoption of open technologies—point to the need for far-reaching reforms that will strengthen the country's operational security and digital sovereignty.

The proposed solutions form a multi-level framework for action at the institutional, technological, and organisational levels, focusing on strengthening cybersecurity, adopting open-source technologies, the education of citizens and public officials, and the safeguarding of digital independence. Through these measures, the country can achieve a more mature, secure, and democratically grounded digital governance system, capable of responding to the challenges of the new digital era. Moreover, targeted policy interventions to foster technological specialisation and innovation can strengthen Greece's role in the global semiconductor ecosystem (Karampekios *et al.*, 2026).

Synergies between economic, social, and digital policy and the adoption of a comprehensive (co-design) approach to legislation are required, so that every law is accompanied by an internationally defined (EU, UN, OECD) digital strategy to regulate the centralisation of multinational digital technology companies. Furthermore, the development of a data policy to encourage the growth of digital services and the implementation of a robust digital security policy should be a prerequisite for all digital applications. Last, the protection of personal data as well as data interoperability should be ensured through impact assessment procedures.

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DIGITAL LITERACY AND GENDERED EDUCATIONAL INEQUALITY: INCLUSION OF GIRLS WITH SPECIAL NEEDS IN RURAL KENYAN SCHOOLS

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Abstract

Despite Kenya's substantial investments in digital education through the Digital Literacy Programme (DLP), the Competency-Based Curriculum (CBC), and inclusive education policies, limited research has examined how these initiatives promote equitable digital inclusion for girls with special needs in rural primary schools. In Kilifi County, poverty, inadequate educational infrastructure, and limited institutional capacity intersect with gender and disability to create persistent barriers to digital participation. Understanding these intersecting inequalities is essential for advancing equitable digital education. Guided by the Intersectional Digital Capability Framework (IDCF), which integrates intersectionality, the capability approach, and governance theory, this study examines how structural inequalities, institutional capability, governance processes, and capability expansion interact to shape digital literacy among girls with special needs in rural Kenyan primary schools. Specifically, the study identifies barriers that constrain digital literacy development and examines the institutional and community practices that support inclusive digital participation. A qualitative case study design was employed. Data were collected through semi-structured interviews with teachers, headteachers, parents, and girls with special needs, complemented by classroom observations and document analysis. Thematic analysis revealed that digital exclusion extends beyond limited technological infrastructure to include inadequate assistive technologies, insufficient teacher preparation in inclusive digital pedagogy, weak institutional support, inconsistent implementation of inclusive education policies, gendered participation patterns, and socio-economic constraints that restrict learners' opportunities to engage effectively with digital technologies. The findings demonstrate that meaningful digital inclusion cannot be achieved through technological provision alone. Rather, it depends on the interaction of inclusive governance, institutional capability, accessible technologies, and pedagogical practices that expand learners' capabilities and educational opportunities. By developing and applying the Intersectional Digital Capability Framework (IDCF), this study offers a novel conceptual framework together with contextually grounded empirical evidence that advances scholarship on digital inclusion, inclusive education, and educational policy, with implications for Kenya and other resource-constrained settings across the Global South.

Keywords: digital literacy; girls with disabilities; inclusive education; intersectional digital capability framework; educational governance; Kenya.

1. INTRODUCTION

Digital technologies are transforming education systems worldwide by reshaping how learners access knowledge, acquire competencies, and participate in contemporary society. Governments, international development agencies, and education stakeholders increasingly view digital education as central to improving educational quality, expanding learning opportunities, and achieving the aspirations of the United Nations Sustainable Development Goals, particularly Sustainable Development Goal 4 (SDG 4), which calls for inclusive and equitable quality education for all. Yet, despite substantial investments in educational technology, meaningful participation in digital learning remains unevenly distributed. Emerging evidence demonstrates that digital inequalities extend beyond disparities in access to devices and internet connectivity to encompass the broader social, institutional, and economic conditions that shape learners' ability to benefit from digital education (European Agency for Special Needs and Inclusive Education, 2024; Helsper, 2012; Robinson et al., 2015; van Dijk, 2020).

Among those most affected by these inequalities are girls with disabilities living in rural communities across the Global South. Although digital technologies have considerable potential to enhance educational participation through flexible learning opportunities and assistive technologies, their benefits remain inaccessible for many learners experiencing multiple and intersecting forms of disadvantage. Gender norms, disability-related stigma, poverty, and geographic isolation frequently interact to limit access to digital resources, reduce participation in technology-enabled learning, and constrain educational achievement. Consequently, digital education initiatives that prioritize technological provision without strengthening institutional capacity and inclusive pedagogy risk reinforcing, rather than reducing, existing educational inequalities (Alper & Goggin, 2017; Mtebe & Raisamo, 2014).

Kenya has demonstrated a strong commitment to digital transformation through initiatives such as the Digital Literacy Programme (DLP), the Competency-Based Curriculum (CBC), and national policies promoting inclusive education (Kenya Institute of Curriculum Development, 2017; Ministry of Education, 2019). Collectively, these reforms position digital literacy as a foundational competency for participation in a knowledge-based society while seeking to ensure equitable educational opportunities for all learners. Nevertheless, significant disparities persist between policy aspirations and educational practice. Evidence indicates that learners with disabilities continue to encounter substantial barriers arising from inadequate assistive technologies, limited teacher preparedness in inclusive digital pedagogy, insufficient institutional support, and uneven implementation of inclusive education policies (Mwangi et al., 2024; UNESCO, 2020). These challenges suggest that digital inclusion is fundamentally an issue of educational governance, institutional capacity, and social justice, rather than technology alone.

These challenges are particularly pronounced in rural contexts such as Kilifi County on Kenya's coast. Characterized by relatively high poverty levels, inadequate educational infrastructure, unreliable electricity, limited digital connectivity, and shortages of specialized educational resources, Kilifi provides an important setting for examining how national digital education reforms are experienced locally. Within this environment, girls with special needs experience multiple and overlapping forms of marginalization arising from the interaction of gender, disability, socio-economic disadvantage, and rurality. These intersecting inequalities influence not only access to digital technologies but also learners' confidence, participation, and opportunities to benefit from digitally mediated learning.

Although an expanding body of literature has examined digital literacy, inclusive education, gender inequality, and disability, these issues have largely been investigated independently. Comparatively little research has explored how structural inequalities, institutional capability, governance processes, and learners' capabilities interact to shape digital inclusion among girls with special needs in rural primary schools. As a result, existing scholarship provides only partial explanations of why digital exclusion persists despite increasing investment in educational technologies. This gap highlights the need for an integrated analytical perspective capable of explaining how multiple dimensions of inequality combine to influence meaningful participation in digital education.

To address this gap, the present study investigates digital literacy and the inclusion of girls with special needs in rural public primary schools in Kilifi County, Kenya. Specifically, the study seeks to: (i) identify the barriers that constrain digital literacy development among girls with special needs; and (ii) examine the institutional and community practices that support meaningful digital inclusion. Guided by the Intersectional Digital Capability Framework (IDCF), the study examines how structural inequalities, institutional capability, governance processes, and capability expansion interact to shape meaningful digital participation within the implementation of Kenya's Competency-Based Curriculum (CBC).

The paper argues that meaningful digital inclusion cannot be understood solely as a question of technological access. Rather, it emerges through the interaction of structural inequalities, inclusive governance, institutional capability, accessible technologies, and pedagogical practices that enable learners to convert digital resources into meaningful educational opportunities. By proposing the Intersectional Digital Capability Framework (IDCF) and applying it to rural Kenyan primary schools, this study contributes a novel conceptual framework together with contextually grounded empirical evidence that advances scholarship on digital inclusion, inclusive education, educational policy, and digital equity in Sub-Saharan Africa and other resource-constrained settings.

2. LITERATURE REVIEW AND THEORETICAL FOUNDATIONS

Digital technologies have become central to educational transformation worldwide, with governments increasingly investing in digital infrastructure, connectivity, and technology-enhanced learning to improve educational quality and equity. International policy frameworks emphasize digital literacy as a critical competency for participation in knowledge societies, labour markets, and democratic citizenship (UNESCO, 2018). Consequently, digital education has become an important component of efforts to achieve equitable and inclusive quality education under Sustainable Development Goal 4 (SDG 4).

Early scholarship on the digital divide primarily conceptualized digital inequality as disparities in physical access to computers, internet connectivity, and other technological resources. While this perspective highlighted significant infrastructural inequalities between countries and regions, subsequent research has demonstrated that access alone does not ensure meaningful participation in digital learning. Contemporary digital divide scholarship argues that digital inequalities are multidimensional, encompassing disparities in digital skills, patterns of technology use, institutional support, and the capacity to convert technological resources into meaningful educational outcomes. Consequently, digital inclusion increasingly depends not only on the availability of digital technologies but also on the broader social, institutional, and pedagogical environments within which they are embedded.

The capability approach provides an important extension to this debate by shifting attention from the possession of digital resources to learners' substantive freedoms to use those resources in ways that enhance learning and well-being. From this perspective, meaningful digital inclusion requires enabling conditions—including supportive institutions, skilled teachers, accessible technologies, and inclusive learning environments—that allow learners to transform digital resources into valued educational achievements. This perspective is particularly relevant in low-resource settings where access to digital devices may coexist with limited opportunities for meaningful educational participation.

Recent international evidence further suggests that educational investments in digital technologies produce unequal outcomes when institutional capacity fails to keep pace with technological expansion. Schools may possess computers, internet connectivity, or digital platforms, yet these resources remain underutilized because of inadequate teacher preparation, limited technical support, weak maintenance systems, or insufficient pedagogical integration. These findings indicate that digital transformation should be understood not simply as technological modernization but as an institutional process requiring coordinated investments in infrastructure, human capacity, and governance.

A second debate concerns whether digital transformation should be understood primarily as a technological innovation or as a broader issue of

educational justice. Much contemporary policy discourse assumes that expanding access to digital technologies will automatically reduce educational inequalities. However, growing evidence suggests that technology may reproduce existing inequalities when implemented within unequal educational systems.

Educational justice perspectives argue that digital inclusion cannot be separated from broader questions of equity, participation, and human development. Technology is not inherently inclusive; rather, its educational value depends on how it is designed, distributed, and integrated into teaching and learning. Learners who already experience social disadvantage frequently encounter additional barriers to benefiting from digital innovations because educational inequalities shape opportunities to acquire digital competencies, access supportive learning environments, and participate confidently in technology-mediated education.

Within the Global South, structural inequalities associated with poverty, rurality, inadequate educational financing, and uneven institutional capacity continue to shape digital participation. These challenges are particularly evident in many Sub-Saharan African countries where investments in digital infrastructure coexist with persistent disparities in electricity supply, internet connectivity, teacher preparation, and educational resources. Consequently, digital transformation initiatives frequently produce uneven benefits across schools and communities.

In Kenya, national initiatives such as the Digital Literacy Programme and the Competency-Based Curriculum reflect strong governmental commitment to integrating digital technologies into education. Nevertheless, empirical studies indicate that significant disparities remain between policy aspirations and implementation realities. In many rural schools, infrastructural limitations, inadequate digital resources, insufficient teacher preparation, and limited institutional support continue to constrain meaningful digital participation. These findings reinforce the argument that digital transformation should be viewed as an educational justice issue requiring equitable distribution of resources, institutional strengthening, and sustained investment in inclusive teaching practices.

Inclusive education has become a widely accepted international principle emphasizing the right of all learners to participate meaningfully in quality education regardless of disability, gender, or other characteristics. International conventions and national education policies increasingly promote inclusive schooling through curriculum adaptation, teacher preparation, and accessible learning environments (Republic of Kenya, 2009; UNESCO, 2020). Digital technologies have similarly been recognized as offering significant opportunities to enhance participation through adaptive learning systems, assistive technologies, and flexible modes of instruction (European Agency for Special Needs and Inclusive Education, 2024; Manase, 2024; Navas-Bonilla et al., 2025).

Despite these policy commitments, research consistently demonstrates that inclusion remains unevenly implemented. Learners with disabilities continue to

experience barriers associated with inaccessible infrastructure, inadequate assistive technologies, insufficient teacher preparation, and limited institutional support. These challenges are particularly pronounced in resource-constrained educational settings where schools frequently lack specialized equipment and trained personnel capable of supporting diverse learner needs.

However, disability alone does not fully explain patterns of educational exclusion. Intersectionality provides a more comprehensive analytical perspective by recognizing that multiple dimensions of identity and inequality interact to shape educational experiences. Rather than viewing gender, disability, poverty, or geographic location as independent variables, intersectionality emphasizes their mutually reinforcing nature (Collins, 2000; Crenshaw, 1989).

For girls with disabilities living in rural communities, educational exclusion emerges through the interaction of gender norms, disability-related stigma, socio-economic disadvantage, and limited educational opportunities. These overlapping inequalities influence access to digital technologies, opportunities for skill development, classroom participation, and future educational trajectories. Consequently, interventions focusing exclusively on disability or gender may overlook the cumulative disadvantages experienced by learners positioned at the intersection of multiple forms of marginalization.

Within the Kenyan context, relatively few studies have examined digital literacy through an explicitly intersectional lens. Existing research has often explored gender disparities in ICT, disability inclusion, or rural educational disadvantage independently. Less attention has been devoted to understanding how these dimensions interact within digital learning environments, particularly among girls with special educational needs in rural primary schools. Addressing this gap is essential for developing more comprehensive and contextually responsive approaches to digital inclusion.

A fourth debate concerns the relationship between educational policy and implementation. Across many countries, governments have adopted ambitious digital education strategies designed to improve learning outcomes, strengthen digital competencies, and promote educational inclusion. Nevertheless, successful implementation depends not only on policy design but also on institutional capacity, coordination, financing, and accountability.

Governance scholars argue that educational reforms frequently encounter implementation gaps because policies operate within complex institutional environments characterized by multiple actors, competing priorities, and uneven administrative capacity. Effective implementation therefore requires coordinated action among governments, schools, communities, teacher education institutions, and development partners. Without such coordination, policy commitments often fail to translate into meaningful improvements in classroom practice.

Within digital education, governance challenges frequently include fragmented institutional responsibilities, inadequate funding, weak monitoring

systems, insufficient professional development, and limited mechanisms for ensuring equitable resource allocation. These governance deficits disproportionately affect marginalized learners whose educational participation depends upon sustained institutional support.

The Kenyan experience reflects many of these broader governance challenges. Although national policies strongly emphasize digital literacy and inclusive education, implementation varies considerably across regions and schools. Rural counties frequently experience greater constraints associated with infrastructure, teacher deployment, resource allocation, and institutional support, limiting the realization of policy objectives. Evidence from Kilifi County similarly indicates that the effectiveness of digital literacy initiatives is shaped not only by technological availability but also by institutional coordination, teacher preparedness, community engagement, and local implementation capacity.

Understanding digital inclusion therefore requires moving beyond questions of technology to examine how governance structures influence educational opportunities. Institutional capability, policy coherence, and effective implementation emerge as critical determinants of whether digital transformation contributes to greater educational equity or reproduces existing inequalities.

The reviewed literature demonstrates broad agreement that meaningful digital inclusion extends beyond access to technological infrastructure to encompass institutional capacity, inclusive pedagogy, governance processes, and learners' opportunities to participate effectively in digital education. Nevertheless, several important gaps remain.

First, much of the existing literature continues to conceptualize digital inclusion primarily in terms of access to digital technologies, with comparatively limited attention to learners' capabilities to convert these resources into meaningful educational participation and learning outcomes. Second, although gender, disability, poverty, and rural disadvantage have each received considerable scholarly attention, these dimensions are frequently examined in isolation despite growing recognition that they interact to produce complex and mutually reinforcing forms of educational exclusion. Third, relatively little research has explored how governance processes, institutional capability, and policy implementation collectively influence digital inclusion within rural primary schools in resource-constrained settings. Finally, empirical evidence focusing specifically on girls with special needs in rural Kenya remains limited despite increasing national investment in digital education and inclusive schooling.

These gaps suggest the need for a more comprehensive analytical framework capable of explaining how structural inequalities, institutional capability, governance processes, and learners' capabilities interact to shape meaningful digital participation. Existing theoretical perspectives provide valuable but partial explanations. Intersectionality illuminates the ways in which overlapping social

identities generate compounded disadvantage; the capability approach explains how individuals convert available resources into valued educational outcomes; and governance theory highlights the institutional and policy conditions that determine whether educational reforms are implemented effectively and equitably. However, these perspectives have rarely been integrated within studies of digital inclusion in rural educational contexts.

To address this limitation, this study develops the Intersectional Digital Capability Framework (IDCF), which synthesizes intersectionality, the capability approach, and governance theory into a unified analytical framework. The IDCF explains how structural inequalities, institutional capability, governance processes, and capability expansion interact to influence meaningful digital inclusion among girls with special needs in rural primary schools. By moving beyond access-oriented explanations, the framework provides a more comprehensive understanding of digital participation and offers a conceptual foundation for strengthening inclusive digital education policy and practice.

Using the IDCF to examine rural primary schools in Kilifi County, this study contributes both theoretical and empirical insights to international scholarship on digital literacy, inclusive education, educational governance, and digital equity. The findings further provide evidence to inform the implementation of Kenya's Competency-Based Curriculum and Digital Literacy Programme while offering lessons applicable to other resource-constrained settings across Sub-Saharan Africa and the broader Global South.

3. THEORETICAL AND CONCEPTUAL FRAMEWORK

This study is guided by an integrated theoretical perspective that combines intersectionality, the capability approach, and governance theory to explain digital inclusion among girls with disabilities in rural Kenyan primary schools. While each perspective offers valuable insights into educational inequality, none independently provides a sufficiently comprehensive explanation of how structural disadvantage, institutional capacity, governance systems, and individual opportunities interact to shape meaningful participation in digital learning. Building on the complementary strengths of these perspectives, the study develops the Intersectional Digital Capability Framework (IDCF) as an analytical framework for examining digital literacy and inclusion within resource-constrained educational contexts.

Intersectionality, first articulated by Crenshaw (1989), explains how multiple and overlapping social identities—including gender, disability, socio-economic status, and geographic location—interact to produce distinct experiences of marginalization. Rather than viewing these dimensions in isolation, intersectionality recognizes that educational inequalities emerge through interconnected systems of power and discrimination that reinforce one another.

Collins (2000) further argues that inequalities are embedded within broader social and institutional structures that shape access to opportunities, resources, and participation. Within educational settings, girls with disabilities often experience exclusion not simply because they are female or because they have disabilities, but because these identities intersect with poverty, rurality, and institutional disadvantage to create cumulative barriers to educational participation.

Applied to digital education, intersectionality provides an important lens for understanding why access to digital technologies remains unequally distributed and why seemingly universal digital initiatives frequently produce unequal outcomes across different groups of learners.

The capability approach, developed by Sen (1999) and further expanded by Nussbaum (2000), shifts attention from the mere provision of resources to individuals' substantive freedoms to achieve outcomes they value. From this perspective, educational success depends not only on whether learners possess digital devices or internet connectivity, but also on whether they have genuine opportunities to convert these resources into meaningful learning experiences.

Applied to digital literacy, the capability approach distinguishes among:

- **Digital resources** (devices, connectivity, and assistive technologies);
- **Conversion factors** (teacher competence, accessibility, family support, and institutional capacity); and
- **Capabilities** (learners' real opportunities to participate meaningfully in digital learning).

This distinction is particularly important in rural educational settings, where technological resources may be available but remain underutilized because institutional, pedagogical, and social conditions constrain their effective use.

While intersectionality explains structural inequalities and the capability approach emphasizes learners' opportunities to transform resources into valued outcomes, governance theory focuses on the institutional conditions that determine whether educational policies are effectively implemented. Educational reforms frequently fail to achieve their intended outcomes because of weak institutional coordination, inadequate financing, fragmented implementation, and limited accountability.

Within digital education, governance therefore shapes the extent to which national commitments to digital literacy and inclusive education are translated into meaningful classroom practice. Institutional capability, teacher preparation, resource allocation, policy coordination, monitoring, and stakeholder collaboration become critical determinants of equitable digital participation and sustainable educational inclusion.

Although intersectionality, the capability approach, and governance theory each provide valuable insights into digital inclusion, they are rarely integrated within studies of digital inclusion in rural African education systems. Existing research has largely examined structural inequalities, learners' capabilities, or

governance processes independently, resulting in only partial explanations of why digital exclusion persists despite increasing investment in educational technologies.

To address this theoretical gap, this study develops the Intersectional Digital Capability Framework (IDCF). The framework integrates the complementary strengths of intersectionality, the capability approach, and governance theory to explain how structural inequalities, institutional capability, governance processes, and learners' substantive freedoms interact to shape meaningful digital participation and inclusion.

The IDCF comprises four interrelated dimensions. First, structural inequalities—including gender, disability, poverty, and rural location—shape learners' initial opportunities for digital participation. Second, institutional capability—including teacher preparedness, inclusive pedagogy, assistive technologies, school leadership, and digital resources—determines the extent to which schools can support inclusive digital learning. Third, governance processes—including policy implementation, institutional coordination, funding, accountability, monitoring, and stakeholder participation—influence the sustainability, effectiveness, and equity of digital education initiatives. Finally, capability expansion reflects learners' ability to convert digital opportunities into meaningful educational participation, improved learning outcomes, empowerment, and broader life opportunities.

Rather than conceptualizing digital inclusion as simply providing access to technology, the IDCF views meaningful digital participation and inclusion as the outcome of dynamic interactions among these four dimensions. The framework extends conventional digital divide perspectives by demonstrating that equitable digital education depends not only on technological access, but also on institutional capability, effective governance, and the expansion of learners' capabilities within their broader social and educational contexts.

Figure 1 presents the Intersectional Digital Capability Framework (IDCF), illustrating the relationships among the four dimensions and their collective contribution to meaningful digital participation and inclusion among girls with disabilities in rural Kenyan primary schools.

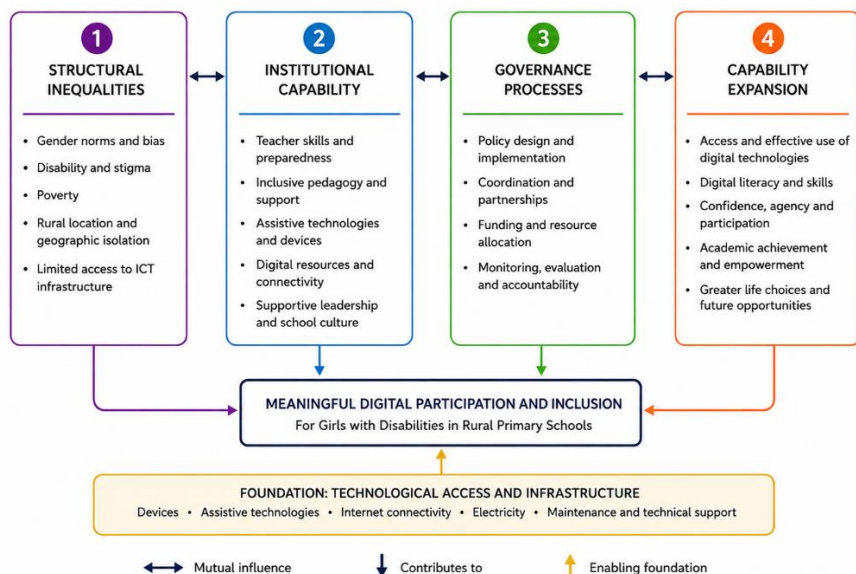


Figure 1. The Intersectional Digital Capability Framework (IDCF)

Source: Developed by the author (2026)

Figure 1 illustrates the relationships among the four dimensions of the Intersectional Digital Capability Framework (IDCF) and their collective contribution to meaningful digital participation and inclusion among girls with disabilities in rural Kenyan primary schools. The framework demonstrates how structural inequalities, institutional capability, governance processes, and capability expansion interact dynamically rather than functioning independently. Technological access and infrastructure provide the enabling foundation upon which these dimensions operate, while contextual and intersectional factors influence each stage of capability development. Collectively, the framework emphasizes that equitable digital inclusion is achieved not merely through access to technology, but through coordinated institutional support, effective governance, and the expansion of learners' substantive freedoms to participate fully in digital learning.

The IDCF provides the conceptual foundation for the empirical analysis undertaken in this study. It informs the identification of the study variables, guides data collection and analysis, and serves as the analytical lens for interpreting how structural, institutional, governance, and capability-related factors shape digital literacy and inclusion among girls with disabilities in rural Kenyan primary schools.

The Intersectional Digital Capability Framework (IDCF) is situated within Kenya's evolving policy landscape, which places increasing emphasis on inclusive education, digital transformation, and equitable learning opportunities.

The Competency-Based Curriculum (CBC) promotes learner-centred pedagogy, inclusion, and digital literacy as a core competency essential for preparing learners for the demands of the twenty-first century. Complementing this, the Digital Literacy Programme (DLP) seeks to expand equitable access to digital technologies in public primary schools, while the Special Needs Education Policy Framework advocates for the inclusion of learners with disabilities within mainstream education through appropriate support services, assistive technologies, and inclusive teaching practices.

Despite these progressive policy commitments, significant implementation challenges continue to limit meaningful digital participation among learners with disabilities, particularly in rural schools. These challenges include inadequate digital infrastructure, limited availability of assistive technologies, insufficient teacher preparation for inclusive digital pedagogy, weak institutional coordination, inconsistent policy implementation, and inequitable resource allocation. Consequently, many learners remain unable to benefit fully from national digital education initiatives.

These implementation gaps reinforce the central proposition of the Intersectional Digital Capability Framework (IDCF): meaningful digital inclusion cannot be achieved through the provision of technology alone. Rather, it requires the interaction of supportive governance, strong institutional capability, equitable resource allocation, and the expansion of learners' capabilities within inclusive educational environments. The Kenyan policy context therefore provides an appropriate setting for examining how structural, institutional, governance, and capability-related factors collectively influence digital literacy and inclusion among girls with disabilities in rural primary schools.

4. METHODOLOGY

A qualitative case study design was adopted to explore how digital literacy initiatives are experienced by girls with special needs in public primary schools in rural Kilifi County, Kenya. The design enabled an in-depth examination of the interaction between structural inequalities, institutional practices, and learners' opportunities for meaningful digital participation within their real educational contexts.

Participants comprised girls with visual, hearing, and mild cognitive impairments, together with classroom teachers, headteachers, and parents. This range of participants provided multiple perspectives on the institutional, socio-cultural, and household factors influencing digital inclusion.

Data were collected through semi-structured interviews, classroom observations, and document analysis to facilitate methodological triangulation and strengthen the credibility of the findings. Data were analysed using thematic analysis, guided by the integrated theoretical framework comprising intersectionality, the capability approach, and governance theory. The analysis focused on identifying how intersecting forms of disadvantage, institutional

capacity, and governance processes influenced learners' ability to access, participate in, and benefit from digital learning opportunities.

Ethical approval was obtained from the relevant authorities, and informed consent was secured from all participants prior to data collection.

5. FINDINGS

The findings demonstrate that digital inclusion among girls with special needs is shaped by the interaction of structural inequalities, institutional capability, and governance factors, consistent with the proposed Intersectional Digital Capability Framework (IDCF).

Although most participating schools had received digital devices through Kenya's Digital Literacy Programme, limited availability of assistive technologies substantially constrained meaningful participation by learners with disabilities. Digital content was rarely adapted for learners with visual, hearing, or cognitive impairments, indicating that access to technology alone is insufficient to achieve genuine digital inclusion.

Institutional capability emerged as a major determinant of learners' digital experiences. Many teachers reported inadequate preparation in inclusive digital pedagogy and expressed limited confidence in adapting digital technologies to accommodate diverse learning needs. As one teacher explained:

"I want to help, but I am not sure how to modify the software for children with hearing difficulties."

Classroom observations further revealed the influence of intersecting gender and disability inequalities. Boys frequently dominated the use of digital devices, while girls with disabilities participated less actively and demonstrated lower confidence when engaging with technology. One learner reflected:

"I want to use the computer, but I feel shy because the boys always take the keyboard first."

The findings also highlighted the influence of broader socio-economic and governance constraints. Inadequate electricity supply, limited internet connectivity, insufficient funding for assistive technologies, and the absence of digital devices in many households reduced opportunities for learners to develop digital skills beyond the classroom. These institutional and contextual limitations weakened the effectiveness of national digital education policies at the school level.

Despite these challenges, several schools demonstrated promising inclusive practices. Teachers who employed peer-support approaches, differentiated instruction, simplified digital tasks, and adaptive teaching strategies created more supportive learning environments that enhanced participation among girls with special needs. These findings suggest that meaningful digital inclusion depends not only on technological provision but also on strengthening institutional capability, inclusive governance, and learners' opportunities to convert digital resources into valued educational outcomes.

6. DISCUSSION, IMPLICATIONS, AND CONCLUSION

The findings demonstrate that digital exclusion among girls with special needs in rural Kilifi County is multidimensional and reflects the interaction of structural inequalities, institutional capability, and governance processes, consistent with the proposed Intersectional Digital Capability Framework (IDCF). They reinforce growing evidence that digital inequalities are socially embedded and often reproduce existing forms of marginalization when educational technologies are introduced without adequate attention to contextual barriers (van Dijk, 2020; Warschauer, 2004). Similar findings from Kilifi County indicate that although schools have benefited from Kenya's Digital Literacy Programme, learners with disabilities continue to experience exclusion due to inadequate assistive technologies, limited teacher preparedness, and weak institutional support for inclusive digital learning (Mwangi et al., 2024).

From an intersectionality perspective, the study illustrates how gender, disability, poverty, and rural location interact to create multiple and overlapping forms of disadvantage that restrict meaningful participation in digital education. These intersecting inequalities influence not only learners' access to technology but also their confidence, participation, and educational experiences within digitally enabled classrooms.

The findings further demonstrate the importance of institutional capability. Teacher preparedness, inclusive pedagogical practices, school leadership, and the availability of assistive technologies emerged as critical determinants of whether digital resources could be translated into meaningful learning opportunities. These findings suggest that technological investment alone cannot achieve equitable digital inclusion unless educational institutions possess the capacity to implement inclusive teaching and learning practices effectively.

The capability perspective provides additional insight by explaining that digital technologies constitute resources whose educational value depends on learners' ability to convert them into meaningful capabilities and learning outcomes. This conversion process is shaped by multiple factors, including teacher competence, accessible technologies, supportive learning environments, family resources, and positive social attitudes toward disability. Where these conversion factors are weak, the provision of digital devices may inadvertently reinforce rather than reduce educational inequalities.

Governance processes also emerged as an important enabling dimension. Although Kenya's Competency-Based Curriculum (CBC), the Digital Literacy Programme, and the Special Needs Education Policy Framework collectively demonstrate a strong national commitment to inclusive digital education, gaps in implementation, coordination, financing, accountability, and institutional monitoring continue to constrain equitable outcomes. These findings underscore that meaningful digital inclusion depends not only on policy formulation but also

on effective governance mechanisms that ensure policies are implemented consistently across diverse educational contexts.

The study therefore has important policy implications. Advancing inclusive digital literacy requires strengthening teacher preparation in inclusive ICT pedagogy, expanding investment in assistive technologies and accessible digital content, enhancing institutional capacity within schools, embedding gender-responsive and disability-inclusive approaches throughout CBC implementation, improving monitoring and accountability systems, and promoting community awareness to reduce disability-related stigma. Such integrated interventions would strengthen learners' capabilities while ensuring that national digital education reforms benefit all learners equitably.

In conclusion, Kenya's commitment to digital transformation provides an important foundation for educational inclusion. However, the findings demonstrate that meaningful digital inclusion cannot be achieved through technological provision alone. Rather, it requires the interaction of inclusive governance, institutional capability, and the expansion of learners' capabilities within supportive educational environments. By integrating these dimensions, the Intersectional Digital Capability Framework (IDCF) offers a comprehensive explanation of digital inclusion and provides a practical framework for guiding future research, policy development, and implementation aimed at ensuring that digital education reforms translate into equitable learning opportunities for girls with special needs and other marginalized learners.

7. RESEARCH CONTRIBUTIONS

This study makes several important theoretical, empirical, and policy contributions. First, it advances the literature by developing the Intersectional Digital Capability Framework (IDCF), which integrates intersectionality, the capability approach, and governance theory to provide a comprehensive explanation of digital inclusion among girls with special needs in rural educational settings. Second, the study demonstrates that digital inclusion is shaped by the interaction of structural inequalities, institutional capability, governance processes, and learners' capabilities, extending existing research that has typically examined these dimensions independently. Third, it provides empirical evidence that the provision of digital technologies alone is insufficient to achieve equitable learning outcomes. Instead, meaningful digital inclusion requires well-prepared teachers, accessible technologies, inclusive pedagogical practices, effective school leadership, supportive governance structures, and adequate institutional resources. Fourth, the study identifies practical strategies—including peer-supported learning, differentiated instruction, adaptive teaching practices, and inclusive school environments—that can strengthen digital participation among girls with special needs. Finally, by developing and applying the Intersectional Digital Capability Framework (IDCF), the study offers a novel theoretical lens

and evidence-based policy insights for designing inclusive digital education initiatives within Kenya's Competency-Based Curriculum and similar educational contexts.

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FROM WORK–LIFE BALANCE TO INTEGRATION: SHIFTING PERCEPTIONS IN HIGH-TECH

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Abstract

This paper examines the shift from talk of “work–life balance” to the everyday practice of work–life integration in high-tech, using Israeli firms closely coupled to United States time zones as a critical case. Drawing on nineteen semi-structured interviews with engineers, product leaders, recruiters, and executives, the study synthesizes classic lenses of conflict/enrichment, boundary fit, and demands–resources with current organizational realities such as hybrid work and return-to-office policies. The analysis identifies a practical core to integration: temporal equity. Outcomes depend less on total hours and more on four conditions operating together: usable schedule, control, boundary fit between preferences and team routines, contained connectivity load so evenings do not become “shadow stand-ups,” and credit decoupled from live presence through artifacts (recorded demos, written kudos, sponsor-of-record practices). Interviews show how Israeli–U.S. coordination creates a recurrent “time-zone tax,” how mental load extends beyond leave into daily logistics, and how simple routines protected family bands with written exceptions, mirrored ceremonies across time zones, rota audits for late hours reduce friction without slowing delivery. Men’s planned co-ownership of care appears as a small but notable cultural shift. The paper contributes a clear, practice-oriented lens on integration and a lightweight measurement sketch for teams to make time costs visible. Managing when work happens and how recognition is earned, rather than only where work occurs, enables the same total hours to sustain careers without taxing family life.

Keywords: work–life integration; work–life balance; women in tech; hybrid work; temporal equity.

JEL Classification: J16; J22; J28; M12; O33.

1. INTRODUCTION

This paper examines the shift from talk of “work–life balance” to the everyday practice of work–life integration in high-tech. Balance language treated work and family as competing spheres and focused on managing clashes. Integration treats time, attention, and coordination as design variables, and asks when work happens, who controls that timing, and who pays the family cost. Classic models of conflict and enrichment explain why demands and resources

spill across roles, while boundary and border perspectives highlight the importance of fit between preferred and enacted boundaries. Job Demands–Resources and Conservation of Resources frameworks clarify why autonomy and recovery matter once connectivity blurs the edges of the day. Together, these ideas motivate a move from slogans to routines.

The empirical setting is Israeli high-tech, a sector that combines strong family centrality with close alignment to United States time zones. Evening meetings, early-morning calls, and push-channel chatter after hours are common. At the same time, firms have adopted hybrid arrangements and, in some cases, tighter return-to-office rules. These cross-pressures make the setting useful for understanding how integration succeeds or fails in practice. The question is not only whether people work long hours, but whether timing is predictable and shared fairly, whether schedule control is usable without penalty, and whether recognition depends on being live and visible at night.

The study draws on nineteen semi-structured interviews with professionals in Israeli high-tech, spanning engineering, product, recruiting, people operations, and executive roles. Interviews were conducted and translated with participant identifiers masked. We analyze how people describe hours and availability, time-zone burdens, mental load at home, boundary preferences and friction, communication norms, and the routines that make hybrid work durable. The goal is to surface concrete practices rather than abstract preferences.

Three research questions guide the paper. First, how have perceptions shifted from balance to integration in the lived experience of high-tech workers, and what does integration look like on a normal week. Second, which mechanisms best explain better outcomes in hybrid arrangements, with attention to boundary fit, schedule control, connectivity load, and how credit is assigned. Third, how do team and company choices interact with national or cultural context, especially in work tied to United States hours.

The main argument is that integration succeeds when time and credit are managed deliberately. At the individual level, people need visible and usable schedule control, along with partner planning and simple guardrails. At the team level, cadence must be predictable and fair, especially where time-zone overlap is required. At the organizational level, recognition needs to be attached to artifacts and outcomes so that live evening presence is not the currency of advancement. When these conditions are in place at the same time, the same total hours produce less conflict and more sustainable participation.

This paper contributes in three ways. Conceptually, it offers a temporal equity lens that unites boundary fit, schedule control, connectivity load, and credit design in a single frame. Empirically, it documents how workers describe a chronological arc within single careers, from assumed separation, through ideal-worker norms and perk-saturated presence, into pandemic disruption and current integration. Practically, it specifies low-cost routines that teams can adopt:

protected family bands with written exceptions, mirrored ceremonies across time zones, rotation and audit of late-hour burdens, and default use of recorded demos and written kudos so that visibility is not tied to the clock. A brief measurement sketch is also proposed, a lightweight set of indicators that teams can compute from existing tools in order to make time costs visible and discussable.

The rest of the paper proceeds as follows. The literature review situates the move from balance to integration and identifies the mechanisms most relevant to time and recognition. The findings present verbatim accounts that show how hours, time-zone work, mental load, boundaries, communication, and recognition play out in daily routines. The discussion integrates theory, current organizational trends, and the interview evidence, and outlines a multifaceted intervention at individual, cultural, and organizational levels. The conclusion summarizes the implications and points to simple measures that can support better decisions about when work happens and how credit is assigned.

2. THEORETICAL FRAMEWORK

We frame work–life integration through boundary and resource lenses and translate them into a practical focus on temporal equity, who controls time, how team routines fit people’s preferences, how much connectivity load exists, and whether recognition depends on live presence. Boundary and border theories explain how people prefer to separate or blend roles and how mismatch creates friction (Ashforth, Kreiner and Fugate, 2000; Clark, 2000), while a person-centered view shows distinct boundary profiles with different needs for control (Kossek et al., 2012). The Job Demands–Resources model predicts that usable autonomy and recovery buffer cognitive and coordination demands (Bakker and Demerouti, 2007), and Conservation of Resources theory explains why continual connectivity and unpredictability can drain resources (Hobfoll, 1989). Evidence on telework and mobile email clarifies the mechanism: flexibility helps when paired with real control, but “always-on” tools can recreate pressure and extend the workday (Allen, Golden and Shockley, 2015; Barley, Meyerson and Grodal, 2011; Mazmanian, Orlikowski and Yates, 2013). At the team level, temporal structuring shows that groups “make” time through routines; predictable cadence and required downtime reduce overload without slowing delivery (Orlikowski and Yates, 2002; Perlow and Porter, 2009). Cultural expectations also matter: ideal-worker norms embed availability as a signal of commitment (Acker, 1990), and role-congruity theory helps explain penalties when evaluation uses presence as a cue for leadership potential (Eagly and Karau, 2002). We use these strands together to justify focusing on schedule control, boundary fit, connectivity load, and credit design; where needed, we contrast advice with advocacy using a single sponsorship anchor (Ibarra, Carter and Silva, 2010) while keeping the primary lens on time and recognition rather than networks.

3. LITERATURE REVIEW

Research traces a long move from assumed separation of work and family to today's focus on integration. Early work showed how the "ideal worker" is built into organizational routines always available, disembodied from care, and judged by presence (Acker, 1990). Classic theories map the mechanisms behind strain and value. Conflict work identifies time-, strain-, and behavior-based clashes between roles (Greenhaus and Beutell, 1985), while enrichment shows how resources can also flow across roles when conditions support them (Greenhaus and Powell, 2006). Border and boundary perspectives explain how people draw lines between domains and how permeability and flexibility shape fit; when team cadence clashes with personal preferences, friction rises (Clark, 2000; Ashforth, Kreiner and Fugate, 2000). These strands ground a shift from slogans to the design of time.

From the 1990s onward, studies linked commitment to long hours and constant availability. Ethnography captured a "time famine," where responsiveness after hours became normal and interruptions fragmented the day (Perlow, 1999). This pattern was not only about individual time management but about organizational designs that reward availability signals (Acker, 1990). Evaluation research adds that such signals can bias judgments of leadership potential: role congruity theory shows how cues that equate visibility with agency can disadvantage some groups (Eagly and Karau, 2002). Together, these findings explain why reducing hours alone rarely fixes the problem if the currency of recognition remains a live presence.

In the 2010s, telework spread, but effects depended on design and climate. A major review finds that remote work can lower conflict when paired with autonomy, supportive supervision, and clarity on expectations; without these, benefits fade (Allen, Golden and Shockley, 2015). Boundary research shows people differ in preferred profiles some segment tightly, others integrate but all need usable control to make arrangements work (Kossek, Ruderman, Braddy and Hannum, 2012). When organizational routines ignore these profiles, employees face continual boundary crossing, with higher strain and lower satisfaction (Ashforth, Kreiner and Fugate, 2000; Clark, 2000).

Mobile tools then introduced an "autonomy paradox." E-mail and chat promised flexibility but extended work temporally and socially, creating expectations of rapid response and turning communication into a symbol of commitment (Barley, Meyerson and Grodal, 2011). Professionals internalized "always-on" norms that undercut recovery despite formal flexibility (Mazmanian, Orlikowski and Yates, 2013). Two complementary theories explain the costs. The Job Demands–Resources model predicts higher strain when coordination load and interruptions rise without matching resources like control and recovery (Bakker and Demerouti, 2007). Conservation of Resources theory warns of loss spirals when demands repeatedly drain time and attention with little chance to rebuild

them (Hobfoll, 1989). These lenses shift attention from where work happens to when it happens and how predictable it is.

Evidence on solutions points to cadence and collective rules, not slogans. Temporal structuring research shows that teams “make” time through routinized shared rhythms, ceremony timing, and agreed handoffs (Orlikowski and Yates, 2002). Interventions that make time off predictable reduce overload without hurting performance because they reset group expectations, not just individual habits (Perlow and Porter, 2009). In practice, this means visible protected bands, mirrored ceremonies for different time zones, and rota fairness for awkward hours so the same people do not absorb the burden week after week.

A policy lens reaches similar conclusions. Comparative reviews document both the gains and the risks of widespread telework, including digital fatigue and after-hours encroachment, and point to “right-to-disconnect” safeguards as a complement to team practice (Eurofound, 2023). The implication is that teams benefit from two layers of protection: local routines that shape daily cadence and basic institutional rules that protect non-work time.

Recent studies also inform current return-to-office debates. A large randomized trial shows that two days a week of work from home reduces quits by about one-third with no performance loss, suggesting moderate hybrid can be a retention lever when designed well (Bloom, Han and Liang, 2024). This does not by itself settle the question of where work should occur; rather, it supports a focus on cadence, predictability, and fairness. Mandates that ignore boundary fit and usable control risk reproducing presence premiums without solving coordination problems (Allen, Golden and Shockley, 2015).

Recognition practices are a missing but critical piece. When evaluation relies on live presence and informal access, people who cannot join late-evening discussions can lose visibility. Evidence distinguishes advice from advocacy: sponsors broker opportunities, name contributors, and share risk at decision points (Ibarra, Carter and Silva, 2010). Linking recognition to artifacts—recorded demos, written kudos, authorship norms—allows asynchronous contribution to count and reduces reliance on being “in the room.” Related research also warns that flexible options can backfire under availability norms, creating a “flexibility stigma” unless leaders redesign how contribution is seen (Leslie, Manchester, Park and Mehng, 2012).

Taken together, the literature supports a practical lens on work–life integration that centers temporal equity. Four conditions matter at the same time: schedule control that people can use without penalty; boundary fit between preferences and team routines; a contained connectivity load so push channels do not become “shadow stand-ups”; and recognition tied to artifacts and outcomes rather than live presence (Bakker and Demerouti, 2007; Hobfoll, 1989; Orlikowski and Yates, 2002; Perlow and Porter, 2009; Allen, Golden and Shockley, 2015). Under these conditions, the same total hours can produce less conflict and more sustainable participation; without them, time-zone coordination

and “always-on” tools recreate the very pressures that balance rhetoric aimed to solve (Greenhaus and Beutell, 1985; Greenhaus and Powell, 2006; Eurofound, 2023; Bloom, Han and Liang, 2024).

4. METHODOLOGY

We used a qualitative, interpretivist design to study work–life integration in Israeli high-tech. Using purposive and snowball sampling, we recruited 19 participants engineers, product leads, recruiters/people ops, and executives who coordinate with U.S. time zones and have hybrid/RTO experience. Semi-structured interviews (~60 minutes, in person or video) focused on weekly cadence, overlapping windows and rota for late hours, after-hours messaging, schedule control, and how credit is shown (recorded demos, written kudos, authorship). With consent, we recorded interviews, translated Hebrew to English with a bilingual check, anonymized transcripts, and stored files securely.

We analysed transcripts thematically. We read closely, wrote short memos, marked recurring ideas, and grouped them around a “temporal equity” lens schedule control, boundary fit, connectivity load, and credit decoupled from live presence. We compared patterns across roles and noted counter-examples (e.g., heavy U.S. overlap with low evening load). A second researcher reviewed a sample to challenge our readings. The lead author works in Israeli high-tech and is a parent; to limit bias we sought disconfirming cases and kept claims at the mechanism level rather than firm-specific advice. Findings support analytic, not statistical, generalization.

5. FINDINGS

Long hours and omnipresent availability still frame the baseline of working life. Several participants describe an “ideal worker” residue that does not vanish even when people embrace demanding roles or senior responsibility. One puts it plainly: “I work a lot of hours.” [P07] Another reflects on the limits that parenthood imposed on speed and stamina: “I personally felt that after becoming a mother, I couldn’t keep up, I had to make trade-offs... I wasn’t willing to sacrifice family time for work.” [P01] The message that emerges across accounts is not simply that hours are high, but that the timing of those hours, and who pays the timing cost at home, matters most.

The Israeli-U.S. time-zone gap repeatedly compresses family time into the evenings and pulls people into very early mornings. One participant recalls “working late nights constantly” because two of the team were in California and the manager was in the United States, so priorities were U.S.-based [P04]. The same interview notes the daily trade-off: “I had to sacrifice my afternoons and evenings just to stay aligned with work...I lost my entire evening and family time, staying online late to align with U.S. teams. It wasn’t sustainable.” [P04] Others describe redesigning their day to absorb the overlap more cleanly: “Now, I shift

my schedule later to overlap with the US, but I still have mornings with my family.” [P16] In some teams, managers formalized the cadence: “I scheduled management meetings from 17:00 to 20:00 because the U.S. team is available.” [P19] Where such decisions were explicit and shared, the time-zone tax became visible and therefore governable.

Beyond leave or formal policies, many speak about the mental load, the constant to-do list in one’s head, and the everyday logistics that make or break family life. “When you become a parent, your life becomes a series of choices.” [P02] As one interviewee puts it, the cultural script raises the bar on both fronts: “Even if a woman truly wants to advance, Israeli culture highly values both family life and extreme professional ambition... There’s immense pressure to succeed in both.” [P02] Everyday spaces reflect this split: “When women are at the playground with their kids, they talk about daycare, babysitters, and after-school activities... They are networking, and we are not.” [P08] Coping often means operational help and deliberate trade-offs. “People always ask how I ‘manage.’ I always say, ‘I don’t.’ There are a lot of balls in the air... I try to control which ones drop.” [P15]

Outcomes hinge on boundary fit, the match between how people prefer to manage roles and how their team actually works. Several narratives trace a move from burnout to more deliberate guardrails: “Work-life balance is important to me, I once burned out after working at a startup. I took a six-month break... Now, I try to set boundaries: avoiding late-night work... blocking out personal time in my calendar... not overloading myself.” [P06] Leaders who signal room for discretion help align preferences with practice: “I allow flexibility for my team, I don’t set strict rules about remote work.” [P16] Where people could see and trust those boundaries, friction fell even when total hours remained high.

The shape of successful integration is less about generic flexibility and more about schedule control, visible and predictable choices about when work happens. Some participants describe explicit swaps that protect family time without lowering delivery: “I’m home in the evenings... I bathe [the kids]... and then I get back to my work later in the evening if necessary.” [P18] Others emphasize that partnership is a practical enabler: “It’s incredibly difficult to climb while raising kids unless you have a supportive partner.” [P01] Together with calendar blocks and predictable overlaps, these patterns turn abstract balance into concrete daily design.

Connectivity can quietly recreate the presence premium if not managed. One interviewee sketches a communications environment where push channels become the real meeting: “We communicated through pings and almost never used email.” [P10] Another offers the implicit rule of advancement in such cultures: “Be present in leadership discussions, in social interactions, in high-stakes meetings.” [P19] Without counterweights, evening quick syncs and real-time visibility stand in for impact. The teams that avoided this drift tended to

anchor credit to artifacts and plan for asynchronous participation rather than rewarding whoever could be online at 22:00.

That shift toward credit without “always on” runs through multiple accounts. One participant advises, “Document your successes... prove your value, and ask for what you deserve.” [P02] Another ties visibility to written evidence and proactive application: “First, tailor your resume to the job and don’t be afraid to apply...” [P09] Even late-stage career conversations show how emotional and uneven these moments can be: “Even as a manager... salary discussions were highly emotional. I’ve seen women cry during salary negotiations.” [P11] Documented impact, routine kudos in writing, and clear criteria help de-link recognition from live presence.

Men’s co-ownership of care appears in scheduled routines rather than ad hoc help. One father explains, “I’m home in the evenings... I make it a priority to be with my kids... then I get back to my work later in the evening if necessary.” [P18] A parallel observation from another interview captures the prevailing pattern: “Men generally sacrifice their afternoons and then make it home for bedtime and the kids’ nighttime routine.” [P04] When such norms are named and accepted on teams, evening caregiving stops being an exception that needs apology and becomes part of how the team plans time.

Finally, career design moves, stepping back, switching tracks, or pacing across life stages, feature prominently. One participant describes a decisive reset: “I recently decided to step down from my VP role... I recently asked to leave my role... and just transition, but as an individual contributor rather than in a management role.” [P04] Others recount pauses that preserved sustainability and growth: “I once burned out... I took a six-month break.” [P06] “About six months ago, I... stepped back from being CEO, I needed to handle something personal.” [P12] Even abrupt setbacks became turning points: “When I returned from maternity leave... I was called in for a termination meeting... I told myself, I’ll reinvent myself. I want to be independent.” [P10] Across these accounts, integration arrives not as a single policy but as a bundle of temporal practices, guardrails, swaps, predictable overlaps, and credit practices that let people meet global coordination demands without paying for visibility with family time. Where those practices are absent or informal, the time-zone tax and presence premium resurface. Where they are explicit and shared, people report less friction and more durable careers.

6. DISCUSSION

This study reframes the move from work–life balance to integration as a problem of temporal equity: not only how much people work, but when, with what control, and at what family cost. Classic conflict and enrichment lenses explain why integration can both reduce friction and create value (Greenhaus and Beutell, 1985; Greenhaus and Powell, 2006). Boundary and border theories highlight the

importance of fit between preferred and enacted boundaries (Ashforth, Kreiner and Fugate, 2000; Clark, 2000). The Job Demands–Resources model predicts that usable autonomy and recovery buffer the cognitive and coordination demands of hybrid work (Bakker and Demerouti, 2007), and Conservation of Resources theory explains exhaustion when continual connectivity erodes recovery (Hobfoll, 1989). Our interviews show how these mechanisms play out, and how simple routines convert flexibility into predictable cadence rather than “always on.”

Individual factors

Participants’ practices show that schedule craftsmanship matters more than a generic promise of flexibility. Several describe the pull of the ideal-worker norm (“I work a lot of hours” [P07]) and the need for guardrails after burnout ([P06]). People adopt micro-moves JD–R would frame as adding resources against demands, outsourcing logistics, protecting family windows, and planning with partners ([P01], [P15]). Autonomy must be usable at the individual level to avoid COR loss spirals.

Cultural currents

The Israeli context couples strong family centrality with high professional ambition, raising stakes on both sides ([P02], [P08]). These dynamics echo analyses of how ideal-worker assumptions are gendered (Acker, 1990). Men’s planned co-ownership of care ([P18]) signals a gradual shift in what “good work” looks like at home and at work.

Organizational structures

When work happens it is a design choice. Temporal structuring research shows teams “make” time via routines (Orlikowski and Yates, 2002). “The Israel–U.S. overlap is the sharpest stressor: late-evening overlap was common and unsustainable for some” ([P04]). Predictable overlap and rota fairness share the burden ([P16], [P19]). Evidence aligns with the mixed verdict on telework: autonomy helps, but coordination costs and connectivity load rise unless rules change (Allen, Golden and Shockley, 2015; Barley, Meyerson and Grodal, 2011; Mazmanian, Orlikowski and Yates, 2013). Communication norms are pivotal: without guardrails, evening channels become “shadow stand-ups,” the kind of risk flagged in right-to-disconnect reviews (Eurofound, 2023). When teams decouple credit from live presence, recorded demos, written kudos, sponsor-of-record rotations visibility no longer depends on being online at 22:00, consistent with enrichment logic.

Multifaceted intervention

A cross-level package works better than a single policy. At the individual level, teach schedule craftsmanship (visible calendar blocks, day-part swaps, explicit partner planning). At the cultural level, sponsor alternative networks and normalize co-ownership so evening caregiving is standard, not exceptional. At the organizational level, redesign cadence: mirrored ceremonies across time zones, rota audits for late hours, protected family bands with written exceptions, and async credit by default. To sustain this, operationalize a lightweight Temporal Equity Index from existing tools after-hours displacement, usable schedule control, rota fairness, and async share and publish it in retros alongside delivery metrics. This follows JD–R and COR: reduce avoidable demands, increase usable resources, and protect recovery.

Contributions and implications.

Conceptually, we extend integration with a temporal-equity lens that unites boundary fit, schedule control, connectivity load, and credit design. Empirically, we show how people have lived the arc from assumed separation and ideal-worker peak to pandemic shock and current integration within single careers. Practically, we specify low-cost routines any hybrid team can adopt and a simple measurement approach that makes time costs auditable.

7. CONCLUSION

This paper traced a move from talk of “work–life balance” to practices of work–life integration in high-tech. Classic theories help explain the shift: conflict and enrichment clarify why demands and resources cross role boundaries; boundary and border theories foreground fit; Job Demands–Resources and Conservation of Resources explain why autonomy and recovery matter when connectivity is constant. Against that backdrop, the interviews show what actually changed on the ground: hours remain high, but the pressure point is when work happens, who controls that timing, and who bears the family cost.

The core insight is a temporal equity lens. Integration succeeds when four conditions are in place at the same time: people have schedule control they can use without penalty; there is boundary fit between preferences and team routines; connectivity load is contained so evenings do not become “shadow stand-ups”; and credit is decoupled from live presence through artifacts like recorded demos and written kudos. Where these conditions hold, teams meet global coordination needs without taxing family life; where any one is missing, the time-zone burden and a presence premium reappear.

The interviews also surface how integration now looks in practice. Israeli–U.S. alignment pushes work into evenings or early mornings, yet predictable overlap windows and rotation of awkward hours make the burden visible and shareable. The mental load is long-running and operational, managed through outsourcing,

calendar blocks and explicit trade-offs rather than slogans. Some fathers describe planned co-ownership of care with time-shifting later work, signaling a quiet cultural shift. Finally, people use career design moves, temporary step-backs, track switches, or seasonality to sustain participation without derailing growth.

Conceptually, the contribution is to recast integration as governing time and recognition, not just space. Empirically, the study documents how workers have lived multiple regimes, assumed separation, ideal-worker peak, the “golden cage,” balance pushback, pandemic shock, and integration within single careers. Practically, it points to low-cost routines any team can adopt: explicit protected bands, mirrored ceremonies across time zones, rota audits for late hours, and default async credit mechanisms.

The study is limited to Israeli high-tech and relies on self-reported experience; transferability to other sectors and countries should be tested. Future work should operationalize and validate simple temporal equity measures (after-hours load, usable schedule control, rota fairness, share of async recognition) against outcomes such as retention, promotion and well-being, and examine how different return-to-office designs interact with team cadence and boundary fit over time.

In short, the path from balance to integration is practical rather than rhetorical. When time and credit are managed deliberately, the same total hours generate less conflict and more durable careers.

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THE ECONOMIC IMPACTS OF THE BELT AND ROAD INITIATIVE: A LITERATURE REVIEW

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Abstract

Since its inception in 2013, the Belt and Road Initiative (BRI) has generated a growing body of research on its far-reaching implications. This paper reviews and critically examines the literature on the BRI's economic and trade impacts and their underlying mechanisms. The review identifies three principal channels: Chinese foreign direct investment, infrastructure connectivity, and integration into global value chains. Most theoretical and empirical studies associate the BRI with economic growth and increased trade in participating countries, although the magnitude and distribution of these benefits vary across regions according to institutional quality, policy settings, cultural context, and local economic conditions. The literature also raises continuing concerns about debt sustainability and the environmental risks of large-scale infrastructure projects. Overall, the evidence indicates that the BRI creates substantial economic opportunities, but its longer-term outcomes depend on complementary policies, local absorptive capacity, and effective risk management.

Keywords: Belt and Road Initiative; literature review; international trade; global economy; sustainable development.

JEL Classification: F13, F18, F53, F60.

1. INTRODUCTION

In September and October 2013, Chinese President Xi Jinping proposed the Silk Road Economic Belt and the 21st-Century Maritime Silk Road, which were later collectively referred to as the Belt and Road Initiative (BRI). Since its launch, the BRI has attracted widespread international attention and gradually developed into one of the most influential platforms for global economic cooperation.

Initially focused on countries located along the historical Silk Road routes, the initiative has expanded far beyond its original geographical scope. Today, its cooperation network encompasses not only Asia and Europe but also many countries and regions in Africa, the Americas, Oceania, and other parts of the world. As participation has continued to broaden, the BRI has evolved into an important framework for promoting international economic collaboration and regional connectivity. Through this initiative, China seeks to promote economic

growth and strengthen international partnerships, while participating countries generally regard the BRI as an opportunity to enhance connectivity, attract investment, and foster sustainable economic development (Papatheologou, 2019).

Practical evidence indicates that the BRI has significantly contributed to the expansion of international trade and investment flows. For example, trade in goods between China and BRI-participating countries increased from approximately USD 1.9 trillion in 2018 to USD 2.8 trillion in 2023, with further growth to USD 3.0 trillion in 2024. In addition, China's outward investment and construction activities in BRI economies have also expanded, with non-financial direct investment reaching USD 33.7 billion and the value of newly signed project contracts exceeding USD 232.5 billion in 2024. These developments suggest that the BRI has become an important driver of global economic integration.

After more than a decade of implementation, the BRI has attracted extensive academic attention. Existing studies have examined its economic and political motivations, trade and investment effects, infrastructure development, and implications for global value chain restructuring. However, the literature remains fragmented across different thematic areas and methodologies.

Against this background, this paper presents a literature review of the economic impacts of the BRI over the past decade. In particular, it focuses on identifying the main transmission mechanisms, synthesizing empirical findings, and summarizing methodological approaches. The study further aims to highlight key research gaps and provide directions for future research on the economic consequences of the BRI.

2. ECONOMIC AND TRADE IMPACTS OF THE BRI

A substantial body of literature has examined the economic and trade effects of the BRI. The prevailing view is that the BRI has generated positive outcomes for participating economies by promoting trade expansion, economic growth, and regional integration (Xiao, Cheng and Wang, 2018; Menhas *et al.*, 2019). Through improvements in connectivity, reductions in trade costs, and enhanced market access, the initiative has facilitated deeper participation in international trade and global value chains. For China, the BRI has created new opportunities to expand export markets, alleviate industrial overcapacity, and strengthen economic ties with partner countries (Yu *et al.*, 2020). For participating economies, the initiative has contributed to trade facilitation, investment growth, and broader economic development (Ma and Liu, 2020).

Existing empirical studies generally support the positive relationship between the BRI and economic performance (Guo, Zhao and Zhang, 2021; Mahbub, 2021; Maharani and Rijal, 2022). Using Computable General Equilibrium (CGE) models, several studies find that the BRI is expected to increase global trade, real income, employment, and welfare. For example, Maliszewska and Van Der Mensbrugge (2019) estimate that the initiative could

raise global real income by 0.7% and increase global exports by 1.7% by 2030. Similar conclusions are reached by Bird *et al.* (2020) and Mukwaya and Mold (2018), who argue that the benefits of the BRI become more pronounced when accompanied by complementary trade agreements and policy coordination, as it can offset the adverse effects of trade uncertainty and magnify the gains from the separate policies (Jackson and Shepotylo, 2021). Chen *et al.* (2019) demonstrate that improved connectivity significantly promotes economic growth in BRI countries, while Luo *et al.* (2022) find that the initiative contributes to poverty reduction and income equality through increased trade and labor market participation.

However, existing studies do not always reach consistent conclusions regarding the distribution of benefits. A large proportion of the literature focuses on Asia, reflecting both the geographical concentration of BRI projects and the region's close economic ties with China (Imomnazar, 2018; Iqbal *et al.*, 2019). Studies covering Europe, Eurasia, and Africa also identify potential gains from the BRI in trade, infrastructure connectivity, and economic development, although the nature and magnitude of these benefits differ substantially across regions (Herrero and Xu, 2017; Mukwaya and Mold, 2018; Wang *et al.*, 2020; Jackson and Shepotylo, 2021). Regional heterogeneity is commonly associated with differences in institutional and policy conditions, infrastructure development, economic structures, and geographical location (Herrero and Xu, 2017; Wang *et al.*, 2020; Chen and Li, 2021). Such divergent findings suggest that the economic effects of the BRI are highly context-dependent and influenced by country-specific characteristics.

From a methodological perspective, Computable General Equilibrium (CGE) models and Difference-in-Differences (DID) approaches are commonly used to evaluate the economic impacts of the BRI (Zhai, 2018; Maliszewska and Van Der Mensbrugghe, 2019; Yang *et al.*, 2020; Guo *et al.*, 2021). CGE models are particularly suitable for ex-ante policy simulations, while DID models provide a useful framework for identifying causal effects. Nevertheless, both approaches have limitations. CGE analyses rely heavily on assumptions regarding economic structures and behavioral parameters, whereas DID estimates may be sensitive to policy timing and identification strategies. Furthermore, much of the existing literature focuses on establishing whether the BRI has positive economic effects, while relatively few studies attempt to precisely quantify the magnitude of these effects or explore their long-term sustainability.

Overall, the reviewed evidence indicates that the BRI has generally promoted economic growth and international trade, although the magnitude of these effects varies considerably across countries and regions.

3. KEY CHANNELS OF THE BRI'S ECONOMIC IMPACT

3.1. Chinese Foreign Direct Investment

Chinese foreign direct investment (CFDI) constitutes one of the most important channels through which the BRI influences the economic development of participating countries. As a key source of external capital, CFDI not only supplements domestic investment but also promotes employment creation, technology transfer, industrial upgrading, and productivity improvement in host economies (Xaysombath and Fei, 2021).

The existing literature generally agrees that CFDI exerts a positive impact on the economic performance of host countries. Empirical studies based on econometric models consistently find that Chinese investment contributes to GDP growth and economic development in BRI economies (Zhai, 2018; Yang *et al.*, 2020). Chinese investment generates benefits not only through direct capital inflows but also through broader improvements in economic fundamentals (Haiyue and Manzoor, 2020).

However, the effects of CFDI are not uniform across regions. A growing body of research documents substantial regional heterogeneity in investment efficiency and economic outcomes. Studies generally find that Southeast Asia benefits most from Chinese investment, followed by West Asia, North Africa, and Central Asia (Uctu and Şahbaz, 2025). Some studies report negative or insignificant investment efficiency in Central and Eastern Europe and Southern Europe (Chen and Li, 2021). These differences are often attributed to variations in geographical location, institutional quality, human capital endowments, domestic financial conditions, and absorptive capacity.

In addition to cross-regional analyses, several studies focus on specific countries and industries. For instance, Yuan and Tsigas (2017) use a GTAP-FDI model to evaluate the impact of Chinese investment in Kazakhstan's steel industry and conclude that lower capital costs resulting from the BRI enhance economic welfare. Country-level evidence from Laos similarly indicates that Chinese investment has contributed positively to economic growth and development (Xaysombath and Fei, 2021). These studies provide further support for the growth-enhancing role of CFDI while highlighting the importance of local economic conditions.

3.2. Infrastructure Connectivity

Infrastructure connectivity constitutes one of the core pillars of the BRI and has attracted extensive scholarly attention. Existing studies generally find that improvements in transportation, logistics, and communication infrastructure enhance regional connectivity, reduce cross-border transportation barriers, and facilitate the movement of goods, services, capital, and labor, thereby supporting trade and economic activity in participating countries (Herrero and Xu, 2017; Ramasamy *et al.*, 2017; Li *et al.*, 2020; Rehman and Noman, 2021).

Empirical evidence suggests that enhanced infrastructure connectivity reduces transportation costs, improves market accessibility, and strengthens economic linkages among BRI economies (De Soyres *et al.*, 2018). However, the magnitude of these benefits varies across regions. For example, Wang *et al.* (2020) demonstrate that transportation infrastructure generates significant positive spatial spillover effects in Central and Eastern Europe, whereas negative spillovers are observed in East Asia, Central Asia, and South Asia during the early stages of infrastructure development. These findings suggest that infrastructure investment may initially produce polarization effects before generating broader diffusion and integration benefits as networks mature.

The literature further identifies two major channels through which infrastructure connectivity promotes economic and trade development: trade-cost reduction and productivity enhancement (Hui *et al.*, 2021). De Soyres *et al.* (2020) argue that enhanced transportation networks strengthen countries' participation in global value chains (GVCs), improve resource allocation efficiency, and stimulate productivity growth. According to World Bank estimates, the full implementation of BRI transport projects could reduce trade costs among participating countries by approximately 3.5%, generating substantial gains in trade and economic welfare (Ruta *et al.*, 2019).

Despite these positive economic effects, the literature increasingly highlights concerns regarding the environmental and financial consequences of large-scale infrastructure projects (Aung and Fischer, 2020; Othman *et al.*, 2021). From an environmental perspective, scholars debate whether infrastructure development exacerbates ecological degradation through increased production and energy consumption or improves environmental quality through technological upgrading and stricter regulatory standards. Empirical findings remain inconclusive (Teo *et al.*, 2019). While Sattar *et al.* (2022) report that BRI-related infrastructure projects contribute to environmental deterioration, Cao, Teng and Zhang (2021) find evidence that the initiative promotes environmental improvement through innovation and enhanced environmental governance. Similarly, concerns have emerged regarding debt sustainability, particularly in developing countries that rely heavily on external financing to support large infrastructure investments. Existing research suggests that debt burdens may rise in the short and medium term as countries finance capital-intensive projects with long payback periods (Bandiera and Tsiropoulos, 2020).

Another important research stream concerns the relationship between infrastructure connectivity and Chinese foreign direct investment. Improvements in transportation and related infrastructure enhance market accessibility and reduce trade and operational costs, thereby creating more favorable conditions for Chinese outward investment. Infrastructure connectivity may therefore facilitate the expansion and spatial allocation of Chinese investment under the BRI framework (Ma and Liu, 2020; Chen and Li, 2021).

3.3. Global Value Chain Integration

A growing strand of literature examines the impact of the BRI on global value chain (GVC) integration. The prevailing view is that the BRI provides an important platform for deepening economic cooperation between developing and developed economies, thereby facilitating the participation of developing countries in global production networks (Jia *et al.*, 2018; Damoah *et al.*, 2019; Cieřlik, 2020; Wu, Hou and Xin, 2020). Through enhanced trade connectivity, industrial cooperation, and investment flows, the initiative has the potential to reshape value chain structures and improve the positioning of participating economies within the GVC system.

A substantial body of empirical research suggests that the BRI has generally contributed to deeper GVC participation by both China and partner countries (Wu, Hou and Xin, 2020). From China's perspective, outward direct investment under the BRI can promote industrial upgrading and strengthen China's position in global production networks. For host countries, Chinese investment may generate spillover effects through technology diffusion, demand expansion, and industrial development, thereby facilitating their movement toward higher-value-added activities within global value chains (Xiang and Jie, 2020).

Beyond overall GVC participation, the literature also explores related dimensions such as export sophistication, GVC positioning, and governance structures. Jigang (2020) highlights that international cooperation promotes GVC upgrading through industrial transfer, economies of scale, technological spillovers, and improved resource allocation. However, the effects are heterogeneous depending on countries' initial GVC positions. For economies with higher GVC status, intermediate goods trade plays a more important role in upgrading, whereas for lower-positioned economies, foreign direct investment is more influential. Xiang and Jie (2020) further emphasize that the so-called "Five Connectivity" framework, policy coordination, infrastructure connectivity, trade facilitation, financial integration, and people-to-people exchanges, serves as an important transmission mechanism through which the BRI reshapes global production networks.

4. DISCUSSION

The reviewed literature generally associates the BRI with increased trade, investment, infrastructure connectivity, and participation in global value chains. These effects are commonly explained through three closely related channels: Chinese foreign direct investment, infrastructure development, and global value chain integration. Rather than operating independently, these channels can be understood as complementary. Investment supports infrastructure and productive capacity, improved connectivity reduces trade and transaction costs, and stronger production linkages can create additional investment opportunities. Nevertheless, the relative importance of each channel varies across countries and periods.

This variation helps explain why the estimated effects of the BRI differ across countries. Countries vary in their domestic conditions and ability to absorb investment, use infrastructure efficiently, and convert improved connectivity into lasting economic gains. Positive average effects therefore do not imply that all participating countries benefit equally.

The literature also reveals a tension between economic gains and longer-term sustainability. Infrastructure investment can improve market access, reduce trade costs, and support productivity, but poorly evaluated or heavily financed projects may increase debt exposure and environmental pressure. Similarly, deeper participation in global value chains does not necessarily lead to movement toward higher-value-added activities. The durability of BRI-related benefits consequently depends on project quality, financing arrangements, regulatory safeguards, and the capacity of host countries to develop complementary domestic industries.

The findings reported in existing studies are also influenced by methodological choices. Computable general equilibrium models are useful for estimating the potential economy-wide effects of infrastructure and trade-cost changes, but their results depend on modelling assumptions and parameter selection. Difference-in-differences approaches can evaluate changes following BRI participation, although their validity depends on treatment timing, comparison-group selection, parallel trends, and the treatment of heterogeneous effects. Combining alternative methods, extending post-treatment periods, and reporting transparent robustness tests would provide more reliable estimates of the magnitude and persistence of BRI effects.

Several gaps remain in the literature. Existing research is dominated by country-level and macroeconomic analysis, while firm-, industry-, household-, and project-level evidence remains limited. Comparative studies examining whether BRI effects differ from those of other regional cooperation frameworks are also scarce. In addition, economic research has paid less attention to people-to-people connectivity and to interactions among digital development, environmental sustainability, energy cooperation, and social conditions. Addressing these gaps would provide a more comprehensive understanding of how, where, and under what conditions the BRI produces sustainable economic benefits.

5. CONCLUSION

Overall, the available evidence suggests that the BRI has created important opportunities for economic development by improving cross-border connectivity and strengthening economic cooperation. However, its benefits are uneven and should not be regarded as automatic. The long-term value of the initiative depends on whether participating countries can translate new investment and infrastructure into productive capacity, technological progress, and more competitive domestic industries. Effective project selection, transparent financing, appropriate

environmental safeguards, and policies suited to local conditions are therefore important for improving development outcomes and limiting potential risks. The BRI should consequently be understood as an enabling framework whose effects depend largely on implementation quality and the capacity of participating economies. Future research should use longer observation periods and more disaggregated data to examine firm-, industry-, and project-level effects. Further attention should also be given to digital connectivity, green development, social outcomes, and comparisons between the BRI and other international cooperation frameworks.

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